

Creating a brighter future

Attachment to Public Consultation on the Europe 2020 Strategy

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Fibre to the Home
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Table of Content

General Project Introduction 3

The need to identify and recognise indirect benefits coming from FTTH in each sector of the economy 4

The Lack of Clear Targets and Objectives 5

The failure of Member States to buy into the Commission’s vision 7

The need for a co-ordinated approach to support FTTH network deployments..... 7

Potential employment impacts..... 9

Way forward..... 9

General Project Introduction

The FTTH Council believes that the drivers selected by the Commission for its EU 2020 strategy, namely creating value by basing growth on knowledge, empowering people in inclusive societies and creating a competitive, connected and greener economy are appropriate but that each of these drivers have at their heart a fully operative digital economy. The digital economy has many facets but fundamental to each is the fact that users have access to the necessary networks. The FTTH Council believe that the future needs of broadband users and the delivery of faster and greener economic growth can only be truly met by bringing fibre directly to the subscriber. Thus, Fibre to the Home (FTTH) is perceived by the FTTH Council as the clear end game. While other solutions including fibre hybrids and wireless solutions will play an important role as complements, they will in no way act as demand substitutes and the realistic growth of wireless solutions will only be possible with pervasive fibre backhaul capacity. The need for a FTTH solution relates to the realistic future needs of end users in terms of capacity and is entirely consistent with the need for technological neutrality. A growing body of work coming from the Commission itself, from the State Aid Guidelines and the NGA draft Recommendation to Article 7 cases acknowledges the unique position of fibre speeds in future markets. A growing body of research shows the economic and societal benefits of very high speed internet access (particularly high upload speeds) and that the availability of such connectivity changes the way consumers react to the internet. The biggest difference between FTTH and DSL options is the potential upload speeds. The many business cases put forward by different analysts rely on a variety of services which require radically different upload speeds (e.g. home security, home health-care for the elderly etc.).

The FTTH Council believe that the widespread deployment of FTTH will facilitate enormous benefits for the economic and social development of Europe. Many of the potential uses of FTTH such as home working and home-based eHealth applications have significant impacts with them which can be classified as positive externalities. In the case of home-working this could be relief of traffic congestion allowing other commuters to save time as well as positive environmental impacts and in the case of home-based eHealth applications the benefits could be decongestion of healthcare facilities and financial savings to the State that can be anticipated in addition to the direct benefits. In these circumstances, the benefits accruing to society often go far beyond the direct economic benefits identified by investors.

The challenges facing Europe and identified in the Commission's EU2020 strategy are many but importantly include aging populations and the increased pressure on healthcare systems as well as environmental sustainability and lifting economic productivity. The FTTH Council believe that FTTH networks can help to deliver or enable a significant part of the solutions to these problems by working with service providers in the different sectors of the economy where these problems are identified.

It may be that service providers who could provide innovative digital services simply need much higher bandwidth in order to use simultaneously a number of applications such as high definition video, or symmetric video. Moreover, many applications right now, and more so in the future, also need the reliability of FTTH – for example connected healthcare applications, and FTTH networks are significantly more robust than existing networks. This is a very important non-speed factor if critical healthcare elements are to be put online as reliability and customer trust in the networks involved will be at the heart of their success or failure. Similar arguments can be made about new and emerging technologies such as in-house systems and even driverless cars where capacity constraints or network outages will eliminate service development. Equally important will be the role of public services and of monitoring and optimizing others infrastructures (electricity, transport,...), support internet of things with fibre which can create an ecosystem favourable to SME and Innovation. Such services rely critically on reliability, security, confidence,... important things to have in mind for the deployment of any future network and services and these are things that need strong public guidance.

Other research shows that the economic and societal benefits of very high speed internet access (particularly high upload speeds) and that the availability of such connectivity changes the way consumers react to the internet. One of the biggest functional differences between FTTH and DSL options is the potential upload speeds. The many business cases put forward by different analysts rely on a variety of services which require radically different upload speeds. A key service that requires such symmetry could be online education or a health application that would

require two way video. For instance home health-care for the elderly could prolong the period in which older citizens could be cared for at home and leave independent lives without any loss of supervisory care where such systems and networks are in place. The indirect benefits in terms of relief of healthcare resources at a time of rising demand (which is likely to accelerate due to European age profiles) is clear but is unlikely to factor in private investor considerations.

The FTTH Council believes that there is a need for any future vision for the economic and social development of Europe needs to clearly incorporate the functionality of FTTH and recognise the indirect benefits that such networks can enable in this sector. The network targets of the Commission set out in the Digital Agenda sees a 50% subscription to networks delivering 100mbs+ , this implies an availability of such networks that will be close to ubiquitous. The Commission in its strategy needs to support and anticipate the availability of these networks in their forward looking policy framework. These very high speed networks can enable a set of services which are capable of completely changing certain aspects of the economy such as education or healthcare delivery. There are many other enablers that are very correctly identified by the Commission in its various consultation documents and the FTTH Council endorses these measures. Increasing awareness, ensuring interoperability, creating legal certainty and R&D are all clear enablers of a future digital environment in Europe for instance but the FTTH Council is concerned that all of the enabling activities currently identified as priorities will have a relatively limited application unless and until the required and essential basic infrastructures are in place. In the FTTH Council's view, the public sector needs to recognise the benefits accruing from these investments to society that private investor might not recognise (positive externalities). Policy should be re-orientated to enable that transition from upgraded copper to FTTH to take place. Today in Europe there is no difference in regulatory treatment of FTTH over upgraded copper solutions although a future proof FTTH technology is preferable from a socio economic perspective and it might be expected that some preference for a better technology would be put in the regulatory treatment of these technology choices.

FTTH has many desirable properties such as higher bandwidths, symmetrical bandwidth, lower latency and jitter which Policy makers with upgraded targets would wish to see deployed. Policy makers have misinterpreted technological neutrality to mean that all technologies should be included whereas in fact, the defining text notes that advantageous technological characteristics should be promoted, i.e. should have a preferable regulatory treatment. This will be critical if Europe is to make the necessary investments that it needs in the future.

The need to identify and recognise indirect benefits coming from FTTH in each sector of the economy

The FTTH Council believes that if all those areas which can benefit directly (through services development and industry growth) as well as all the indirect (economic externalities) of such FTTH networks are systematically identified then the case for investment in these networks becomes compelling and the Digital Agenda and EU2020 targets have a possibility of being met.

In the current financial and economic climate, the justification for such investments which will in part need support from public finances, must compete with other possible investment areas. However, unless each area (health, education, transport, etc..) realises and highlights the benefits that such networks can deliver to their area, the funding may continue to be directed to other areas such as transport and energy networks which have traditionally absorbed far more than the approximately 4% of European Structural funds currently directed at ICT.

The FTTH Council Europe firmly believes that all sectors need to make the networks which support these innovative health services a priority and consider ways to deliver services innovatively around this new infrastructure. What are these innovative services and what benefits can they bring? In general we have only started to scratch the surface of what is possible but already we can see that major advances can be made in the quality of healthcare and the results achieved. Not only can better results be achieved but these improvements don't cost anymore, there are even significant savings arising from the use of these methods.

The Lack of Clear Targets and Objectives

The FTTH Council believes that the current approach to determining what Europe's objectives in terms of the Digital Agenda and what is needed to deliver that agenda by means of infrastructure is not sufficiently clear or justified.

Incumbent network owners have now reached approximately 50% of households with upgraded copper over the last 5 years (see figure 1 below) and yet, these 'investments' don't show up in their investment data which is effectively flat (see figure 2 below). Copper upgrades are very cheap and additionally, much of the 'investment' displaces repair and maintenance work which would have taken place anyway. The result is a reward for business as usual that is exactly the same as what is available when significant and genuinely new investments are made in FTTH. The result is that only 16% of homes are passed with Fibre to the Home (FTTH) technologies, often in countries that did not have competing copper or else in Member States which are actively promoting future proof network investments. The rate of FTTH deployment in the Europe is about half that recorded in the US according to recent studies¹ and less than a fifth of that deployed in some Asian countries².

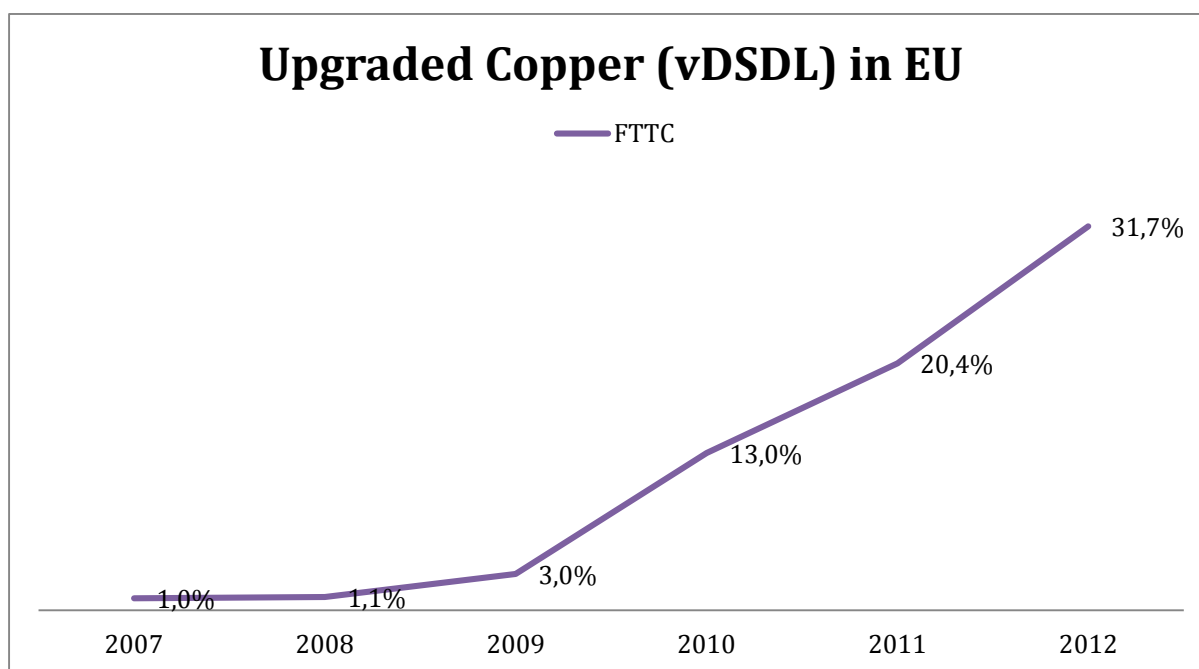


Figure 1: Incumbent network upgrades³

¹ <https://www.law.upenn.edu/live/news/4786-new-university-of-pennsylvania-analysis-finds-us#.VBxStPmSyYI>

² <http://www.oecd.org/sti/ieconomy/48460183.pdf>

³ BCE Study for the Commission 2013

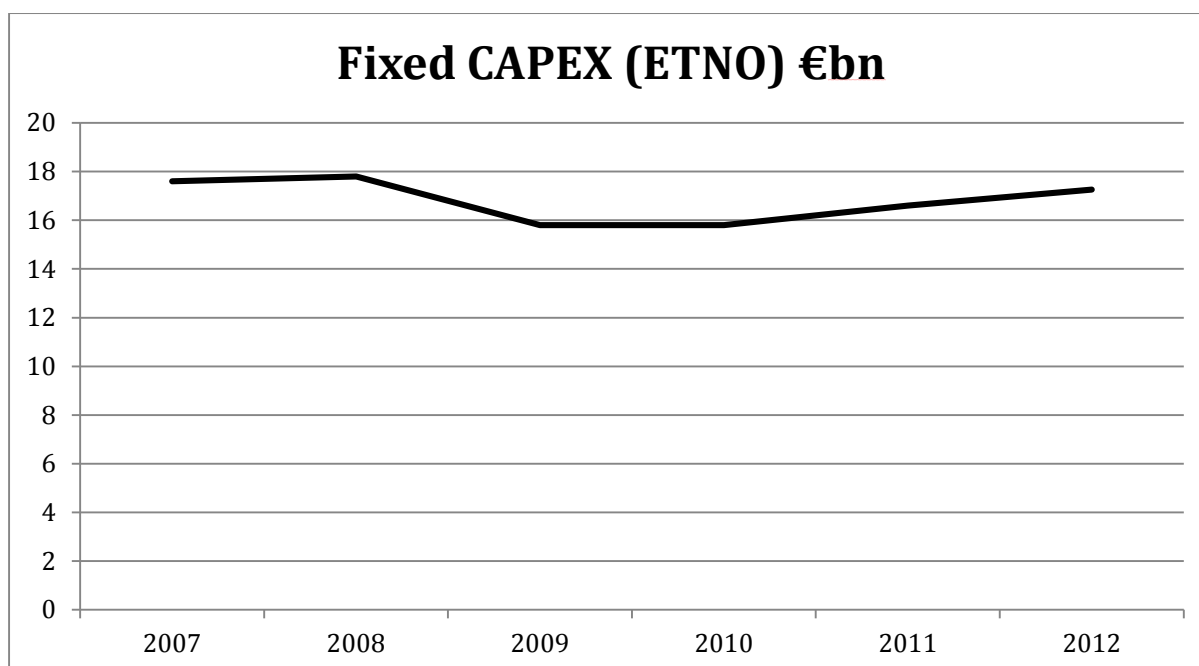


Figure 2: Incumbent Capital investments⁴

The FTTH Council Europe believes that FTTH can support the Commission's aims in virtually every part of the economy and society and do so in a way that is sustainable.

While the FTTH Council agrees that market players are best placed to make technology choices in well-functioning markets, that view is turned on its head where markets are characterised by market failure. In Europe, the fixed physical infrastructure market is characterised by market failure (leading to regulation) in every one of the 28 markets in the European Union. There is a dominant entity in every one of these markets and that entity is regulated – it is never free to choose prices or to whom it grants access. And yet, when it comes to technology choice, the Commission washes its hand and says it is none of their business. By not taking any position on technology the Commission allows the cheapest market foreclosing technology choice to emerge.

The FTTH Council does not expect the Commission to specify the actual technology it would like to see but it should, at a minimum, specify the characteristics it would like to see in technology choices (technology parameters, openness, development paths etc.). That the Commission does not specify these characteristics does not make sense in the context of the European regulatory framework.

The FTTH Council Europe hopes and expects the new Commission to set targets which are realistic network usage targets and let the technologies fall where they may. The FTTH Council believes the Commission should express its preferences for technological characteristics by allowing preferable returns and conditions to apply to such technologies. Where technological choices must be made there should be a fibre-first principle in operation. A fibre first principle would mean that the starting position should always be that a FTTH network is built but allows that with justification this could be altered in specific instances. The basis for technological neutrality is Recital 18 of the Framework Directive but it explicitly allows specific services to be promoted where justified and the FTTH Council believes such a justification exists for the promotion of FTTH over copper solutions. The FTTH Council thinks technology neutrality should only operate once appropriate broadband targets and technology characteristics have been defined.

⁴ ETNO Annual Economic Reports 2011 or 2013

The failure of Member States to buy into the Commission's vision

One problem stemming from the lack of clarity and the inappropriate treatment of fibre in its Digital Agenda project is that the Commission has failed to convince Member States to support the Commission's position in their national broadband plans.

The Commission's assessment of the state of the National Broadband Plans⁵ presented to Council in 2012 showed the extent of that mismatch between the Commission and Member States objectives.

So far, 21 Member States have defined quantitative coverage objectives for the deployment of NGA with download targets ranging from 25Mbps to 1Gbps and with coverage footprints between 75 % and 100 % of households or population (see Annex 1).

Upload speeds receive virtually no attention. A rare case is Luxembourg with an ultimate NGA target of 1Gbps/0.5Gbps (download/upload) by 2020.

Germany for instance set a target for 50mbps available to 100% of households by 2018. The EU targets were 30mbps universally available with 50% of households subscribing to 100mbps or more by 2020.

In a context where the Commission sets targets and where the party implementing those targets set different targets – targets which imply a different technology choice, it is not surprising that Europe is not doing better on network deployment.

The FTTH Council Europe believes that what is needed is a clear and well justified set of targets which clear technology objectives. A basic starting point is common goals. Right now Member States are putting in place their Partnership Programmes setting out the spending of their allocations under the Multi-Annual Financial Framework 2014-2020. Many have, in line with the National Broadband Plans, made significant financial contributions to extend high speed networks into rural areas. However, the Commission remains silent in terms of guidance and preferences when a once in a generation investment will be made. This is not appropriate. The Commission has a vision and should support those infrastructures that best enable that vision to be achieved.

The need for a co-ordinated approach to support FTTH network deployments

Government needs to re-examine the organisation and delivery of public services and how delivery can be organised around the new technology choices FTTH enables. Investment in NGA also needs to form part of a much broader plan (national plans) which needs joined-up thinking across a large number of service areas. Each business area (whether Health, Education, Transport) must realise and highlight the benefits that such networks can deliver in their area so that a holistic approach can be adopted and so that services can be developed and delivered which take advantage of the new infrastructure.

The FTTH Council Europe believes that the use of public funds to support a widespread deployment of FTTH is justified since it will facilitate enormous benefits for the economic and social development of any country that deploys and uses FTTH networks. Many of the potential uses of FTTH, such as home working and home-based eHealth applications have significant impacts associated with them which can be classified as positive economic externalities. In the case of home-working, this could be relief of traffic congestion allowing other commuters to save time as well as positive environmental impacts.

In the context of positive externalities, greater public intervention can be justified (indeed this is the rationale behind State Aid in the first instance) and indeed, where investments are being

⁵ SWD(2012) 68 final/2 'COMMISSION STAFF WORKING DOCUMENT ON THE IMPLEMENTATION OF NATIONAL BROADBAND PLANS'

systematically blocked and impeded by actors in the private sector, the State may justifiably move into the network ownership mode itself (in part or in whole) so that the externalities can be realised.

In the case of home-based eHealth applications, decongestion of healthcare is facilitated, and financial savings to the State can be anticipated in addition to the direct benefits. In these circumstances, the benefits accruing to society often go far beyond the direct economic benefits identified by investors/patients since these benefits also accrue to society at large. A study by Ovum for the FTTH Council looking at the socio-economic benefits of fibre found that the provision of fibre at a municipal level is regarded as having positive benefits on health, education, and other public services. These benefits range from reduced telecom costs to more efficient and new services. This is particularly true in rural areas where limited resources and distance are barriers to service quality and enterprises installation and their development.

The extent of indirect benefits derived from fibre rollout is supported by a number of studies⁶.

While this is particularly true in more isolated areas where end-users face significant travel requirements and an even more pronounced inability to engage with others and consume public services off-line, similar benefits can be anticipated in urban areas. In terms of usage, the study found that users largely consumed the same services and used fibre in much the same way, but importantly, that users of fibre used much more of these services. For instance, those tending to work from home spent over 20% more time working from home once they had upgraded to fibre. Similarly, users of education, eHealth, and eGovernment all increased usage once they had migrated to fibre. With more and more emphasis on supporting public services, using smart grids to manage energy consumption and with more emphasis on health and education as means to achieve the Europe2020 Strategy goals, the spill over benefits of fibre investments are potentially enormous and justify public sector support.

While the FTTH Council believes that market forces are best placed to move the mass market it does not believe that society should be denied the benefits of FTTH networks over prolonged periods and sees that deeper Government involvement may be appropriate in certain circumstances. The FTTH Council notes pervasive market failure and regulatory intervention in every EU fixed access market identified by national regulators and endorsed by the Commission. The FTTH Council sees the absence of large-scale private FTTH deployments pointing to an ongoing and continued need for public support.

Today governments want to reap the financial and social benefits of education done online, eHealth and the delivery of other public services. Many, however, have yet to facilitate the construction of the FTTH infrastructure on which the next century on which the delivery of these services will depend. The direct benefits of FTTH investments are recognised by private investors but so far public authorities have not acted decisively to capture the indirect benefits of that such networks can bring. While the Public Sector needs to completely rethink the organisation of public service delivery organised around this new technology, it also needs to form part of a much broader plan (national plans) which needs joined up thinking across a large number of service areas. Public services will range from traditional health and education to new services such as monitoring and optimizing others infrastructures (electricity, transport,...), supporting internet of things with fibre which can create an ecosystem favourable to SME and Innovation. Such services rely critically on reliability, security, confidence,... important things to have in mind for the deployment of any future network and services and these are things that need strong public guidance to ensure that the right networks are built. These networks will take considerable time and resources to build while Europe's aging population need more efficient service delivery now, other, industrial policy motivations should also be considered.

⁶ For example: Enck J. and Reynolds T. (2009) 'Network Developments in Support of Innovation and User Needs' OECD. See also Ovum 2009 'Fibre: the socio-economic benefits'

If Europe's competitors in other parts of the World have fibre and Europe does not, where are the digital service solutions and applications likely to be developed if not where the supporting infrastructures are available? Where the network supporting the service delivery is available or where it is not. Once developed, those firms and research centres that lead the way are likely to maintain their lead if developments in other areas of ICT are to be our guide.

Potential employment impacts

Investments in FTTH can have significant impacts on employment both direct and indirect⁷. A study conducted by Ericsson, Arthur D. Little and the Chalmers University of Technology⁸ found that doubling a country's broadband speed would lead to a 0.3% increase in GDP growth. The positive effects of increases in broadband speed for the economy are broken down into three main categories with direct and indirect effects providing a short-to-medium term stimulus, and 'induced' effects having a long-term impact. The direct effects include job creation through civil works, construction and equipment required for building the new infrastructure. The indirect effect includes the spill-over arising from efficiency improvements resulting from the availability of high-speed broadband. Induced effects capture new styles of business caused by the increased speeds including the creation of more online services.

Elsewhere Katz et al.⁹ considered the level of investment that would be required to meet the German National Broadband Strategy and the number of jobs and level of growth that would be generated by this investment. Using input-output tables from the German Federal Statistics Office, the study estimated that 541,000 new jobs would be created by network construction alone. A further 427,000 jobs would be created once infrastructure had been deployed, as a result of network externalities, "such as enhanced innovation resulting in new services, additional business growth, and the attraction of jobs from other countries as a result of a re-composition of industrial value chains." The authors also showed that there would be significant benefits in terms of economic growth concluding that the effect of significant investment in ultra-fast broadband networks on GDP would likely be equivalent to 0.6% of annual growth over the ten-year period from 2010 to 2020. In the context of a new Commission whose mandate is to overcome the current sclerosis in the European economy such investment would be invaluable to achieving those goals by creating a short term boost in construction and electronic employment whilst facilitating a medium term redirection to knowledge based industries.

Way forward

Today in Europe there is no difference in regulatory treatment of FTTH over upgraded copper solutions although a future proof FTTH technology is preferable from a socio economic perspective and it might be expected that some preference for a better technology would be put in the regulatory treatment of these technology choices.

FTTH has many desirable properties such as higher bandwidths, symmetrical bandwidth, lower latency and jitter which Policy Makers with upgraded targets would wish to see deployed.

Other factors such as the length of time to switch copper networks services to fibre based service delivery also needs to be reviewed. While the FTTH Council believes only competitive markets will drive take up (and investment) where sufficient wholesale access is available over fibre, operators should be in a position to switch of their copper networks when they want. Minimum notification

⁷ See REGULATORY POLICY AND THE ROLL-OUT OF FIBRE-TO-THE-HOME NETWORKS by DotEcon 2012 for a review of the literature http://www.ftthcouncil.eu/documents/Reports/2012/Dot-econ_Regulatory_Report.pdf

⁸ Ericsson, "Need For Speed – a new study confirms the positive effects of an increased broadband speed on GDP" September 2011 found at http://www.ericsson.com/networkedsociety/media/hosting/Need_for_speed.pdf

⁹ R. Katz, S. Vaterlaus, P. Zenhäusern, S. Suter, P. Mahler, "The Impact of Broadband on Jobs and the German Economy" May 2009; available at http://www.elinoam.com/raulkatz/German_BB_2009.pdf

periods should be abolished. FTTH investments will drive employment both in the short and medium term and a coherent plan to utilise these investments to enhance public service and private services can lead to significant multiplier effects on the benefits.

When a FTTH network is being deployed a review of the Weighted Average Cost of Capital (WACC) should be conducted with an additional percentage available for FTTH assets above the prevailing copper based WACC in order to encourage such investments.

A review of the EU2020 targets in the Digital Agenda area must set realistic network usage targets which focus on consumer experience and after that, let the technologies fall where they may. The absence of upload speeds and quality of service network parameters does not make sense and cannot be justified. The Commission should express its preferences for technological characteristics by allowing preferable returns and conditions to apply to such technologies. Such an approach is consistent with Recital 18 of the Framework Directive (2002/21/EC) which grants Regulators discretion to promote services where justified. Where public money is spent and choices are made about the type of infrastructure there should be a fibre-first principle in operation.