WHITE PAPER: Resolving the European Rural Fibre Investment Gridlock

by means of Ventura Team and Aphaia rural NGA investment model

March 2013

WHITE PAPER:

Resolving the European Rural Fibre Investment Gridlock

By means of Ventura Team and Aphaia rural Next Generation Access investment model

Stefan Stanislawski, Ventura Team
Boštjan Makarovič, Aphaia

Stefan Stanislawski is the co-founder of Ventura Team, a consultancy in fixed, mobile and content across the telecoms field that has also created its own startup operator in Sweden. Stefan has spent over 20 years helping Boards, senior managers and regulators to make critical decisions in both fixed and mobile telecoms, with his work encompassing all aspects of telecommunications strategy, business development and litigation, as well as participation in some $100 billion worth of telecom financings or acquisitions.

Dr Boštjan Makarovič is the CEO and chief consultant of Aphaia, an international regulatory consultancy specialized in European Union law, media regulation, telecommunications markets, energy and environmental regulation, personal data protection and competition law, as well as the preparation of different company policies and the training of personnel in these areas. Boštjan received his masters at Queen Mary, University of London in telecommunications law and regulation, including the regulation of convergent services, and holds a PhD in legal regulation of Next Generation Networks.

Executive Summary

The current model of regulation – that sees the incumbent operators across Europe act as both the network operator and the leading retail service operator – has not produced desirable results in the sense of high-speed broadband internet coverage. Whereas the price of copper, uncertainties as to wholesale access obligations and the cost of new infrastructure investment are often quoted as the key strategic factors, this White Paper questions these traditional assumptions by means of pointing at two flaws in the current EU regulatory approach:

- The lack of a 'clawback' mechanism for funds gathered as a 'replacement cost' as part of retail PSTN and wholesale local loop subscription for those years in which *actual* 'replacement' of copper with fibre did not happen to the extent paid for by the customer;

- The regulatory regime that discourages efficient co-investment in NGA networks by both the glorification of infrastructure competition regardless of geography, and the conflict of interest created by the same company being able to compete in the retail market with its own clients.

This White Paper demonstrates the deprivation of the countryside due to the lack of 'clawback' regulation and puts forward the idea of an alternative regulatory regime.

Relying on a financial model developed by Ventura Team and Aphaia, this White Paper demonstrates the deprivation of the countryside due to the lack of 'clawback' regulation and puts forward the idea of an alternative regulatory regime, whereby a NetCo would be created in order to provide for both the NGA coverage and copper replacement in all the areas not subject to infrastructure competition and fibre investment.

The NetCos would provide wholesale access on equivalent terms for all the operators involved, including the retail arm of the relevant national or local incumbent operator, while also acting as a co-

investment vehicle in terms of planning NGA expansion and the phasing out of copper lines.

The proposed regime would enable both efficiency in terms of network planning (regardless of the incumbent operators' narrow retail interest) and the monitoring by national and European regulatory authorities of the proper use of 'replacement' and EU funds.

This White Paper uses the case study of Slovenia as an example of a country with early mass market FTTH investment and competition that, however, remained limited to urban areas, whereas rural areas were mainly left behind.

The case study of Slovenia:

Lack of rural fibre investment and the need for a 'clawback' mechanism

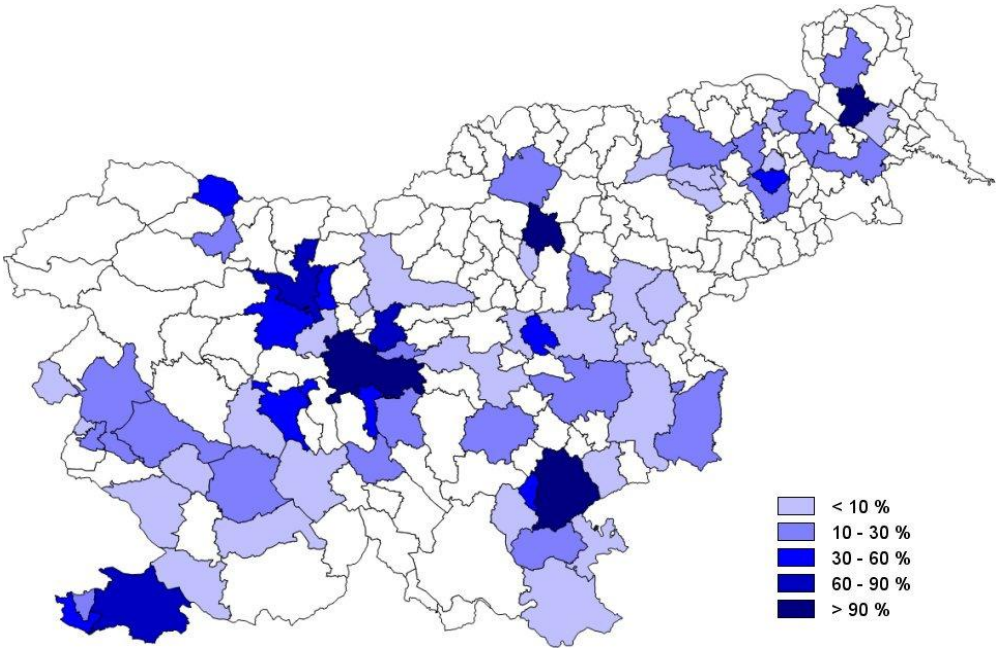
Slovenia was among the first EU Member States where large-scale residential access FTTH investments took place in urban areas. Following the new entrant T-2's mass investment in FTTH networks, the incumbent operator Telekom Slovenije started its own NGA deployment. They copied T-2's architecture of point-to-point dedicated fibre.

Rural areas, with the limited exceptions of a few publicly financed small areas, remained almost totally void of high-speed broadband coverage.

In urban areas the incumbent therefore has, in the fight to retain its share on the retail market, focused on the inefficient replication of T-2's fibre network.

In contrast, rural areas, with the limited exceptions of a few publicly financed small areas, remained almost totally void of high-speed

broadband coverage (see Picture 1). This was most often explained by low population density and uneven land surface, supposedly preventing commercially viable NGA investment and calling for EU and state funding instead.



Picture 1: Penetration of all FTTx connections in Slovene municipalities, including homes passed (source: APEK)

Regulated tariffs for line rental and local loop unbundling are defined based on various assumptions including the asset life. A rate of return is allowed on the current cost of replacement which is fair and reasonable. However, actual replacement of the copper access network had mostly not taken place until long after the end of the accounting asset life and in most of Slovenia not at all. From a financial and political perspective, this meant that the incumbent operator started to generate unfair profits because it was paid to replace the local loop in a regular and timely manner, yet has not done so. A private operator may chose not to invest in fixed network

of course, but there is no regulatory 'clawback' mechanism to reclaim this money and use it to fund replacement by others. From a technological perspective, this resulted in outdated physical infrastructure, as, from at least 2007 onwards, fibre networks should be considered modern equivalent assets (MEAs) for PSTN copper network due for replacement.

Accordingly, rural inhabitants have often paid double for their access network, first via their investment and later via years of subscriptions. Regardless of this, they have not been offered fibre access even after the end of their copper network asset life.

Our estimates (see Chart 1) show that this is unfair, as enough money has been gathered throughout the years by the very same group of rural customers for a reasonable commercial substitution of copper with NGA to take place. If this money was not used accordingly and was instead, for example, paid to the shareholders as dividends, the regulatory system should have provided for a 'clawback' mechanism. This has not been the case, resulting in EU funds needing to be used to supplement commercial investment, thus potentially placing an undue burden on the taxpayer.

Chart 1: Estimated disadvantage of rural areas as compared with urban areas in spite of payments for substitution of copper with fibre

The price set by the regulator for the use of the wire from the exchange to the home (LLU) per month, exc VAT is…	**€ 7.89**
Some direct operating costs and repair and maintenance costs exist; however, based on experience, some **70%** of the cost will be to pay for the asset. This means that each month the customer is paying for the local loop asset itself a sum of…	**€ 5.52**
Which in one year means a total of…	**€ 66.28**

The regulator has determined that the annual cost of capital for the incumbent is **8%**, and we know that the asset life of the loop used in regulatory models in years is around **25 years**, and that the line rental will roughly generally rise in line with inflation of **3%.** Based on this, it is possible to work out the approximate cost of the local loop using an annuity formula (we are using a simple formula here as an approximation), bringing the total to…	**€ 934**
In reality though, the value at the end of the asset's life is not zero as the simple formula assumes, because ducts last much longer and the customer itself has a value. Assume this is…	**€ 300**
With 3% inflation this means a value in today's money at the end of the asset life of…	**€ 628**
Adjusting for this, the implied cost of the local loop is…	**€ 1,120**
If the lifetime of a line is **25 years**, then every year in the steady state 1/n% of lines should be replaced. This would mean the replacement of **4%** of the lines each year. There are around **628,000 lines** in the incumbent's network, so each year around **25,120 lines** are due for replacement. If fibre has been the sensible option for say the past five years, then we should see **125,600 fibre lines** in the incumbent's network already and expenditure each year in local loop capex of…	**€ 28,123,845**
T-2 knows from experience that the cost of a new line in urban areas is…	**€ 700**
Given that roughly half of the incumbent's lines are in urban areas and half in the countryside, the cost of a rural line must be around…	**€ 1,539**

This means the rightful replacement / modernisation budget for rural areas per year would be (i.e. modernising urban and rural lines at the same rate means more of the budget should go to rural areas)…	**€ 19,000,000**
In fact there are virtually no rural fibre connections as TS has instead focussed on the cities. Over the last five years therefore there has been a fibre investment deficit in rural areas of…	**€ 95,000,000**

Neither this breach of the 'social contract' by the incumbent in connection with the management of the inhabitants' funds nor the recurring breaches of competition rules, gradually ending up on the dockets of courts and administrative authorities, inspire faith in the continuation of the current regulatory policy model and even less provide a sound basis for any kind of public investment in the incumbent operator's network in its current form. This is very costly for the national economy.

Chart 2 provides for an estimate as to the loss in job creation resulting from policies that resulted in suboptimal broadband investment.

Chart 2: The economic significance of investment in fibre broadband in Slovenia

New jobs estimates	Next 5 years	10 years
Directly in fibre deployment	675	675
Indirectly in the economy at large	20,900	52,000

In practice though, the consequences may be broader. Firstly, a network on which the incumbent will try to stubbornly limit access by other operators in order to protect its own retail unit will not enable

operators and the IT industry to maintain a level of innovation necessary to exit the current economic crisis. It is not a coincidence that the globally successful start-ups Skype and Spotify both stem from Sweden, the first European country to have a model of open fibre networks; it is also no coincidence that the tv2go platform in Slovenia has been developed by T-2, the strongest user of the incumbent operator's unbundled local loops.

Secondly, the likely continuing attempts by the incumbent to prevent competitors from effectively using its network would in practice mean sacrificing actual network take up for the incumbent's retail market share, while forcing new entrants to consider second best alternatives such as wireless. This would both threaten the returns on new NGA investments and enable legacy copper to compete against any new alternative developments. This type of competition is to be considered unfair, as the degree of sunk costs, fully recovered investments and/or free (co-)funding by the general public in the past would enable predatory pricing that would undermine the returns on any fresh fibre investments.

Wrong incentives on the part of the current EU regulatory framework

The described situation is largely the result of the EU regulatory model based on the 2002 New Regulatory Framework as amended in 2009

The described situation is largely the result of the EU regulatory model based on the 2002 New Regulatory Framework as amended in 2009.

First, the latter has discarded the option that at least certain areas would be rendered inappropriate for infrastructure competition and thereby subject to a legal monopoly for wholesale network provision, coupled with effective retail competition based on active and, where possible, passive wholesale network products of the monopolist. This

is largely based on the fact that, at the time of the review starting with 1998, the 'old' Member States featured almost universal PSTN coverage, whereas there were no clear ideas or strategy in place for fibre/NGA roll out.

For example, the 2000 Regulation on unbundled access to the local loop noted in Recital 5 that fibre investment takes place under competitive conditions and should therefore be treated separately from legacy copper local loops. This view has later been repealed by the 2007 Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation. Nevertheless, the incumbent operators used the fact that the price would be regulated as an excuse for not investing in fibre. Clearly, the LRIC method would allow an operator a reasonable return on this investment. However, in the real world business decision, the operator is comparing returns from hanging on to the copper with those they could obtain after investing in fibre. In the case of copper, they are collecting money for nothing, whereas in the case of fibre, they would be making roughly the same money with moderately lower operating costs but after a large investment. Accordingly, the rational decision for them is to stay on copper as long as they can continue collecting the regulatory premium.

Secondly, EU wholesale and retail regulatory pricing remedies have been typically based on cost-based price calculations, most notably long-run incremental costs (LRIC). These calculations have, as part of wholesale local loop and retail fixed telephony monthly subscription, regularly included replacement cost that should be used for the replacement of the copper access line after the end of its economic life. Nevertheless, the right to recover replacement cost from both end-users and new entrant operators has not been accompanied by a corresponding obligation on the part of incumbent operators to *actually* replace the assets with their modern equivalents after the end of their regulatory asset life. The latest proposal by the Commission to guarantee the price of copper local loops between € 8 and € 10 could potentially make things worse, suggesting that

The right to recover replacement cost from both end-users and new entrant operators has not been accompanied by a corresponding obligation on the part of incumbent operators to actually replace the assets with their modern equivalents after the end of their regulatory asset life.

continuing collecting of monopoly rents for log ago written-off legacy assets can continue indefinitely. This will mean that the customer will carry on NOT getting what they pay for in each monthly bill but now – remarkably - with the EU's blessing for the practice. Such official endorsement of a business practice so utterly contradictory to the normal logic of consumer protection is highly unusual.

NetCo as an alternative investment model

An alternative vision for Slovenia and potentially other states would be a step away from the existing structural anomalies and would mean the establishment of one or more separate (regional) companies (in rural areas and perhaps some parts of urban areas) to manage the incumbent's access network, with two basic goals:

- The substitution of the copper network with a fibre (NGA) network covering all of the rural areas where infrastructure competition is not feasible;

- The provision of completely equivalent access to the aforementioned network for all operators, including the incumbent's own retail unit.

This would imply changing the local loop regulatory approach into a more contract-based and less 'command and control' type of regulation, whereby the regulator would agree with the network operator (NetCo) on the investment targets. In case of non-performance, a regulatory 'clawback' mechanism would be an option.

Through the collaboration of all operators the NetCo model would ensure the optimal take up of the newly rolled out fibre network, thus differing significantly from the existing incumbent model of a network

that is as closed to competitors as possible. Also ensuring an actual transition of end users to fibre would be a clear plan of removing (and selling off) copper in newly NGA rolled out areas.

Apart from the jobs created and the general economic stimulus, the benefits to customers would be twofold:

- Bills would fall in real terms in the medium term as fibre networks are significantly cheaper to operate and maintain than obsolete copper networks;
- They would have a real choice of much faster, more capable and many new types of service, many offered at the same or lower price than at present.

The NetCo(s) would normally operate only in areas where at the moment only the incumbent's fixed network exists, including the fixed network of affiliated companies, or where no fixed network exists at all. Only such a model can be compatible with the EU regulatory framework that foresees the facilitation of infrastructure competition whenever possible. In line with EU rules on state aid for ensuring broadband connectivity and encouraging innovation the NetCo would first and foremost enable joint operator investment at the passive level, with possible exceptions for less populated areas. In addition to public investment, including EU funds, the NetCo would enable joint operator investment both in the passive network as well as in specific active solutions that can be better provided when there is multiple operator cooperation (e.g. vectoring). The NetCo managing board would in line with this idea feature all the operators using the NetCo services, however the activities of the NetCo would not be subject to the interests of one retailer to the detriment of others; consequently strict rules preventing conflict of interest would have to be in place for executive directors.

In line with EU rules on state aid for ensuring broadband connectivity and encouraging innovation the NetCo would first and foremost enable joint operator investment and access at the passive level.

In our estimation the NetCo model would significantly increase the growth of NGA penetration and also enable the industry to tap new

and relatively abundant sources of capital that focus on infrastructure investment. Furthermore, , whereas once proven, a similar approach could be adopted to extend the best possible mobile LTE coverage to all rural areas whilst ensuring that the full choice of competing operators were to be available throughout the entire territory of Slovenia.