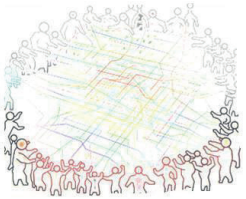
FIBRE AT A CROSSROADS PART I

An ICBAN Report on 'Infrastructure Solutions for High Speed Internet in the Central Border Region of Northern Ireland/Ireland'

Summary Report

Summary version of an 80-page Technical Report focusing on the progress made and steps needed to bring world-class connectivity to the Central Border Region



Principal Author
Mike Kiely, The Bit Commons, June 2016

Irish Central Border Area Network

1 FOREWORD BY ICBAN CHAIR, CLLR. SINÉAD MAGUIRE

This technical report into internet infrastructure solutions for the Central Border Region has as its ultimate goal the improvement of quality of life for all citizens of our Region. The aim is to encourage business and enterprise to foster jobs and prosperity intended to our local economies.

During this process we met many such individuals who had the ability and drive to grow our economy but were prevented from so doing through the inadequacy of the internet service they currently have. I have outlined a sample of these here:

- The hoteliers in the three Council areas who want to keep existing customers and attract new business to their beautiful areas
- The business in the foothills of the Sperrin Mountains in Mid Ulster who have the potential to grow their export markets and create new employment
- Large food producers in Armagh who want to develop their operations and introduce more efficiencies
- A Banbridge building contractor who needs to be able to submit tenders online and who would like to develop vacant buildings as a hub for cottage industries
- An IT Executive keen to reduce commuting time from Loughgall to perform similar tasks from home
- An international sales manager for a major hospitality business, who can't issue promotional materials or CAD based tenders from home in rural Banbridge without having to travel to a nearby town or city
- The insurance broker in Lisnaskea frustrated at not being able to adequately access a remote server to support many of their daily tasks
- Those with passions to see rural dwellers accessing the same online services as urban residents
- And those with the ambitions to develop Omagh as a 'Gigabit Town' through Project Kelvin.

These are common business challenges and frustrations in our Region, which arise from not being able to access and use the internet, by virtue of location alone. This is not forgetting the teachers whose interactive white boards can't operate to support curriculum content, the farm family

worried about submitting their returns online and on time, or University students less inclined to return home as much as they might like to because the home wifi doesn't meet their expanding demands.

This report by the Irish Central Border Area Network (ICBAN) Ltd. is an initiative to help address these challenges by focusing on technical infrastructure solutions. The document is referred to as Part 1, in that it focuses on the Northern Ireland Council areas of Armagh City, Banbridge and Craigavon, Fermanagh and Omagh, and Mid Ulster. Work is now commencing on a Part II of the report which will focus on the County Council areas within the Partnership of Cavan, Donegal, Leitrim, Monaghan and Sligo.

The need for internet connectivity improvements has been a priority for our cross-border partnership for some time. Within ICBAN's EU funded cross-border strategy, the 'Regional Strategic Framework for the Central Border Region' (RSF), the ambition was established for an 'Accessible and Connected Region', whereby all citizens would be able to avail of a high quality internet service (measured at 24Mbps). This report, 'Fibre at a Crossroads' draws on specialist technical expertise and provides pragmatic practical solutions. This is by nature a technical document and a Glossary of Terms is included as an Appendix.

The RSF also sets out our ambition for a Sustainable Region and it is the view of this Board that the key to that is to future-proof high quality internet access within the Region. Rural broadband is of course a highly emotive issue. In today's advancing world access to reliable telecommunications is becoming an essential part of everyday life. It is a common concern that the investment required in infrastructure and services will not be forthcoming for rural NI Council areas. The sparseness of the population together with the additional costs that rural living brings are competing with other market interests for a timely resolution. It is our belief that solutions must reach all communities in the identified Council areas, including not-spot areas. After all rural citizens have the same needs and rights to demand a service comparable to urban dwellers elsewhere on these islands and continent.

Tackling our internet infrastructure challenge tallies with ICBAN's record of delivering on ambitious, complex and strategic projects. There is no doubt that this is a challenging field but if we can continue to harness and apply the same drive and determination that we found from elected representatives, officials, businesses and citizens in the development of this report, then the delivery of these ambitions is achievable.

The report acknowledges that much has indeed already been achieved and those involved should be commended. We have fibre delivery and access across many parts of our Region. However, too many frustrations still exist and many citizens don't have a service that meets their needs and indeed many have no service yet at all. Efforts must therefore continue to work towards these ambitions and ensure that such digital isolation is adequately addressed and the job that has been started must be effectively advanced. ICBAN will play its part in this work but we would encourage all interested parties to bring their positive energies to bear.

Finally and on behalf of ICBAN I would like to record our thanks to all those who have contributed to this project, from all sectors, interests and walks of life. Your inputs, passions, positive contributions and support are all much appreciated.

COUNCILLOR SINÉAD MAGUIRE
ICBAN CHAIR – JUNE 2016

2. PURPOSE OF THE REPORT

The Bit Commons commend this report to ICBAN on the status of the solutions needed and the actions required to bring world-class connectivity to the Central Border Region of Ireland / Northern Ireland.

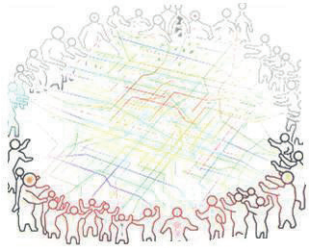
Due to the planned delivery of the National Broadband Plan in Ireland, the focus of this Paper is on the three Northern Ireland Council areas of the Central Border Region of Ireland / Northern Ireland: Armagh City, Banbridge and Craigavon; Fermanagh and Omagh; and Mid Ulster. This arises from the realisation that the current subsidised rural broadband programme will mean some 30% of all premises in the referenced NI Council study area will not be able to order a fixed line broadband service of more than 10Mbps. The concern is and has been that this would leave these areas at a significant competitive disadvantage with other areas of NI and indeed with the Border County areas of the Irish Republic, which are set to benefit from the ambitions of the Irish National Broadband Plan. It is also intended that the learning from this report will be of much value to the Irish County Councils of Cavan, Donegal, Leitrim, Monaghan and Sligo, as they continue to engage on the delivery of world-class connections in their respective areas. Opportunities for cross-border co-operation have also been identified. A copy of the Terms of Reference is included in Appendix 17.6 and a profile of the principle author in Appendix 17.7

This report outlines a strategy and plan from which ICBAN and its member Councils are able to develop and refine. Although some of the proposals are innovative, they are not controversial and are no more than restating an existing ambition for world-class connectivity. The key issues are the pace and vigor with which the ambition outlined is pursued. The findings of this report are there to support the fulfilment of that ambition.

The nature of the problem is old. The transition from the telegraph service to the telephone service had been resisted fiercely as the telegraph service was highly profitable and demand for a universal telephone service could not be foreseen a century ago. In 2016, the debate is a little more advanced and might appear more obvious but the issues are not dissimilar. Why should your computing and networking devices not get unrestricted access to the underlying data transport capabilities of optical fibre cable? Change is not easy, but the potential available for rejuvenating and integrating the rural economy is so great, that forcing such change is essential.

I wish to thank all those who have contributed to this report. I hope the report reflects the ambition and vigor of the people I met who want to develop their communities, and businesses keen to use their computing and networking devices unencumbered by poor or partial service. Finally, I hope the report is respectful of the progress made to date in rolling out network upgrades. It is only by fully appreciating the progress made to date that the ambition for a continued upgrade can be requested and acted upon.

MIKE KIELY, FOUNDER,
THE BIT COMMONS
– JUNE 2016



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4. SUMMARY OF RECOMMENDATIONS

There are two sets of recommendations: one set reflecting BT's dominant position in Northern Ireland's rural marketplace; the second are opportunities for Councils as owners of passive infrastructure to encourage competition and assist in accelerating the adoption of direct fibre access services.

4.1 BT RELATED

4.1.1 Restating the Vision

The original goals of best Broadband in Europe and the notion of a 'rural' broadband programme was lost in 2013. It occurred when BT withdrew Fibre to the Premise (FTTP), the Best in Europe ambition was mitigated to become slightly better than the French or Germans and 'rural' was lost from the title of the Broadband Delivery UK (BDUK) programme.

There is a need for Local and Regional leaders to reclaim and restate the vision and ambition, given FTTP as a product is being restored and nearly £1bn of the £1,7bn made available is still within the public procurement. This needs to be extracted and used to roll fibre out beyond the crossroads.

4.1.2 True up and reconciliation of costs and reinvestment of excess subsidy

The three contracts with BT in NI when completed amount to more than £50m of subsidies for some 1,800 fibre connected cabinets, approximately 500 of which are in the Central Border Region. There is an opportunity for excess subsidies from BT to be returned or reinvested under the state aid measure, for any cabinets funded in an urban area.

It is recommended that a 'true up' is requested for Northern Ireland (NI) and estimates for excess subsidies be made available for reinvestment.

4.1.3 Universal Service Obligation based on Fibre Services

The current consultation process run by Ofcom for a Universal Service Obligation for Broadband should be based on an ability to order a fibre based service.

It is recommended that the detail of such a product worked up during this project is used as the basis for a long-term strategy for the Region.

4.2 COMPETITION AND THE GIGABIT VISION

4.2.1 'Sons of Kelvin'

A proof of concept proposal to create a Gigabit town in Omagh is outlined in the proposal to exploit existing assets such as Project Kelvin, while securing world-class connectivity for the new Strule Education Campus in Omagh. Other towns in the Central Border Region could also follow the formula outlined.

It is recommended that Omagh Enterprise Company is charged with developing the proof of concept into a

business case, working with the local Fermanagh and Omagh District Council and ICBAN.

4.2.2 Councils as Owners of Passive Infrastructure

The report recommends that the A5/N2 key road project should be used by Councils to determine the case for Local Authorities to become an investor in passive infrastructure access (duct and cable), in exchange for a revenue share.

4.2.3 Securing 4G coverage for the Border Region

The report recommends that the fulfilment of the 4G coverage obligation by 2017 should include research in the border region by Ofcom. The specification of the research ought to be completed by DFE (Department for the Economy), working with the Local Authorities and ICBAN.

4.2.4 Rural Development Programme Opportunities

It will be necessary to align the delivery of Superfast Rollout Programme (SRP2) which is contracted at post code level, with any proposal to expend additional funds from the Rural Development Programme. The same logic applies to the Intervention Areas being considered under the National Broadband Plan in Ireland.

It is also recommended that Councils and Local Action Groups (LAGs) use an entity such as ICBAN to assist in helping plan fibre extensions within the postcodes specified in SRP2, so that USO solutions can be tried and tested, and to develop and help implement potential rural investment solutions such as the likes of those noted above.

Examples of potential interventions for the use of Rural Development Programme funding could include capital schemes and development opportunities such as:

- Capacity building for communities, rural businesses and local leaders on the values and uses of such technology
- Rural Community Broadband schemes
- Rural fibre rings
- Development of Social Innovation Hubs and broadcast centres using community facilities, amenities and focal points
- Creative Communities
- Measures to promote Digital Inclusion, etc.

5. INTRODUCTION

This report was commissioned by ICBAN in February 2016, working with the member Councils of Armagh City, Banbridge and Craigavon, Fermanagh and Omagh, and Mid-Ulster. It is hoped that on the other side of the Border that the ambitions of the National Broadband Plan for Ireland will help deliver world-class connectivity in the Council areas of Counties Donegal, Sligo, Leitrim, Cavan and Monaghan - the County Council areas also served by ICBAN as a cross-border partnership. The Management Board of ICBAN took the decision to help support similar ambitions in the Northern Ireland part of the Central Border Region, through focusing this report on scoping Infrastructure Solution to high speed internet connectivity.

The report was commissioned with two key aims in mind:

1. **To report on the gap in broadband service while making recommendations, using examples, to show what could be done to achieve world-class connectivity;**

2. **To inform policy making and decision-making at a time when 90% coverage targets are being declared and further work is being planned.**

The emerging gap in broadband services was stated at a time when central policy-makers were of the mind to declare the network upgrades finished, following the declaration that the 90% and 95% superfast targets were within reach and that anything left could be addressed with in-fill solutions of fixed wireless and satellite. This positioning is controversial.

This report comes at a time of change. The inquiry into Broadband by the Culture Media and Sport Select Committee at Westminster is examining what improvements can be gleaned from the existing program. Ofcom's focus in the Digital Communications Review is on the need for greater focus on Fibre to the Premises. It is also occurring when the Minister, Mr. Vaizey MP, has confirmed to the Committee that he expects BT to return more than £250m of the state aid provided so far. This is being reported alongside significant underspends in most UK County Council projects, suggesting deeper fibre coverage can be achieved if resources are kept in place and the required scrutiny on capital costs is maintained.

The roll out of fibre into rural areas is more controversial than it needs to be. The use by BT of commercial confidentiality agreements and significant public relations effort to portray 'investment' levels not supported in BT's published accounts, have contributed to the call by the UK Parliament on Ofcom to secure a greater separation of Openreach, BT's regulated access network division, from the rest of BT's operation. Such a call, given the years involved

in such a process, is not a substitute for the detailed scrutiny and publication of the BT capital contribution. Some of the £258m in BT's accounts now owed to the UK Government as excess subsidies ought to be spent in rural Northern Ireland.

The report does reference the gaps in service but it focuses primarily on the solutions, strategies and policies to fill these gaps in the current network upgrade. Specific examples will be used to illustrate the progress to date and the gaps that remain. Indicative costs of completing the rollout are also provided. The latter are there to be challenged and improved upon.

5.1 WHY 'FIBRE AT A CROSSROADS'?

The 'crossroads' is a very emotive term for any rural dweller. It is the point where you leave your townland or return to it. It represents both a physical boundary and a mental one. The crossroads is where you get a bus to the nearest town to access resources not available to you from your home. You go to the crossroads to get a bus to go to the library, go to school, or visit a doctor.

The appearance of new green cabinets at many rural crossroads in the last four years holds much promise and much frustration. They hold the promise that if you live within 1km of the green 'superfast' cabinet you will have access using the existing phone line to the same information and the same choice of services as if you lived in a Town or City. You should also be able to run a business, place an order, submit bids for work or engage with your clients online. For those living within 1Km of a cabinet/fibre path you have an equality of service and choice which matches those in urban areas. It is a great and comparatively cheap means of establishing an equality of access to services and equality of opportunity and access to global markets and knowledge.

The 'crossroads' in rural folklore is also where services stop. The bus stop, the post box, the shop, petrol pump and the public house mark for many the beginning of civilization, or indeed the end of it if you step away from the crossroads. This reports shows, when it comes to placing optical fibre on poles, that there is no reason to stop at the 'crossroads'; indeed there were many unreported examples identified during the completion of this report of BT going further in some very remote areas of Northern Ireland.

Finally, in the Fermanagh and Omagh District, of some 208 cabinets recorded on the Superfast Northern Ireland website, 41 are recorded as being at a crossroads. It is a great engineering achievement to bring bundles of fibre cable this far, but it is not a place to stop or to plan to stop, given the amount of public funding being clawed back and the number of premises being excluded from getting the upgrades expected.

5.2 THE FOCUS ON FIBRE TO THE PREMISE (FTTP)

One of the principle learnings from the BDUK programme is that overlaying through existing duct and poles and connecting to mass produced Chinese made hardware is significantly cheaper than originally predicted. While the absolute cost is still subject to debate, the BT evidence submitted to Parliament points at a cost of £26,000 per cabinet. The phase 1 cost of the BDUK project to some 4m homes passed will constitute some 20,000 cabinets where the Government has contributed over £600m pounds from a total budget available of £1.7bn. BT's own capital investment in c50,000 commercial cabinets is unlikely

to have more than £1bn capital of the £2.5bn investment referenced in press releases. Much of the capital will be in the form of capitalised labour costs.

It is true to say that FTTP is expensive but the costs have dropped significantly and there is a good case to push ahead where customers can make contributions to the connection costs and self-provision duct over private land. Overlaying fibre on poles is comparatively cheap, so there is a good deal of room to challenge the costs. The latter is convenient as costs will be gamed high and other investment priorities, be it purchasing a mobile operator or funding football broadcast rights, may well have precedence as long as BT is managed as a single entity.

It is common to portray individual FTTP costs at £3,000 a property. It is more likely to be closer to £1,000 and less where there is some demand aggregation. Many of the efficiencies arise from the public investment already made as the fibre cables are now deep in rural areas.

The lower costs are evident in the Republic of Ireland and Cornwall, where beyond a particular point a hamlet is better served by FTTP than incurring the cost of delivering power to a cabinet too far away to serve enough customers. FTTP is more resource intensive but not always more expensive.

5.3 THE USE OF EXEMPLARS

The body of the report and the appendices make use of local Exemplar case studies to explain, inform and provide more detail on the nature of a particular issue to solve or an opportunity to grasp. It is proposed that these case study examples are used to test propositions and used to measure success, as these proposals are followed through. These are of differing scales and types and the learning and potential solutions developed can be transferable to other businesses, rural areas, villages and towns right across the Central Border Region and indeed beyond. Through implementation with ICBAN it is intended that challenges and successes would be shared with all the involved Councils and stakeholders through a Telecoms Forum being reconvened by ICBAN upon publication of this Report.

6. STRUCTURE OF THE REPORT

This report describes the progress of the network upgrades to date and the challenges that remain. The progress is substantial and much is to be admired - now this needs to be built upon and extended. The fibre connected cabinets in a rural setting are an interim solution. The technology brings meaningful upgrades to the download speed if your premise is within 1 km of the cabinet.

The challenge ahead is then outlined and reference is made to the solutions, costs, funding and the long-term policies needed to keep the connectivity infrastructure supporting the economy, education, health and culture inherent within the area.

The report focuses on extending existing fibre cables into rural areas, while explaining the role of other technologies.

The quality of both Fixed Wireless services and 4G mobile services are reliant on accessing fibre based services adjacent to masts to create a quality user experience.

The report does not outline the benefits of connectivity, as this is largely understood, but focuses on how sufficient throughput and quality is delivered in these border areas.

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Central Border Region
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