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## **Future Telecoms Infrastructure Review: Call for Evidence**

### **Background**

This document follows a consultation meeting with DCMS where, in particular, we discussed the experiences of VXFIBER in Sweden and South Africa.

One of the reasons for Sweden's success is the Policy by the Government. Sweden is seen as a 'pole star' of digital societies where for many years connectivity has been at the centre of policy. While the UK still deploy 30 mbps Sweden have a policy of 98% of citizens having a min 1000mbps or 1Gig speed up and down both at home and work by 2025. They will achieve this with a collaboration of a market-driven expansion in harmony with the public sector involvement. It's here that Open Access enables the ideal competitive platform for operators to sell products and services on equal terms irrespective of who owns the underlying fibre.

Sweden therefore have become one of the leading countries of Fibre Deployment and have seen this translate into digital advancement and resultant economic success. This compared to the UK who don't feature in the European Rankings of FTTH (Household Penetration of Countries with more than 1% household penetration – Source: IDATE for FTTH Council Europe February 2017).

What is significant is how Sweden have managed to achieve this; it is their recognition that it is a combination of both public and private sector that together meet the ambitions. This paper seeks to explain how this can be achieved having experienced the success of Full Fibre deployment in Sweden and many other parts of the world.

The key to success is that the deployment of Full fibre should meet the various needs of all stakeholders from Government to local Authorities to the private sector investors and operators.

- Government – Overall digital and economic advancement, inward investment and thus a growing vibrant economy.
- Local authority – to meet the social, political, economic and environmental drivers.
- Private investor operator – financial viability
- Business – access to greater bandwidth for business success, growth and technological advancement.
- Consumer – Access to greater bandwidth for social, work and education.

Our UK towns and cities are governed by local authorities. Policy, leadership and direction are therefore key requirements of a local authority. It is here where leadership in this challenge needs to start particularly where the public sector can gain from the benefits of future proof technology and the efficiencies available to the public sector purse for digital connectivity of public sector services and operations.

The following paper describes the disaggregation of the 3 layers of the telecoms sector to demonstrate the potential for alternative investors to be part of this Full Fibre mission and that this is possible through a sustainable business model that meets the needs of the investor and society alike.

## 1. The Passive Layer

### An Argument for Public sector and alternative investors in the underlying infrastructure:

As in all business relationships, ownership equals control, and control is absolutely necessary for a community to ensure that it achieves its economic development goals and aspirations.

**Benefits to local Authority Ownership** - One significant way to ensure digital connectivity for all citizens is for local authorities to participate in ownership and have some control over the local digital infrastructure. However, that's not the only reason for public ownership. As a steward of the public interest, local authorities have a duty to ensure that public goods and services, such as essential infrastructure, are widely deployed, well-maintained and open for use by all citizens non-discriminately. Is there any more essential infrastructure in the 21st century than the physical assets necessary for high-capacity data services? Only with public involvement can the current problems of speed and the growing digital divide be comprehensively addressed and solved.

**A commitment to public ownership** of part of the underlying fibre infrastructure enables universal access to broadband, but more; from a financial perspective, the construction, maintenance and ownership of dark fibre fit perfectly with the other infrastructure obligations of local government. Just as municipalities and counties are responsible for building and maintaining roads, pipelines, pavements, curbs and gutters, so too should they be tasked with building the basic pipelines for 21st-century data services. The underlying ducting should therefore be described as a Property Asset as this fundamental paradigm shift of terminology demonstrates more understanding as to what constitutes the requirements of laying fibre in the ground, its cost and its value.

**Like most modern technology**, active network equipment distinct from the passive layer has a useful life of between five and seven years, after which it must be replaced with newer, faster equipment so partnering with the private sector ensures adequate skills and up to date equipment are delivered and supported. In contrast, fibre has a useful life of at least 40 years. Fibre strands do not decay, corrode, rot, wear or expire. If left undisturbed, they will continue transmitting data for decades with no or minimal maintenance or upgrades. Fibre is the perfect asset for a local government to invest in to improve the local infrastructure for economic development. Fibre can be financed over time frames that are comparable to other public infrastructure projects, such as asphalt or concrete, and in ways the private sector cannot contemplate. What's more, unlike concrete and asphalt, fibre can provide a revenue stream necessary to repay debt without unduly burdening the other capital obligations of the local government. This revenue share itself is an ideal way of funding future growth of the network.

**The benefits are widespread** as technological development advances at an exponential speed where IOT and Smart tech demand 'on the fly' real time cloud based functionality requiring ever increasing speed both up as well as down from the internet data centres. Simply the copper telephones of the past can never be as future proofed as fibre direct to the subscriber (ffth).

**Coupled with this**, plans unveiled by Chancellor George Osborne in 2015 revealed that councils in England will be able to keep the proceeds from business rates raised in their areas from 2020 instead of passing 50%

to the central purse and then asking for grant money back. Whilst on the surface an attractive arrangement it however puts the responsibility back on councils to generate business rates. He quotes “attract a business, and you attract more money; regenerate a high street, and you’ll reap the benefits; grow your area, and you’ll grow your revenue too”. Nothing attracts businesses to a location, encourages start-ups, and invites inward investment more than access to high speed internet so councils will need to take a proactive role in deploying fibre in their boroughs.

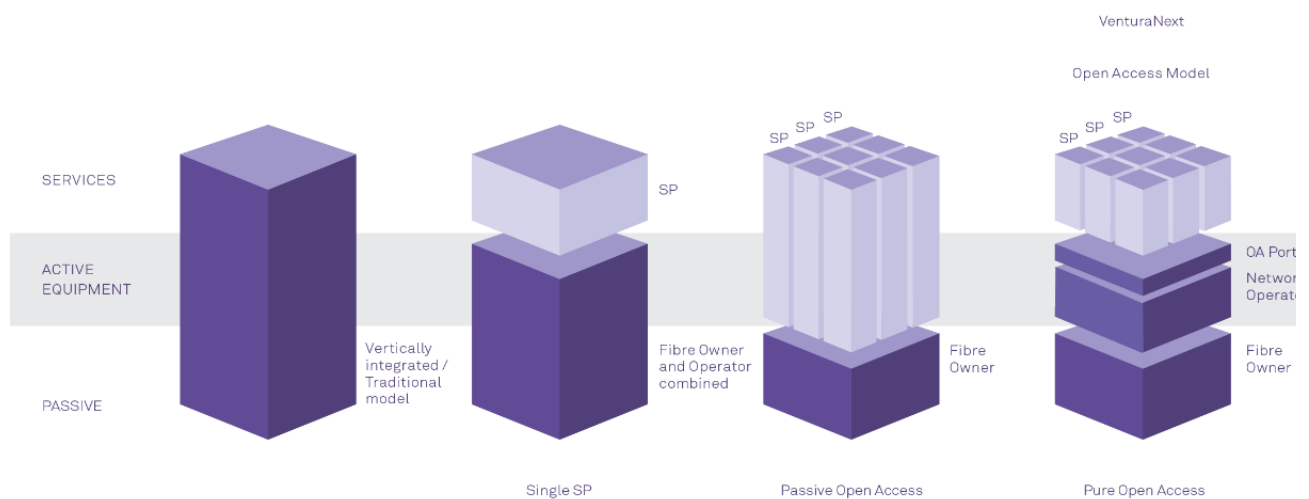
**But that doesn’t mean local governments** should all become Service providers. Just as not all municipalities are well-suited to operate electric utilities or water utilities, not all local authorities need to offer data services. However, all local authorities build and maintain roads, and fibre networks are the roads of our future. Local authorities can confine their roles to simply owning and maintaining the outside ‘Dark Fibre’ infrastructure, these being the inert components of the network that comprise the fibre itself, the boxes and enclosures used to make connections and house equipment, and the conduit through which the fibre travels.

## 2.The Active Layer

The remaining components of the fibre network are anything that requires power or transmits data. This is ideally the responsibility of a private-sector partner. This is an obvious partitioning of ownership and responsibilities due to the major differences in the useful life, cost of the system components, varied risk tolerances and expected return horizons of the partners. Public-sector entities epitomise “social and economic capital.” They are able to make long-term investments with no pressure to expect fast, high-margin return as the focus is on the long-term beneficial impact on the local economy and the consequent maintenance or improvement of the local assessable tax base, which allows them to maintain tax revenues without rate increases.

**Fibre infrastructure can be self-supporting** as the operating expenses for the Passive Layer are minimal compared with the significant overhead of staffing network operations and service provision. Removing the capital expense of fibre construction from the ROI equation of the private partner radically transforms the economics of a broadband project, enabling a private partner to contemplate investments in areas it otherwise would not consider to be commercially viable.

**With the right partner**, the local government need not embark on the expensive and much riskier enterprise of staffing and operating a network to provide services. A three layered model retaining ownership of the Passive Layer within the local authority, real estate or land owner entity opens the door to further segmentation of roles within network operations.



### 3. Telecoms Service Providers

The historic role of the Telecoms Service Provider

**In the early years** of telecommunications networks, the infrastructure consisted of copper wires that carried one channel of data (an analogue sound signal). Configuring a connection between any two points on a network required actuating mechanical switches to create a temporary physical circuit. At first, that mechanical switch was a human operator who physically pulled plugs and replaced them to create the circuit; eventually, that function was automated.

**To ensure maximum control** of the customer service relationship, a service provider had to own and control every last bit of infrastructure down to the telephone at the end of the circuit. In early years this was the local authority who owned and managed all this who later became the telecoms players we know today. As automation gradually replaced each component and as software and IP technologies gradually transformed networks, the need for control of the infrastructure to provide services gradually disappeared. Finally we are at a significant milestone where we no longer require the legacy copper wires of the past and that fibre is delivered direct to the home (ftth) or business (fttb).

**In the 21st Century** a service provider can be entirely virtual, riding on someone else's network and using someone else's fibre, yet still provide a high level of customer service. For 21st Century networks, this enables a further partitioning of network services into two levels, both entirely operated by the private sector:

1. Utility bandwidth services provided by a network operator. (Wholesale)
2. Customer-facing services provided by several service providers via an Open Access Portal. (Retail)

**This division of operations** and services into wholesale and retail levels has several advantages. Connected to Open Access fibre networks consumers benefit from choice, lower prices, better service, more kinds of service and the relentless pressure to improve that healthy competition fosters in a truly open market.

## 4. The 'Open Access' Model

The fundamental advantage of this model is the allocation of expenses (and therefore of risk) to the levels at which they are most appropriately handled:

Local authorities are very good at building and maintaining infrastructure with a useful life of many decades (roads, pipes, fibre).

Network management is a distinct problem requiring particular skills, complex equipment, software and particular capital and operating expenses. Security, stability and reliability are the key attributes that affect risk in that arena.

Provision of services to residential and business customers, compared with network management, requires more focus in human capital, with a very agile customer and brand focused organisation.

**OPEN ACCESS** The multilayer service model lays the groundwork for the creation of a pure open-access environment at the service level. In such an environment, customers can switch providers without barriers instantly, try new services as they are developed, and enjoy greater transparency into the cost and quality of providers' offerings. It also lowers the barriers to entry for new and local service providers allowing real competition to take place and rewards service providers that deliver better services at lower prices. In addition, there are no barriers to entry for any provider that wants to offer new, innovative services, thus accelerating innovation and economic development.

The multilayer model also aligns the interests of all parties. Having more service providers increases conversion of subscribers and thus revenues to be shared between the network investors comprising the retailer, network operator and the fibre owner. This in turn increases the incentive for the local government to continue expanding the physical network, as the network operator's financial success underwrites the expansion of the network.

Through public and private ownership of the infrastructure layer as a 'Real Estate Asset', partitioning of the network operations by these layers and a commitment to Open Access, any community in the country can realise the economic development potential of future proof technology leading to innovation and growth.

## 5. Conclusion

Without doubt there are compelling reasons why Local Authorities should invest in their infrastructure rather than allow third parties to own and control the direction of digital advancement of their towns and cities.

What will happen in parallel is that other land owners, housing associations and developers can now act in collaboration and determine that fibre be deployed across land, that fibre be specified for all new build homes as part of the fit-out, that regeneration projects or refurbishment projects include fibre deployment. Proactive cities are already disseminating across all departments that whenever civil works are planned that 'connectivity' is an important consideration.

We are at the start of huge changes in the UK. In recent years the UK has been left behind when it comes to broadband connectivity and it has been left to the few incumbents to resolve. Government support

and funding balanced with increasing consumer demand now converge and action is needed now to ensure that in a post Brexit Britain our digital roadway is without doubt the road to success.

VXFIBER is a Swedish company with offices in Sweden, South Africa, Italy and the United Kingdom, that invests in, builds and operates Open Access fibre networks globally. VXFIBER partners with local authorities, real estate owners, investors, land owners and communities when deploying fibre networks and partners with service providers who are able to offer products and services direct to the subscriber via a self provisioning web based portal.

The Open Access Model meets all the commercial and operational requirements of the stakeholders whilst giving ultimate choice to the end user subscriber.

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