BELGIAN INSTITUTE FOR POSTAL SERVICES AND TELECOMMUNICATIONS

ADDENDUM OF 12 NOVEMBER 2008

TO THE MARKET ANALYSIS DECISION OF 10 JANUARY2008

THE IMPACT OF NEXT GENERATION NETWORKS « NGN » AND NEXT GENERATION ACCESS "NGA" ON THE BROADBAND ACCESS MARKETS

DECISION OF 12 NOVEMBER 2008

PUBLIC VERSION

Contents

INTRODUCTION

WHY AN ADDENDUM TO THE RECENT MARKET ANALYSIS DECISION OF JANUARY 2008

Very recent market analysis decision

On 10 January 2008 BIPT took a decision on the market analysis of the broadband access markets 11/2003 and 12/2003[1]. Within this framework Belgacom was designated as an operator with significant market power on the markets for unbundled access and bitstream access.

It is important to point out that the above-mentioend market analysis decision includes all xDSL technologies in the market definition (ADSL, SDSL, ReADSL, VDSL, VDSL2, ADSL2+, …) and that Belgacom must provide access to its network in a non-discriminatory way at cost-oriented tariffs.

On page 200 of the above-mentioned decision it was already announced that BIPT would launch a consultation on NGNS (Next Generation Networks) and NGA (Next Generation Access) which would adapt the market analysis decision:

> *The technological evolution towards the NGNs (Next Generation Networks) and NGA (Next Generation Access) will lead to the replacement of Belgacom's current ATM/xDSL network by a network the characteristics of which are not known yet and will be the subject of a separate BIPT consultation in the course of the fourth quarter of 2007. Afterwards an adaptation of this decision may be necessary.*

NGN consultation

BIPT launched the consultation on NGN from 3 January up to 29 February 2008 inclusive. The Institute has received reactions from Belgacom, the Platform, Mobistar and Telenet.

The public version of the reactions as well as a summary was published on BIPT's website.

Recent announcements by Belgacom

Some declarations of Belgacom have indeed had an effect on this intention to adapt the above-mentioned market analysis decision.

On 10 October 2007 Belgacom announced in the press the launch of VDSL2 in the spring of 2008 and on 16 October 2007 Scott Alcott, chief operating officer of Belgacom declared to Bloomberg that Belgacom would phase out its existing ATM network in the years to come.

Moreover Belgacom added a clause on the gradual phasing out of the ATM infrastructure to the draft BROBA 2008 which was received by the Institute on 29 September 2007:

> *Belgacom informs the Beneficiary that ATM is susceptible of being gradually outphased in the Belgacom network and replaced by other technology starting 1st January 2009. As a consequence the current BROBA offering could cease to exist.*

Belgacom declared as well during its general meeting of 9 April 2008 that in the context of the modernisation of its network and the transition to IP technology about 10% of its

[1] Since the new EC recommendation of December 2007 markets 11/2003 and 12/2003 have been known as markets 4 and 5.

exchanges would close down. The plan 'Move to all IP' will be carried out during the period 2008-2012 but all exchange closing downs planned will not be completed by 2012.

Finally Belgacom showed on 12 June 2008 to BIPT in a PowerPoint presentation a list with the planned closing down of 65 MDF buildings and the related provisional schedule. Three working days later (17 June 2008) Belgacom sends a letter to the operators including the list of the MDF buildings concerned and the planning expected. At that time BIPT still isn't in possession of this list. Finally Belgacom sends one day later (18 June 2008) a copy of the letter to the operators to BIPT.

Emergency considering the impact on the development of competition

Based on this analysis, BIPT wants to examine which aspects of the analyses of markets regarding access to the local loop and bitstream access are due for urgent revision as a consequence of these new developments in order to ascertain itself that the introduction of new technologies do not upset the market and cause irreparable damage to the Belgian telecoms market if adequate measures are not taken instantly.

The necessity of a revision is also confirmed by the European Commission in its letter of 3 January 2008:

> *« Moreover the Commission points out that the evolution towards new generation networks ("NGNs") is now being more thoroughly analysed by BIPT in order to determine whether the measures currently proposed must be adapted to the new market conditions. » […]*
>
> *« However although the Commission admits that the obligations proposed by BIPT in the wholesale broadband market guarantee access to very high rate technologies (VDSL included), it invites BIPT to re-examine the market conditions to guarantee equivalent market conditions for all market players in the future NGN environment. »*

In a press release of 3 January 2008 Commissioner V. Reding declares what follows:

> "*Commission supports new efforts of the Belgian telecoms regulator to enhance competition in the broadband market and* ***asks for speedy and effective action***"[…]
>
> *"IBPT commits to follow closely Belgacom's respect of its non discrimination obligation with regard to the development of new high broadband retail offers, in particular VDSL. VDSL is a broadband technology that allows for higher speeds, and represents from the user perspective a substitute for other broadband offers".*

THIS ADDENDUM DOES NOT REQUIRE A NEW MARKET ANALYSIS

According to Belgacom the Institute has to make a new and complete market analysis before suggesting to Belgacom to impose obligations relating to NGNs and NGA. A new analysis is necessary after the publication of the new recommendation to the Commission and in its opinion on the analysis of markets 11 and 12, the Commission had asked BIPT to analyse again the market conditions to ensure fair competition in the future NGN environment.

The decision of 10 January 2008 already announced that the impact of NGN/NGA would be analysed and that the market analysis decision would be adapted in this matter. This point of view fully corresponds to the legal framework where a regulator has the opportunity to complete and to improve the exiting decisions during their period of validity so that they remain in line with market developments. Preamble 15 of the Access Directive lays down:

"The imposition of a specific obligation on an undertaking with significant market power does not require an additional market analysis but a justification that the obligation in question is appropriate and proportionate in relation to the nature of the problem identified".

The European framework, as it is transposed into Belgian law, does however not prevent from taking a complementary decision to a basic decision regarding the analysis of the relevant markets. It certainly does not concern implementation orders to basic market analysis decisions but rather decisions completed by the analysis itself to gain time, after publication in a basic decision.

The fact that markets 11 and 12 in the decision of 10 January 2008 were identified and that Belgacom was recognised on these markets as a company having significant market power, does not imply that the provisions already regularly laid down must be again determined in the basic decision in order to impose new remedies.

Therefore, this decision replaces the legal implementation of the decision of 10 January 2008 without requiring now a second analysis, which will take place later, considering that the principle itself of the measure was announced in the decision of 10 January 2008.

Apart from that, the Brussels Court of Appeal has neither questioned the Belgian framework nor the method followed by the Institute to define and analyse a market, designate an operator with significant market power and to impose these last obligations. Moreover the analysing method is explicitly confirmed by the judgment of 1 June 2007 on the analysis of markets 11 and 12 (R.G. 2006/AR/2154, p. 10-20) and the appeal against complementary decisions which is implicitly confirmed by the judgment of 4 April 2008 on market 16 bis (R.G. 2008/AR/3394).

CABLE NOT RELEVANT FOR THIS ADDENDUM

Belgacom points out in its reaction to the NGN consultation that cable was not taken into account in the analysis of BIPT.

In this context it is important to stress that this document concerns an addendum to the current market analysis decision and that the decision of 10 January 2008 achieved a clear and thorough analysis on the substitutability between cable networks and the Belgacom network with as conclusion that currently cable is not a full substitute and was therefore excluded from the market definition. Belgacom was designated as SMP player on the wholesale broadband market. This analysis, which is supported by the European Commission in its letter of 3 January 2008, remains valid.

As it concerns an addendum to the existing market analysis, it is therefore logical to base oneself on the substitutability study and the market definition already carried out and not include cable in the analysis.

THE NEW RECOMMENDATION

Belgacom insists on the fact that the new version of the recommendation has modified a certain number of definitions, does not longer speak of bitstream, but adopts a formulation which is far more neutral in the technological field. “non-physical or virtual network access including ‘bit-stream’ access at a fixed location”.

In its letter of 3 January 2008 the European Commission uses the new recommendation of December 2007 to assess BIPT's market analysis decision. For the unbundled access

market it uses the new definition of market 4, i.e. "Wholesale physical network infrastructure access (including shared or fully unbundled access) at a fixed location:

> *"IBPT excluded optical fibre connections (FTTH/FTTB) from the scope of the relevant market for wholesale unbundled access (including shared access) to local loops and sub-loops"*

The Institute does not see any reason to start a new market analysis as a consequence of the new recommendation before adopting this addendum.

AT THE SAME TIME BIPT IS WORKING ON THE SECOND ROUND OF THE MARKET ANALYSIS (MARKETS 4 & 5)

The normal period of validity of a market analysis decision of BIPT is three years. The above-mentioned market analysis decision came into force on 18 January 2008.

In its comment the Commission reminded that the regulatory obligations must stay in force until the adoption of the next market analysis and invited BIPT to reconsider the determination of a deadline for the obligations which are now imposed to ensure that the latter do not lose their effects before the completion of the next market analysis in order to guarantee regulating certainty on the market.

When drawing up the final version of this decision BIPT took as much possible into account the remarks of the European Commission and this according to Article 7, § 5, of Directive 2002/21/EC ("*The national regulatory authority concerned shall take the utmost account of comments of other national regulatory authorities and the Commission....*") and Article 141, paragraph two, of the Act of 13 June 2005 on electronic communications ("*The Institute takes into account the remarks that it receives from the European Commission and the regulatory authorities of the Member States* ...")

BIPT mentioned the following in the above-mentioned market analysis decision:

> *"BIPT will do its utmost to complete a new market analysis by 15 May 2009. Considering the third remark of the European Commission on Article 16, second paragraph, of the Framework Directive and on Article 55, § 2, of the Act of 13 June 2005 on electronic communications, the obligations imposed in accordance with this decision will be maintained until the definitive adoption of this new market analysis."*

Considering this deadline on the one hand and the requests of the European Commission of 3 January 2008 on the other hand, i.e.:

- "*BIPT to examine within a national context the reasons that could explain the high level of retail prices for broadband services in Belgium, especially taking into account the large margins existing between wholesale products and the corresponding retail products; the Commission considers that the weak presence of operators using the unbundling of the local loop could be a possible cause of this low competition level at retail level;*
- *it notices that BIPT has recently reduced the price levels of access to the local loop but invites BIPT to see to a real execution of the regulatory obligations, to encourage unbundled access in order to spur alternative operators to switch from the bitstream offer to the unbundled access offer;*
- *the Commission invites BIPT to assess in its next market analysis the impact of the regulation of unbundled access and wholesale broadband access by monitoring more specifically the development of the competition conditions on the retail market and in this context to assess as well whether the future development of the market could justify a market definition more limited at geographical level.*

BIPT would like to stress in this matter that it examines these additional remarks and that it carries out the necessary studies and takes the necessary measures to prepare the next market analysis in the course of 2009.

PROCEDURE

THE NATIONAL CONSULTATION

According to Articles 139 and 140 of the Act of 13 June 2005 BIPT organised a consultation that took place from 3 January up to 29 February 2008 inclusive. The Institute has received reactions from Belgacom, the Platform, Mobistar and Telenet. The public version of the reactions as well as a summary was published on BIPT's website.

After the national consultation BIPT added a certain number of explanations and did some adaptations taking into account the reactions of the sector. Moreover a study of Analysys was also included in the document examining the viability of subloop unbundling in Belgium.

According to Belgacom BIPT is not adopting the right opinion in the draft decision as it does not take into account competition from broadband on cable television networks. The opinion of the Institute would therefore not be well-founded.

In the market analysis decision of 10 January 2008 supported by the European Commission[2] BIPT extensively argued that at the moment cable networks cannot be substituted with the network of Belgacom and therefore do not belong to the same market. Considering that Belgacom was the only one to be designated as SMP operator it is logical that this complementary decision focuses on Belgacom.

THE COMPETITION COUNCIL

Legal basis

According to Article 55 of the Act of 13 June 2005 BIPT transmitted on 11 July 2008 this document to the Competition Council:

> *Art 55. § 1. In accordance with § 4, as soon as possible after the adoption of the recommendation or any updating thereof, the Institute shall carry out an analysis of the relevant markets in order to determine whether they are effectively competitive. The exchange of information needed for that analysis shall take place in accordance with Article 137, § 2.*
> *(…)*
> *§ 4. With respect to the Institute's decisions for which this paragraph is referred to, the Institute shall first consult with the Competition Council. The Competition Council shall render its opinion within a period of 30 calendar days following the notification of the draft decision by the Institute. After this period has expired, the Competition Council's silence is considered to be equivalent to the approval of the above-mentioned draft decision.*
> *§ 5. The Institute shall first transmit its decisions for which this paragraph is referred to to the Competition Council, which shall have a period of 30 calendar days to render a binding opinion on whether the Institute's decisions comply with the objectives pursued by competition law. After this period has expired, the Competition Council's silence is considered to be equivalent to the approval of the above-mentioned decision.*

[2] The Commission also stressed in the explanatory memorandum of the relevant market recommendation that cable is no substitute for neither LLU (page 31-33) nor bitstream (page 34).

Reaction of the Competition Council

In its reaction of 11 August 2008 the Competition Council points out that the obligations of the current addendum are valid until the next market analysis and that the Council will re-examine these obligations if they are included in the new analysis because afterwards the Council will have a better view of the competitive impact of NGN/NGA in the longer run.

Concerning the transparency of the development of the PSM operator's network the Council suggests that the PSM operator only transmits to the regulator his plans for the infrastructure installation; the regulator would then in turn communicate on its responsibility to the alternative operators the information he considers necessary so that the latter can take their investment decision. This procedure would prevent the designated SMP operator from disclosing his plans to his competing operators of the cable networks.

The Council does not express any objections in principle against the remedies relating to the change of network of the SMP operator in an All-IP-network and the remedies relating to the closing down of local exchanges. The Council stresses that ideally one should deliberate on solutions instead of imposing them.

The Council expresses no objection in principle against the remedy relating to the imposition of a uniform price for unbundled access, i.e. regardless of the fact that Belgacom operates or not some exchanges for its own retail offers.

Concerning the remedy relating to the VDSL2 Ethernet-based bitstream offer, the Council does not see which obligations proposed in this addendum go further than the remedies included in the decision of 10 January 2008.

Concerning the remedies relating to VDSL2 installation and marketing, the decision of 10 January 2008 does not take into account the competition problems resulting from the speed and the scope of VDSL2 installation by the designated SMP operator. These factors should require additional measures.

With regard to the results of Analysys which concludes that the development of unbundling at subloop level is not cost effective in Belgium, except for a small number of cable distribution frames, it cannot be said that BIPT's draft contains satisfactory elements to claim that these measures will be effective for the SLLU's development. A more thorough study seems therefore to be necessary before assessing the impact of such remedies on the development of competition and the appropriate and proportionate nature of it. Therefore the legitimacy of this measure will have to be re-examined in the light of this new market analysis.

Legally BIPT must take into account the remark made by the Commission in its letter of 3 January, namely to re-examine the market conditions to provide equivalent market conditions for all players within the future NGN environment. For this purpose not only the substitutability issue between cable networks and the network of the designated SMP operator must be re-examined but also the substitutability issue between optical fibre connections and the other access lines.

Reaction BIPT

The Institute shares the opinion of the Competition Council according to which an agreement between the interested parties on the migration conditions is preferable to imposed rules, but BIPT has to note that an agreement such as in the Netherlands where KPN grants financial compensations for the migration of alternative operators is not an option for Belgacom. Besides Belgacom denies in its letters that it is a forced migration and it stresses that the rules already foreseen in BRUO are applicable. That is why the Institute is forced to make a

proposal itself but it remains possible to deviate from the conditions imposed if there is a bilateral agreement. In case of a bilateral agreement it will also be taken into account in the next market analysis which if planned for 2009.

The Competition Council wonders in which fields the obligation to have a fully-fledged bitstream Ethernet-based offer deviates from the decision of 10 January 2008. The bitstream offer provided for a larger diversification possibility because of the limited viability of SLLU. Just like in BRUO it must become possible in the new bitstream offer to use all DSLAM functions if technically possible. It is an additional diversification which is not possible according to the non-discrimination obligation laid down in the decision of 10 January 2008 but which remains necessary to maintain a product diversification as large as in BRUO within an NGA context.

The Institute wonders just like the Competition Council whether the support services proposed like duct sharing, dark fiber and backhaul will be sufficient to encourage infrastructure competition. The study of Analysys Mason has already shown that such services are essential to give some viability to infrastructure competition. Therefore BIPT considers that the imposition of these support services for unbundling at street cabinet level is proportionate and necessary. However assessing this measure will be necessary and will be executed within the framework of the next market analysis, when there will be more visibility on the intentions of the alternative operators concerning subloop unbundling.

The Competition Council suggests to limit the transparency obligation. The Institute should define itself which information provided by Belgacom is communicated to which alternative operators so that cable operators do not receive any competitive advantage by discovering the future plans of Belgacom. The proposal of the Council imposes here too much responsibility on BIPT, which is difficult to manage. Therefore according to the reasoning of the Council a cable operator should only receive the roll-out plans for the areas where he is not active as cable operator. In other words these plans should be filtered with all the resulting problems: risk of errors, the non-convergence of network limits (a street cabinet which covers buildings inside and outside of the cable network concerned), etc. In addition to the practical unfeasibility of the proposal the Institute would like to stress that full transparency is necessary so that every alternative operator can draw up his business case for future investments with full knowledge of the facts. Cable operators need the services of Belgacom to be able to offer theirs services nationally and must also use their own cable network within the area because for example business customers do not have a cable connection at their disposal. Filtering this essential information for cable operators based on their own cable network is not logical.

Finally BIPT would like to point out that the issues relating to the substitutability of the copper cable network and the cable television network and the substitutability of optical fibre and copper cable will be treated in the next market analysis. This document is an addendum to the market analysis decision of 10 January 2008 which specifically treats a certain number of NGN/NGA aspects. The previous decision is recent enough so that the market conditions haven't changed that much to require a full analysis. Besides this addendum was announced in the decision of 10 January 2008 like already mentioned above in this document.

THE COMMUNIITY REGULATORS

Legal basis

After the Competition Council this document is submitted to the community regulators. The consultation with the community regulators is laid down in Article 14, § 2, 5°, of the Act of 17 January 2003, which determines the tasks of the Institute:

the Institute [can] only take decisions with regard to those electronic communications networks for which the communities are competent when a cooperation agreement with the communities comes into force on the subject of the exercise of powers relating to these electronic communications networks.

The cooperation agreement was approved by all governments concerned on 17 November 2006 and ratified by the legislative power of the Federal State (on 28 December 2006), of the Flemish Community (on 4 May 2007), of the German-speaking Community (on 25 June 2007) and of the French Community (on 4 September 2007). It came into force on 29 September 2007.

The draft decision was transmitted by BIPT to the community regulators in accordance with Article 3 § 1 of the Cooperation agreement.

Reactions of the community regulators

On 4 September 2008 BIPT received the answer of the VRM. In its answer the VRM declares that it has no fundamental comment on the draft decision but only two minor remarks.

1. NGN/NGA & second round

   The VRM would like to replace “the guarantee that NGN and NGA are included in the second round of the market analysis (markets 4 & 5) which is announced on p.6 with the sentence “At the same time BIPT is working on the second round of the market analysis (markets 4 & 5)”.

   BIPT confirms here that NGN and NGA will indeed be part of the second round of the market analysis on the broadband access markets.

   For a new market analysis all existing obligations must be reassessed.

2. Error in translation

   The VRM points out a difference between the Dutch and the French version of the draft decision.

   BIPT recognises this material error and has rectified it.

The CSA reacted on 4 September 2008. It formulates remarks according to Article 3, & 2, of the cooperation agreement:

1. The period of validity of the draft decision

   The CSA would like a mention added specifying that the obligations of the addendum will be valid until the adoption of the next market analysis (4 and 5) and that NGN/NGA will really belong to the scope of the market definition and will then be submitted to a thorough examination.

   BIPT confirms that title 5.1 on the period of validity of the decision of 10 January 2008 is applicable to that addendum and refers for the rest to its confirmation relating to NGN/NGA in its reaction on the similar issue mentioned by the VRM.

2. Speed and efficiency

The CSA considers that the deadline between the decision of 10 January 2008 planning the launch of a consultation on NGN and NGA and the current draft addendum makes it difficult to adopt "rapidly and efficiently" an opinion and considers that a well-founded justification should be given.

For the good order BIPT gives below a short overview of the various steps which have been undertaken in this file from January up to September 2008 inclusive.

In January and February 2008 BIPT organises a consultation of the sector on NGN&NGA. At the end of February Belgacom communicates what follows to BIPT: "Belgacom's Board of Directors recently adopted an agreement in principle to start the further expansion of the IP network. This is however a lengthy process. This decision also entails the possibility to dispense with approximately sixty buildings within the period 2012-2018. This means that the first concrete cases might have consequences for the operators as of 2012. We are talking about 4 to 8 cases. At the moment this is also a decision in principle as the names of the buildings are not yet filled in. To this effect a study is required." During March 2008 BIPT processes the reactions to the consultation document. The summary of this document is published on BIPT's website and in reaction to the published contribution of Belgacom the Platform transmits in May 2008 an additional comprehensive reaction to BIPT. Following the general meeting of 9 April 2008 Belgacom declared that in the context of the modernisation of its network and the transition to IP technology about 10% to 15% of its exchanges will close down. Then BIPT invites the main players active on the market concerning BRUO & BROBA to an individual presentation on the impact of NGA on their business case. At the same time Analysys Mason carries out a strategic study for BIPT. The individual operators are received on 12 June. On 13 June 2008 BIPT pays a working visit to KPN in the Netherlands where the remote optical platforms are being visited. During its presentation of 12 June 2008 Belgacom shows for the first time to BIPT a list with the planned closing down of 65 MDF-buildings and the related provisional schedule. Three working days later Belgacom sends a letter to the operators including the list of the MDF buildings concerned and the planning expected. At that time BIPT still isn't in possession of this list. Finally Belgacom sends one day later (18 June 2008) a copy of the letter to the operators to BIPT. Afterwards Belgacom transmits to BIPT the impact of the closing down of 65 exchanges: i.e. the percentage of the BRUO and BROBA lines affected. The study of Analsys Mason is finalised and integrated as well into a BIPT communication of 9 July regarding the closing down of exchanges. After a pre-notification meeting with the European Commission, the VRM, CSA and the Competition Council a draft decision is submitted for advice in July 2008 to the Competition Council. Afterwards the decision in August 2008 was transmitted to the Community regulators.

3. Mini MDF

The CSA requests as well to clarify the formulation of the remedy relating to mini MDFs. The CSA deduces from it that BIPT seems to oblige Belgacom to make a minimum of 20% of the pairs of each street cabinet depending on a MDF, accessible from a mini MDF which was created in replacement while the role of a mini MDF is limited to certain street cabinets without VDSL. In consequence the CSA asks if Belgacom should be obliged to keep mini MDFs in every building?

BIPT would like to clarify within this framework that the objective is certainly not that Belgacom must create or keep mini MDF in every building. It concerns thus exclusively the exchanges for which Belgacom plans itself a mini MDF to offer

services to the street cabinet which is not equipped with VDSL2. BIPT stipulates however that where Belgacom creates a mini MDF, it should see to it that minimum 20% of the pairs (figure calculated according to the market share of alternative DSL operators) of every SC depending on a closed MDF is accessible from a mini MDF created in replacement.

The Medienrat has not reacted.

The draft decision was handed over a second time on 17 September 2008 by BIPT to the community regulators and this in accordance with Article 3 § 3 of the Cooperation agreement. On 22 September 2008 the VRM and the CSA communicated to the Institute that they did not have any comment on the modified draft decision. The Medienrat has not reacted.

THE EUROPEAN COMMISSION

Legal basis

Finally, according to Article 7, § 3, of Directive 2002/21/EC3 the European Commission and the national regulatory authorities must be consulted as follows:

> *3. In addition to the consultation referred to in Article 6, where a national regulatory authority intends to take a measure which:*
> (a) falls within the scope of Articles 15 or 16 of this Directive, Articles 5 or 8 of Directive 2002/19/EC (Access Directive) or Article 16 of Directive 2002/22/EC (Universal Service Directive), and
> (*b) would affect trade between Member States, it shall at the same time make the draft measure accessible to the Commission and the national regulatory authorities in other Member States, together with the reasoning on which the measure is based, in accordance with Article 5(3), and inform the Commission and other national regulatory authorities thereof*. *National regulatory authorities and the Commission may make comments to the national regulatory authority concerned only within one month or within the period referred to in Article 6 if that period is longer. The one-month period may not be extended.*

Reaction of the European Commission

This draft decision has been notified to the European Commission on 30 September 2008. In its letter of 30 October 2008 the European Commission agrees with the proposed addendum of BIPT.

The Commission invites the Institute to assess in the next market analysis planned during the first quarter of 2009 substitutability between VDSL bitstream access products and the current bitstream access in order to clarify the scope of the wholesale services which are subject to ex-ante regulation.

To clarify the question of the Commission the Institute would like to point out that such substitutability study was already included in the market analysis decision of 10 January 2008 and led to the following conclusion:

[3] Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (Framework Directive) Official Journal of the European Union L108/33 of 24 April 2002.

BIPT considers that the BROBA II ADSL- and SDSL bitstream access offers which correspond to the high rate retail services which are currently offered (offers of VDSL type) can be included in the same relevant market.

The Institute will of course resume this substitutability study in the new market analysis to define the relevant market.

Moreover the remark of the Commission does not give rise to the adaptation of this decision.

WHAT IS NGN / NGA?

Before going more deeply into the matter, the Institute wishes to clarify what is meant in this document by the terms NGN and NGA.

NEXT GENERATION NETWORK (NGN)

Next Generation Network (NGN) refers to the development of the current network infrastructure. The purpose of this network development is to reduce the operational costs and enable new high-speed innovative services for end-users.

On the one hand new technological insights allow us to converge into a single dynamic network (based on IP or Ethernet) that will be the basis for different services (telephony, Internet, digital TV, …). This brings about greater efficiency and reduces costs as currently different networks exist alongside each other for example to offer telephony and Internet, each using its own means in terms of bandwidth.

On the other hand the network structure will change radically leaving only a certain number of aggregation points in which all traffic will be bundled. This will allow for a large number of the currently present exchanges to be closed and sold, which will generate additional income for the incumbent operator. Closing down some of the exchanges could generate additional income to finance the network adaptations.

An overview of the network changes is attached to this document.

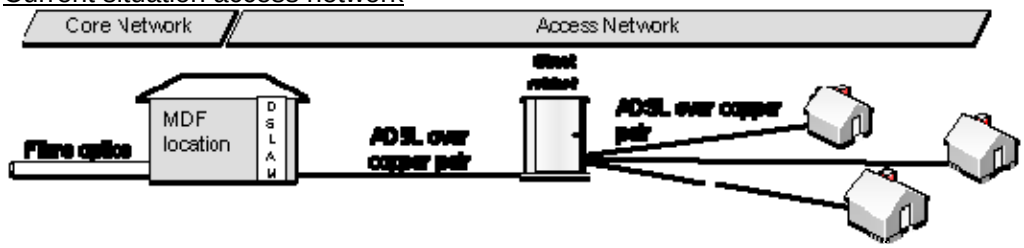
NEXT GENERATION ACCESS (NGA)

The current access network using copper wire between the end-user and the exchange (LEX or LDC) will change radically over the coming years since bandwidth (download and upload speed) will be limited to the length and the quality of the copper wire. To achieve higher speed copper wires must also be completely or partially replaced by optical fibres.

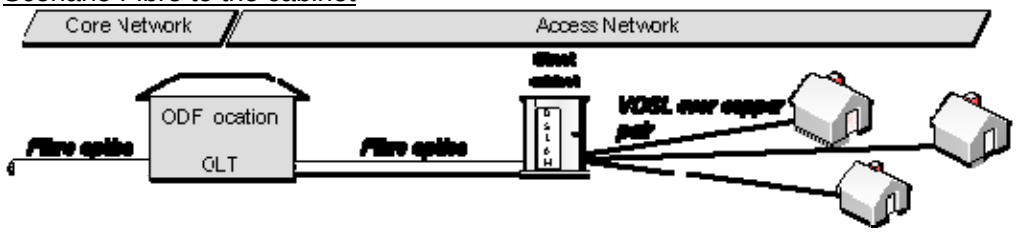
Certain operators choose to install optical fibre straightaway in each living room (fiber to the home) but due to the high investment costs this entails, most European operators choose a middle course installing optical fibre until the street cabinet (SC) and copper wire for the "last mile" between the cabinet and the end-user (Fibre to the cabinet). The active xDSL equipment which used to be placed in the exchanges (LEX/LDC) is then installed in the street cabinet. This causes some exchanges to become redundant or at the very least the necessary space per exchange is considerably reduced.

Belgacom has chosen the latter scenario and has made massive investments over the past few years to install optical fibres until the street cabinets. According to press releases Belgacom would be ready to connect 60% of the population through these adapted street cabinets by spring 2008.

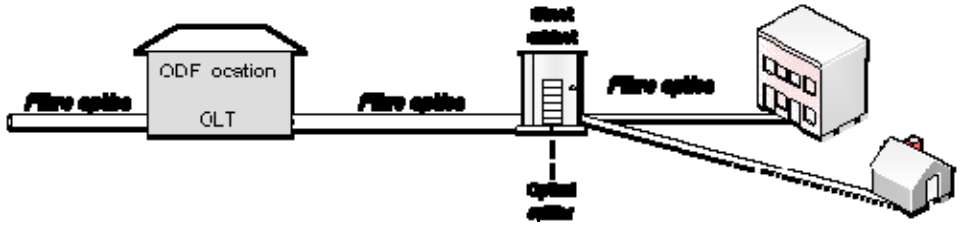
<u>Current situation access network</u>



<u>Scenario Fibre to the cabinet</u>



<u>Scenario Fibre to the home/building</u>



Picture 1 Overview of the access network's development (Source: Cullen, 2007)

EUROPEAN CONTEXT

Before going more deeply into the Belgian situation, the Institute wishes to give an overview of what has been said and advised concerning NGN and NGA at European level. Besides BIPT also discusses in this chapter the situation in other countries where similar evolutions take place.

EUROPEAN COMMISSION

The regulator's role

In its "Explanatory note: Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services" of 13 November 2007 the Commission stresses the ex ante part of the regulator concerning NGNs: [4]

> "*In applying remedies, regulators need to find ways to promote the deployment of new and more efficient network architectures while at the same time recognising the investments made by new entrants on the basis of current architectures. National authorities will need to carefully follow and evaluate developments in order to ensure that appropriate access remedies are maintained for the forward-looking periods for which competition is judged to be ineffective, and to avoid undermining or discouraging efficient entry".*

In her speech of 26 November 2007 in Budapest Vivian Reding, European commissioner, emphasised the importance of the role the regulator plays in the Next Generation Networks:[5]

> *The treatment of Next Generation Networks is one of the most important regulatory issues facing us over the coming years. I want regulation to encourage investment in future networks. Regulatory holidays are not the solution, what we need is "appropriate" regulation that safeguards competition whilst creating new incentives for investment. But what do we mean by appropriate regulation?*
>
> *If we can cooperate and arrive at a consistent answer, we will have done our businesses, consumers and the wider EU economy a great service because consistency will level the playing field across the Community, consistency will reduce uncertainty. I don't need to tell you that increased certainty is a necessary precondition if you are contemplating large-scale investments, especially if you are venturing into a new market. It means reduced risk and that means reduced capital costs.*

Dealing with "Next Generation" technologies

In the document "*Explanatory Note to the Commission Recommendation on relevant Products and Service markets"* of 13 November 2007 the European Commission states the following regarding Next Generation Core Networks:

> *Because of the large investments in NGNs, some incumbents have called for a firm date to be set for the withdrawal of sector-specific ex ante regulation; others for*

[4] free translation
[5] free translation

'regulatory holidays' for major new investments. Incumbents particularly criticise mandated access to their infrastructure and the price at which this is imposed (which they usually consider to be too low). On the other hand, new entrants fear that incumbents would be able to limit the availability of access, undermining existing investment. They therefore see that ex ante regulation and open access provisions on incumbents' networks correlate strongly with increased investment and innovation.

In general, migration to next generation core networks has fewer regulatory implications. The EU's market-based approach to the regulation of services is independent of the technology used in the core network. To the extent that the new 'all-IP' core networks continue to support existing services, those services will be regulated as before; to the extent that next generation core networks allow new markets to be developed based on new products and services, those new markets will be treated in accordance with the procedures set out in the regulatory framework.

In that same document the Commission notes the following about Next Generation Access:

In the case of VDSL and fibre to the street cabinet, the number of street cabinets is an order of magnitude greater than the number of MDF sites, and this can pose both economic and technical difficulties for competitors that currently offer broadband services using ULL and ADSL equipment at the MDF site. Their ability to roll out infrastructure similar to that of the incumbent is limited. In the local access network, costs are concentrated in civil engineering works. These works can amount to 50%-80% of the total cost per customer depending on the deployed solution and specific local characteristics (such as customer density, availability of ducts, labour cost and digging conditions). Incumbents and cable TV companies can use their existing ducts and rights-of-way to minimise these costs. Other competitors a priori do not have the same advantages, except in rare cases where they may be granted access to other utilities' facilities.

Deployment of NG access networks modifies the competitive environment in a number of markets, in particular LLU and wholesale broadband access. However, as long as competitive conditions have not changed, the move to NGNs does not provide an opportunity to roll back regulation on existing services. For some time, competitors will have an ongoing need for access to copper at the MDF level or to bitstream type services at different levels in the network.

Planned changes in the access network may potentially make it more difficult to continue to carry forward regulated remedies such as local loop unbundling (at established access points), that are designed to address the lack of effective competition in the provision of broadband services.

In applying remedies, regulators need to find ways to promote the deployment of new and more efficient network architectures while at the same time recognising the investments made by new entrants on the basis of current architectures. National authorities will need to carefully follow and evaluate developments in order to ensure that appropriate access remedies are maintained for the forward-looking periods for which competition is judged to be ineffective, and to avoid undermining or discouraging efficient entry. Remedies such as duct sharing, access to dark fibre, mandated backhaul from the street cabinet, and new forms of bitstream access, could be considered where these are appropriate, bearing in mind that, in line with Article 8 of the Framework Directive, remedies should aim, inter alia, at stimulating economically efficient investment in infrastructure. This may call for some transitional arrangements to be considered, to allow time for adaptation of existing business models.

The serious impact of VDSL roll-out on the future capacity and competition was stressed by European commissioner V. Reding in her speech[6] of 14 January 2008

> *"In terms of open competition however there are serious concerns that VDSL could be attractive to incumbent telecom operators, because they require competitive market entrants to substantially scale up their investment in switching capacity. […] competitors that are unable or unwilling to scale up their investment would be forced out or forced back on the incumbent networks.* ***I wonder, therefore, if VDSL is not a dead end street for both future capacity and competition".***

The Commission intends to launch in fall 2008 a consultation on the specific recommendation over NGNs treatment.

ERG OPINION

The ERG (European Regulatory Group) studied the emergence of the NGNs and the sector was consulted at European level. BIPT is participating actively in this working group.

The ERG's work finally resulted in the opinion statement "ERG Opinion on Regulatory Principles of NGA". A joint opinion of all European regulators that was formulated at the request of European commissioner Viviane Reding (letter of 30 April 2007) to help the European Commission with the Framework Review.

This ERG opinion contained the following recommendations to absorb the impact on the unbundling and bitstream markets and to guarantee competition:

- For unbundling in the light of a changing network infrastructure with reconfiguration or closing down of MDF sites, a balance is needed between commercial freedom of SMP operators to further develop their network and services and the role of the regulator to stimulate competition. This is possible through the definition of a suitable migration path and the terms for an SMP operator to close down an MDF site.

- Since subloop unbundling (SLLU) is a part of market 11 it ensues from the access obligation that SLLU must be offered in all Member States.

- Unbundling of the shortened local loop implies the need for co-location at street cabinet level.

- Unbundling of the shortened local loop entails the need for backhaul provisions from the street cabinet until the operator's network node and/or the provision of duct sharing.

- Wholesale bitstream reference offers (incl. SLAs) must be supplied if necessary to allow high-quality service offers and to adapt to the changes in the SMP network.

THE NETHERLANDS

At the end of 2005, KPN announced that over the next few years it wants to migrate its network to a so-called 'Next Generation Network'. The migration to an NGN is intended to give KPN a cost-effective broadband IP network that will allow it to provide tomorrow's electronic communications services. KPN's plans include the realisation of unbundled access

[6] "The Access Revolution: an evolution of regulation for competition", speech by V. Reding, European Commissioner for information society and media, dated 14 January 2008

at the street cabinet level. To this end, that section of the access network to the street cabinet is to be provided using optical fibre.

KPN also wants to phase out the functionality of the main distribution frames (MDFs) and phase out almost all of its so-called 'MDF locations'. These locations and this functionality will become superfluous in KPN's modernised network. KPN is calling this operation the migration to 'All-IP'.

OPTA published its market analysis decisions on unbundling and bitstream on 21 December 2005. In these decisions OPTA finds the following:

- The retail market for broadband internet access is effectively competitive.
- The wholesale market for low quality broadband access is effectively competitive, because there is an intense competition between the available bitstream offers. Service providers can purchase wholesale broadband access from KPN (voluntary offer of KPN), alternative DSL-providers and in some cases cable operators.
- The wholesale market for unbundled access to the local loop is not effectively competitive and KPN has significant market power. Regulation includes access and price regulation.

Within the framework of All-IP, KPN intends to restructure its network in such a way that a significant part of the regulated service provision in the market for unbundled access, namely MDF access, will be phased out. In light of a number of other developments, OPTA views this intention as sufficient motivation for conducting new market analyses in the short term in order to determine what (potential) competition problems (could) arise in the various relevant markets and what other access options there must be in such a case to mitigate the effects of phasing out MDF access.

In its position paper on All-IP[7] OPTA elaborates on a fully-fledged alternative for MDF access. The starting point is that a fully-fledged alternative replaces the connectivity from the subnetwork to the networks of other suppliers. An MDF access customer currently purchases this connectivity from KPN. Ideally other suppliers will realise this connectivity, just as KPN does, by installing their own infrastructure or purchasing this connectivity. However, OPTA foresees obstacles to a further roll-out, given the speed and the scope at which other parties must realise this. OPTA does not see any clear ex ante authority for imposing collective cable installation or installing extra capacity in cable channels for duct sharing.

The fully-fledged alternative for the current applicable obligations could consist of the following components:

- A regulated offer from KPN for unbundled access to the subnetwork, as well as the related facilities such as co-location at the street cabinet for purchasing Subloop Unbundling (SLU).
- Phase-out conditions for the withdrawal of MDF access already granted. OPTA expects these conditions to be part of the ultimate set of new obligations;
- A regulated wholesale bitstream offer from KPN for the areas where KPN does not yet offer SLU and/or SDF (Subloop Distribution Frame) backhaul and the MDF locations are phased out.
- A regulated offer for the delivery of optical fibre and/or optical fibre routes by KPN, as well as the related facilities such as co-location on the Metro Core Locations and the street cabinet for installation and delivery of backhaul by third parties, and/or;
- A regulated offer from KPN for SDF backhaul, as well as the related facilities such as co-location on the Metro Core Location and street cabinet for purchasing backhaul from KPN or delivery of backhaul by third parties.

[7] OPTA (2006), Position Paper KPN Next Generation Network ALL-IP, 23 October 2006

The study Analysys[8] conducted on the business case regarding subloop unbundling for the Dutch regulator OPTA shows that

- it is economically viable for an alternative operator with a 10% market share to offer SLU in the most densely populated street cabinets provided that the wholesale tariffs for SLLU line rental, co-location and SDF backhaul drop considerably (-50%) and the Average Revenue Per User (ARPU) increases by approximately € 9 per user per month. This could be a feasible strategy for business customers;
- SLU is economically viable as an alternative to LLU if an alternative operator has a market share of 25% and the ARPU increases by € 5 on average by 2016;
- the use of a commercial wholesale bitstream product in the Netherlands is considerably more expensive than continuing to offer access through LLU.

In the beginning of 2007 OPTA has called on KPN to produce a solution, which is acceptable to all parties involved, for KPN's proposed phase-out of MDF Access as part of its All-IP plan. This call was answered by KPN by starting talks with the three largest MDF customers. The talks resulted in three signed Memoranda of Understanding (MoUs) on 13 July 2007. The MoUs contain conditions under which MDF customers are willing to co-operate with moving out of the MDF locations. One of these conditions is that KPN will maintain MDF access for a coverage of 50% of Dutch households. Another condition is that KPN will develop an adjusted wholesale bitstream offer, which gives market parties the opportunity to continue their MDF Access business model.

On 1 October 2007 KPN launched a public offer with exit points upon migration from the MDF. Within this framework, however, KPN and market parties are still discussing further details regarding high-quality wholesale broadband access.

During the ECTA conference KPN announced on 30 November 2007 that these MoUs will contain the following elements:

- MDF access maintained if possible by moving co-location towards the cellars, with compensation for the alternative operator;
- Compensatory mechanisms for migrations towards bitstream access with the same service options for exchanges where co-location is no longer possible.
- Providing for the possibility to unbundle the subloop and sufficient transparency on which street cabinets will be installed to ensure a joint roll-out.
- guarantee that the main exchanges remain open for a certain time.

In December 2007 the European Commission agreed with the financial participation of the city of Amsterdam in the construction of a local fibre network. It did not go against the EU rules on State aid because the municipality took part under the same conditions as investor at the same time as different private parties.

At the end of 2007 OPTA published a draft decree on SDF Backhaul. The Dutch regulator notices in this draft decision that the obligation to offer subloop unbundling is in fact not effective as long as the availability of a backhaul connection is not guaranteed.

OPTA gave time to market parties until 15 April 2008 to reach market-based solutions in the ALL IP context for the planned phasing out of access to some KPN's MDF exchanges. OPTA prefers that these further details are integrated into a new public MDF migration offer that becomes available in a non discriminatory way for all market parties. The agreements

[8] Analysys (2007), The business case for subloop unbundling in the Netherlands, Final Report for OPTA, January 26, 2007.

reached will be examined in the market analyses that have already started for broadband and leased lines and which will come to an end this year.

Belgacom considers that the references made by BIPT to the ERG opinion do not take into account a certain number of important subtle distinctions and that references to the Dutch market are not relevant, as markets are differently structured and that the strategy of KPN differ from the one of Belgacom, both concerning rate and scope of the phasing out or not of MDF locations.

The Platform points however out that Belgacom's reasoning holds water considering that in the Netherlands KPN also will keep open a certain number of MDFs and that both markets are very similar (population density, geography, cable, …). Concerning the roll-out timing, alternative operators are astonished that Belgacom dares to claim that the Dutch example is not relevant as there was much more transparency in the Netherlands where talks about the roll-out already started with alternative operators. Alternative operators cannot be punished for the lack of transparency at Belgacom. The Dutch situation is thus a relevant example of VDSL regulation and how an incumbent operator can deal in a more transparent and constructive way with competition and the regulator.

SPAIN

- Alternative operators also quote the example of Spain where Telefónica both VDSL2 and FTTH rolls out. The Spanish regulator CMT published NGN/NGA directives[9] and took urgent measures on 8 May 2008 [10] concerning FTTH/GPON.
- The existing LLU regulation is maintained with additional transparency obligations among which an overview of the NGA nodes planned up to 2012 as well as the excavation works planned, the fibre covering planned, … 1 year before the excecution of the NGA plans.
- Subloop unbundling is maintained but it does not have priority because of its complexity.
- Telefónica has at the request of alternative operators provide for duct access under non-discriminatory and cost-oriented conditions. The regulator will intervene in case of disputes.
- Unbundled access to the FTTH infrastructure is not planned. Unbundling for the *point-to-multipoint* scenario (GPON) is too complicated. CMT considers that access to ducts is enough and will encourage investment.
- Telefónica has to provide for temporary virtual FTTH-wholesale access for the alternative operators who would like to invest in FTTH but need time to roll out this FTTH network.

In consequence of its SMP status Telefónica was obliged to publish on market 11/2003 a VDSL2 bitstream offer at MDF level for VDSL2 roll-out at SLU level and on market 12/2003 a regional and national VDSL2 bitstream offer for VDSL2 roll-out at MDF level.

FRANCE

France mainly opts for the 'fibre to the building' (FTTB) and 'fibre to the home' (FTTH) scenarios.

ARCEP considers that FTTH can only be rolled out in some regions such as Paris because the presence of an extended draining system of ducts already installed makes it there

[9] http://www.cmt.es/es/home/novedades/anexos/ANEXO_NGA.pdf?bcsi_scan_A988B4AD5F3DAD36=0&bcsi_scan_filename=ANEXO_NGA.pdf
[10] http://www.regulatorywiki.com/uploads/countries/Resolucion%202008-626%2C%20cautelares%20fibra.pdf

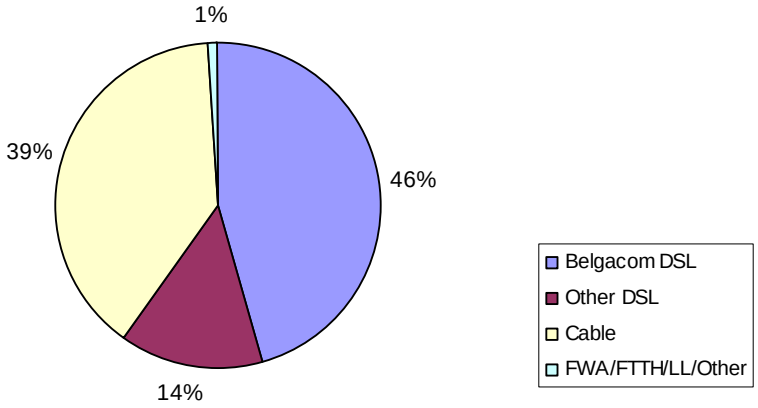
financially feasible. According to ARCEP access must be provided to these existing ducts so that all operators are able to invest in optical fibre. In its analysis of the wholesale market for access to ducts ARCEP designated France Telecom as SMP player. ARCEP supposes that these civil engineering works of the incumbent operator are an essential facility. France Telecom is obliged by ARCEP to give access to this infrastructure in a non discriminatory way and at cost-oriented rates.

Considering that FTTH often requires to upgrade the existing interior cabling the French regulator ARCEP thinks that the first operator who installs this cabling must give access to other operators so that the building owners are not troubled by different operators to install in turn their own cabling. Thanks to new legislation later on this year ARCEP wants to see to it that operators are obliged to share the last part of the fibre network through an optical distribution frame. In the meantime there will be practical guidelines and model contracts that can be used by a building owner or a syndicate during the negotiations with operators.

BELGIAN CONTEXT

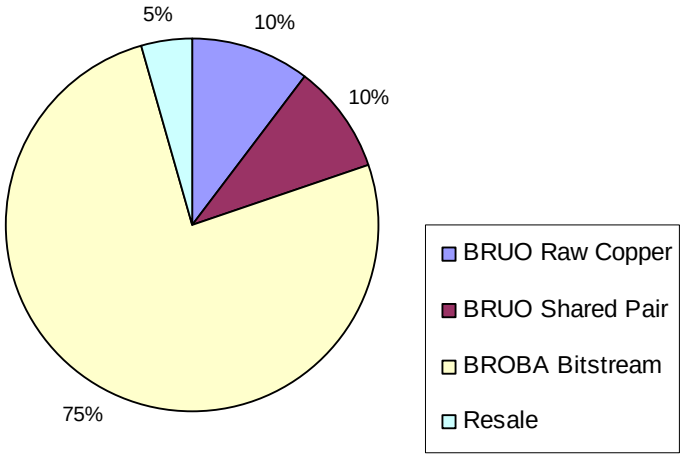
THE BELGIAN MARKET SITUATION

The Belgian broadband market comprises Belgacom that offers broadband services through its copper cable network, the cable companies and finally the alternative operators who have been allowed to provide broadband products to the end-user via Belgacom's wholesale services since 1 January 2001. Other technologies such as wireless, fibre to the home, rental lines… are also possible but have a low penetration rate.



Picture 1. Distribution of broadband lines in Belgium according to technology at the end of 2007 (Source: BIPT)

At wholesale level in Belgium, bitstream lines are most strongly represented: 308,995 lines at the end of 2007 compared to 267,328 lines at the end of 2006. At European level Belgium consequently has the lead in terms of bitstream access: 19% of the xDSL broadband lines are based on bitstream access.

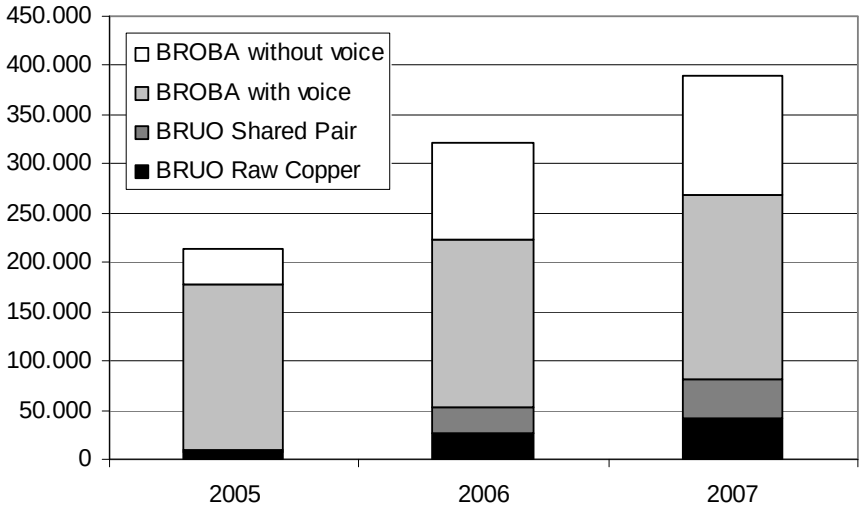


Picture 2. Distribution of number of wholesale lines per wholesale product (Source: BIPT)

The planned take-over of Scarlet by Belgacom will continue to enhance Belgacom's market share. Considering that Scarlet is one of the operators which has heavily invested in an own infrastructure the number of BRUO lines will radically decrease after the take-over by Belgacom. This take-over is being examined by the Competition Council.

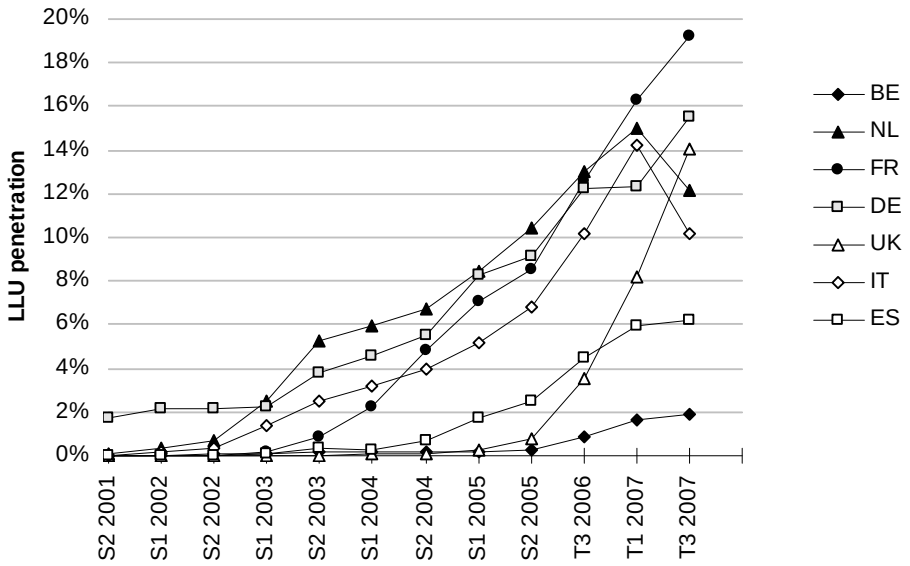
These last few years a positive development can be noticed in the growth of alternative operators. The number of BRUO lines has increased relatively sharply which indicates that alternative operators have heavily invested in their own network infrastructure through unbundling (LLU).

	2005	2006	2007
BRUO Raw Copper	7,376	26,575	41,445
BRUO Shared Pair	1,854	27,145	39,373
BROBA with voice	168,878	169,605	187,167
BROBA without voice	36,215	97,723	121,828



Picture 3. Evolution of the regulated wholesale product volumes (Source: BIPT 2008)

LLU penetration in Belgium remains however very low as compared to other countries. Operators invest less in the development of their own network which disables them from enjoying the various LLU advantages.



Picture 4. LLU penetration as percentage of xDSL broadband lines (Source: BIPT, Analysis, ECTA, 2008)

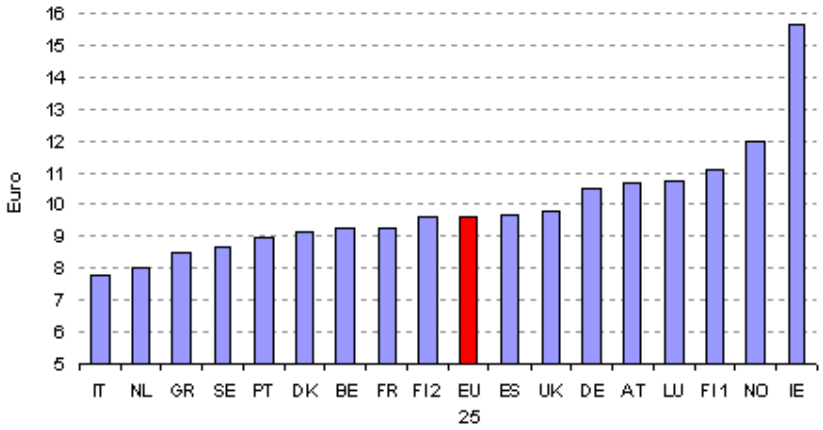
Thanks to fully unbundled lines (BRUO raw copper) alternative operators can offer double play or triple play services. Alternative operators can develop solutions that are from an economic and operational point of view more interesting than bitstream access while they can generate more profit and allow greater creativity in offering all kinds of subscriptions. Finally it also allows broadband infrastructure competition at low prices. Consequently LLU must offer end-users maximum advantage as regards choice, price and quality; it is therefore important that the competition on this market is encouraged in order for the broadband internet retail tariffs to drop.

As of 1 July 2007[11] the monthly rental fee for the connection to the end-user has been reviewed (BRUO offer). This entailed a price drop of about EUR 2 (-18%) for the lines that lack Belgacom telephony and a drop of about EUR 1 (-67%) in the other cases.

	New tariff	BRUO 2006
BRUO Raw Copper	9.29 €	10,58 € (type 1) 11,26 € (type 2)
BRUO Shared Pair	0.52 €	1,61 €

BIPT disposes of indications that different alternative operators are ready to switch to BRUO in the largest exchanges since this creates economies of scale. These operators expect, however, to do this at cost-oriented tariffs. The BIPT approved price reduction mid-June 2007 has improved Belgian raw copper tariffs in the European benchmark, which will encourage competition:

[11] Decision by the BIPT Council of 13 June 2007 regarding the BRUO rental fee



Picture 14: European benchmark for raw copper tariffs

(Source: Cullen International, November 2007)

To ensure that these planned investments are unhindered, it is of great importance that the plans of Belgacom and the intentions of BIPT regarding network evolutions are clarified as soon as possible.

The Institute has to ensure itself that the investments in own network infrastructure made by alternative operators these past few years are not annulled by Belgacom's NGN/NGA plans and that there is a correct assessment of the need for Belgacom to develop the network in order to offer higher-quality and faster services and the competition on the Belgian broadband market.

Therefore the importance of this consultation for the Belgian telecommunications market is not to be underestimated. The Institute waited, however, for certain elements to become clear before submitting this document for consultation. The need for transparency and the importance of an informed debate with the beneficiaries is also stressed by the ERG opinion on Regulatory Principles of NGA:

> *"Transparency can prompt an informed debate amongst communications providers on the potential characteristics and requirements of planned NGA deployments. Following such a debate the NRA can decide on its regulatory approach to any SMP operator found in the relevant markets and thereby provide certainty and predictability to market players and investors."*

Reactions

Belgacom attributes the low penetration of local loop unbundling to the existence of a complete different infrastructure and not to BRUO tariffs, possibly too high.

Alternative operators point out that Belgacom's behaviour is responsible for the weak DSL competition due to BRUO tariffs too high until July 2007, the non-observance of SLA obligations, the non-respect of non discrimination obligations (e.g.: ADSL2+ bitstream offer) and the constant contesting of decisions before the Court of Appeal which leads to legal uncertainty by OLOs.

In its letter of 3 January 2008 the Commission expresses its concern about the lack of competition on the retail market. Within this framework the Commission considers useful to

stress that BRUO has only been developing since 2006 and that BRUO volumes remain particularly low. The Commission also points out that BRUO tariffs were relatively high compared to other European countries until the decision of June 2007. This corresponds with the analysis made by the Institute above. In consequence the Institute keeps its initial analysis.

ANNOUNCEMENTS

Below an overview is given of the announcements made recently before examining the implications for the market.

Phasing out of ATM Core Network

The Institute notes that Belgacom has included the following formulation regarding the phasing out of the current ATM network in its BROBA 2008 proposal of 29 September 2007:

> *Belgacom informs the Beneficiary that ATM is susceptible of being gradually out phased in the Belgacom network and replaced by other technology starting 1st January 2009. As a consequence the current BROBA offering could cease to exist.*

The Institute asked Belgacom for an explanation as to its phase-out plans during the VDSL2 meeting of 15 October 2007 but Belgacom denied that there already existed an actual phase-out planning and that the clause is only meant to inform the beneficiaries beforehand to provide enough transparency.

However the Institute had to read a few days later in the newspaper that in a joint press interview with Bloomberg Belgacom's CEO Didier Bellens and Executive Vice-President of Operations Scott Alcott confirmed that 5 to 7 years would be necessary for the phasing out and that Belgacom has already been planning it for 2 years:

> *Replacing analog networks, switches and computer systems takes five to seven years and Belgacom has about a two-year lead in making the change, Scott Alcott, the executive vice president of operations, said late last week during a joint interview with the Belgacom chief executive, Didier Bellens.*

We can conclude from the above-mentioned interview that the ATM network will be phased out at the latest in 2012. Belgacom points out in its reaction to the consultation that the date of end of 2012 was already announced in October 2007 and has been officially confirmed in the meantime as target date.

During the BROBA 2008 consultation all alternative operators unequivocally stated that it is unacceptable that the incumbent operator imposes the time schedule to the regulator and the sector. According to them Belgacom must enter into discussions with all players in order to achieve consensus regarding this important matter without jeopardising the investments and activities of alternative operators.

The Platform sent a letter to Belgacom on 5 November 2007 since it has no overview whatsoever of Belgacom's plans so far and since it wishes to engage in a constructive dialogue about the phasing out of the ATM network:

> *With reference to the ERG's opinion on Next Generation Access, the operators who are a member of the Platform wish to insist upon more transparency regarding the exact projects Belgacom is planning to launch.*

The Platform is thus asking an open and proactive deliberation with all parties involved, including the regulator, to determine the aspects that impact the regulated access services in the short or medium term. A migration path must be outlined including comprehensive procedures to determine the consequences of a gradual phasing out of the network or parts of the existing network, both in the overlapping phase and in the substitution phase.

This is the only way to find a balance between the commercial freedom of an SMP operator to develop his network and the regulator's goals, who must ensure more competition in the electronic communications sector.

In the BROBA 2008 decision of 21 November 2007 BIPT notes that Belgacom cannot simply suspend a legally imposed and regulated service without the Institute having approved transitional measures since this entails major consequences for the broadband market.

On 13 June 2008 Belgacom has presented the first details of its new Ethernet network to the Institute. The network is made of 5 areas and 2 rings and contains 10 access points to connect at Ethernet level. However Belgacom only wants to start in the course of 2009 discussions about how the closing down of exchanges and the migration to Ethernet should take place.

VDSL2 in the access network

On several occasions during the past few months the Institute asked Belgacom for clarification as to its VDSL2 plans and explained that VDSL2 technology first had to be approved by the Task Group Spectrum Management. BIPT's first letter is dated 13 March 2006 and this message was repeated in the letters of 8 January 2007 and 2 May 2007. Belgacom found the time not ripe yet for a discussion about VDSL2 because the technology was not determined yet. It was not until 24 September 2007 that Belgacom offered to provide the Institute with more information during a meeting on 15 October 2007.

At the broadband Internet world congress in Berlin on 10 October 2007 Belgacom announced to the press that it intends to launch high definition television (hdtv) on its network during the first half of 2008. Based on the VDSL2 technology Belgacom can offer its customers a 20 Mbps bitstream, which is sufficient for two HDTV signals. VDSL2 can also be used to provide other new services such as high-speed Internet or closed circuit security. Belgacom stated in the press that VDSL2 should be available to over 60% of the population by spring 2008.

On 24 October 2007 Belgacom submitted a proposal to the Task Group Spectrum Management (TGSM) relating to the spectrum rules for the use of VDSL2 technology and asked the Institute for its approval by 1 February 2008. The Institute launched a separate consultation on the matter on 28 November 2007. These spectrum rules have to ensure minimum interference between VDSL2 and the already present signals so that sufficient capacity remains to offer the same services to the current customers.

According to the press release of 14 December 2007 Belgacom will unquestionably lodge an appeal against a BIPT decision that opens up the VDSL network for competition. On 10 January 2008 BIPT made a decision on market analyses 11&12/2003, planning this liberalisation. Belgacom lodged an appeal against this decision. Belgacom launched its VDSL2 offer on 14 April 2008.

Belgacom has announced in the press and in its reaction to the consultation that its VDSL2 network will continue to be rolled out so that by 2011 80% of the population can use this technology.

Closing down of exchanges

Belgacom declared during its general meeting on 9 April 2008 that in the context of the modernisation of its network and the transition to IP technology about 10% to 15% of its exchanges would close down.

On 13 June 2008 Belgacom proposed its plans to BIPT and communicated them a few days later to the sector. BIPT had at its diposal the concrete list of the 65 exchanges which are selected to be closed down only one day after the communication to the sector.

In its letter of 18 June 2008 Belgacom declares that this list of the MDF buildings to close down was already determined by its Council of Administration at the end of February 2008. Belgacom refers in its letter to a previous message sent to the Institute on 29 February. This message is however particularly brief:

> *Belgacom's Board of Directors recently adopted an agreement in principle to start the further expansion of the IP network. This is however a lengthy process. This decision also entails the possibility to dispense with approximately sixty buildings within the period 2012-2018. This means that the first concrete cases might have consequences for the operators as of 2012. We are talking about 4 to 8 cases. At the moment this is also a decision in principle as the names of the buildings are not yet filled in. To this effect a study is required.*

In this context BIPT would like to stress its astonishment at the lack of transparency from Belgacom. The regulator was informed of the internal decision at Belgacom more than three months after it despite the fact that this matter has a very important impact on competition development in Belgium.

The impact of the closing down of 65 exchanges is considerable. Although it only concerns 10 to 15% of the number of exchanges 40% of the BRUO lines and 14% of the BROBA lines are affected and moreover there is co-location space in 52 of these exchanges. Moreover it is also important to note that this closing down can also have implications for interconnection points for voice services and mobile backhaul.

In a number of exchanges which will close down Belgacom plans a mini MDF so that services can still be delivered to the street cabinets which are not equipped with VDSL2 from this mini MDF. The SCs equipped with VDSL2 should not be linked to this mini MDF. Belgacom will foresee a co-location possibility in these mini MDFs.

The first exchanges have to be empty by 1 January 2013. Therefore alternative operators have to leave these exchanges during the period 2011-2012. However Belgacom only wants to discuss the closing down of the exchanges with the alternative operators in the course of 2009. Belgacom declares in its presentation of 14 June 2008:

> *Discussions in 2009 are largely in time to come to an agreement and migrate before first effective closures.*

In view of the huge impact of these closing downs the Institute has insisted on an earlier date to already start this discussion to find a fully-fledged alternative to the closing down of these exchanges. The final decision will foresee a timing in that respect.

Fibre to the home?

In the competition struggle with cable and the pursuit of higher speed and wider services, "Fibre to the home" is the next logical step after "Fibre to the Cabinet" (FTTCab).

Belgacom declared at its Investor Day on 16 april 2008 that it analyses the evolution to FTTH and that it will carry out some tests to find the most efficient technology. Belgacom has not proposed yet any concrete projects relating to “fibre to the home” (FTTH).

The Dutch incumbent operator KPN admitted during the ECTA conference on 30 November 2007 that the idea of fibre to the home is being looked into. KPN has equiped with optical fibre in our country a business park in the border region between Hoogstraten and Breda. It is directly the first cross-boder fibre network of the Netherlands and Belgium. 90% of the Belgian companies have connected to the fibre network. There are no concrete plans yet to install optical fibre in other business parks in Belgium.

Taken into account the different possibilities for FTTH roll-out and consequently different impacts on regulation, it is necessary for the regulator to be informed of these developments as soon as possible in order to analyse the consequences for the market.

IMPACT ON THE BELGIAN MARKET

BIPT first wishes to point out that the Institute has already taken into account different elements that arise now so that no adaptations are required:

- It has been possible since 2001 to ask subloop unbundling at street cabinet level. The offer described in the Main Body & Product description contains however no tariffs and does not say whether remote optical platform is also necessary for subloop unbundling.

- The obligation of a VDSL/VDSL2 bitstream offer was already included in the market analysis decision of 10 January 2008:

  > *The day a high-speed retail offer is introduced on the market, Belgacom must adapt its bitstream access offer in such a manner that its competition is able to duplicate the new Belgacom retail offer (ADSL2, ADSL2+, SDSL, VDSL, VDSL2). This obligation also applies to the current offers for which there are at the moment no equivalent wholesale offers (such as the VDSL services for broadband Internet access).*

- The market analysis decision of 10 January 2008 also saw to the cost orientation of the bitstream tariffs for VDSL and VDSL2 at wholesale level:

  > *Regarding VDSL and VDSL2 the Institute suggests to impose a broadband access wholesale price that encourages investment, namely by distancing itself from a purely cost-based concept and by switching to a concept based on reasonable costs, combined with a price squeeze test regarding an efficient operator who has drawn up a broadband access wholesale offer based on unbundling. It is noted, however, that the concept of cost orientation as traditionally applied by the national regulatory authorities, already provides for a compensation of the capital invested by taking into account the capital cost (WACC). This means that the regulated tariffs must enable the SMP operator to compensate his creditors but also his shareholders, according to the risk.*

As regards VDSL and VDSL2, BIPT will operate based on a hybrid concept, combining cost orientation with the necessity to avoid a price squeeze and to encourage investment. The price squeeze would be assessed in relation to a hypothetic efficient alternative operator who develops a broadband access wholesale offer based on unbundling. This would result in a higher access price at purely cost-based level, encouraging investment.

The introduction of new technologies can entail the following consequences for the market:

- Because of the closing down of several exchanges by Belgacom alternative operators may not recover the investments they have made to develop their proper network.

- Unbundling at street cabinet level requires high investment since the alternative operator has to be present at more locations compared to earlier when DSLAMs were still installed in the exchanges.

  There is a real risk that subloop unbundling will not become a fully-fledged alternative at LEX level because the business case does not prove viable or because practical problems arise. It is possible that there is no more space in or around the street cabinet to install the alternative operator's equipment or that the municipality is not prepared to authorise the installation of an additional street cabinet.

- The difference in timing and cost price between jointly rolling out fibre optics and installing VDSL2 in a street cabinet is considerable, increasing the importance of economies of scale and making it more difficult for smaller operators to remain competitive.

- There arises a large demand for additional support services at street cabinet level (such as ducts, unused fibre optics or backhaul) to transport the data traffic from the street cabinet to the aggregated network node. Financially speaking it is very hard for an alternative operator to provide for backhaul to all street cabinets if there are no additional support services or when joint roll-out is not possible.

- If the bitstream offer is not adapted to the network changes and cannot provide the same quality of service (QoS) as at retail level, the alternative operator will not be able to compete with the incumbent operator.

- The question is raised which tariff should be applied for regulated products at cost-based tariffs if Belgacom no longer uses the network elements itself and what the tariffs are if two parallel access networks remain operational.

BUSINESS PLANS FOR VDSL2 UNBUNDLING

Since VDSL2 requires LEX and all associated SCs to be available in order to reach all clients, major investments have to be made in new material (IP DSLAM) and IP backhaul to accomplish a VDSL2 roll-out. Consequently the financial feasibility for an operator to make these major investments is questioned.

International studies

Several international studies into the business plans for roll-out of VDSL technology show that the feasibility depends on the penetration, the market share and the possibilities to obtain larger income per customer:

- A WIK study[12] concludes that the feasibility of a VDSL roll-out by the incumbent operator strongly depends on the demand for VDSL access. Recuperation of investment (break-even situation) would be possible when between 14% and 31% of all families that can be connected, choose VDSL access.

- Analysis Mason[13] has conducted a Dutch study on the feasibility of subloop unbundling (SLLU) on the basis of the KPN wholesale offer which shows that SLLU is no economical alternative for LLU except in cases that require a considerable market share or sharp increase of the revenue per customer. Taken into account the highly local importance of economies of scale, a 50% wholesale tariff decrease would not be enough to consider SLLU as an economically viable alternative for LLU on the mass market.

- The JP Morgan study[14] states that a two-digit market share and a large demand for premium services are required to justify a new operator rolling out VDSL.

- The costs of civil work for installing fibre optics are considerable and vary between 50% (Paris)[15] and 80% of the total costs per user line. These costs are inversely proportional to the population density in that area and also depend on the already present structure (ducts, sewers, ...) that can be used to install fibre optics and limit the necessary investments.

The situation in Belgium

Co-location at SC level in the Belgacom network

According to Belgacom subloop unbundling is in fact possible at each SC. Depending on the status of this specific SC and the volume of blocs and tie cables asked, one of the following scenario's will unfold, disabling a univocal price indication according to Belgacom:

- there is still room to place the required blocks;
- there is no room but extension is possible;
- there is no room and extension is not possible; the box needs to be replaced.

The equipment can cost up to several hundreds and thousands of euros[16], and on top of that there are specific study costs and additional operational and administrative costs if existing pairs need to be adjusted.

Belgacom does neither bring fibre optics nor other transmission capacity into the SC. The SC is a passive element in the network in which blocks and tie cables are installed.

[12] WIK (2006), Michael Brinkmann, Dragan Ilic, Technische und ökonomische Aspekte des VDSL-Ausbaus – Glasfaser als Alternative auf der (vor-)letzten Meile, WIK-Diskussionsbeitrag No 281, October 2006.

[13] Analysys (2007), The business case for subloop unbundling in the Netherlands, Final Report for OPTA, January 26, 2007.

[14] JP Morgan (2006), The Fibre Battle – Changing Dynamics in European wireline, October 4, 2006.

[15] Cf. Arcep (2006), IDATE (2006), JP Morgan (2006)

ARCEP (2006), Very high-speed Points of reference and outlook, Press points, 10 November 2006

[16] Above-mentioned amounts are communicated with reservation of an actual study of an actual demand.

The Remote Optical Platform is a separate box just next to the SC, where Belgacom places its VDSL modems and links them with the SC through a tie cable of DSLAMs. According to Belgacom this ROP is not part of the access network. Belgacom does not provide for a possibility for rental of "a location for the installation of a VDSL modem". No room has been kept free for other operators to place their hardware [Confidential]. For the moment Belgacom has at its disposal about [Confidential] ROPs.

According to Belgacom the network of the OLOs with their own DSL equipment has to be linked with the SC through tie cables. The installation of tie cables has to be defined case by case and depends on the blocs in the SC and the solution used. In addition trenching and equipment costs come up and the cost price depends on the position of the OLO box in which this operator has installed its network elements. Belgacom thinks therefore that the OLO has to provide for its own remote optical platform.

The Belgian viability study of subloop unbundling by Analysys Mason

The willingness and possibilities for an operator to invest in a further roll-out of the network to the SC depends on the number of customers that he can reach with this offer and the costs related to this investment.

Economies of scale and scope become more important than with LLU because the critical mass to keep certain business plans viable is not so readily found at street cabinet level as at LEX level. This restricts the alternative operators' options.

The Analysys Mason study (see annex) shows that viability of subloop unbundling is limited. The VDSL2 roll-out in some street cabinets is only interesting when an alternative operator has enough market shares (benifiting from economies of scope), additional income can be generated per customer by offering innovative services, backhaul connection can be affordable and the existing remote optical platforms can be used.

BIPT believes that Belgacom is currently the only operator that is capable of a national roll-out of VDSL2 based on its economies of scale and scope.

To maintain competition in Belgium it is first necessary for alternative operators to be able to invest in subloop unbundling if they see a positive business case for certain street cabinets. To that end it is necessary that BIPT adds the following support services to the reference offer.

On the other hand the feasibility study shows that subloop unbundling is no option for the most street cabinets and that a fully-fledged bitstream offer is necessary to maintain competition. This offer has to provide for enough possibilities of diversification as regards quality and functionality to offer a whole range of services to end-users.

The impact of this feasibility study and the additional measures required are discussed in detail in the next chapter.

ANALYSIS OF ADDITIONAL MEASURES

The Institute has to ensure itself that the investments in own network infrastructure made by alternative operators these past few years are not annulled by Belgacom's NGN/NGA plans and that there is a correct assessment of the need for Belgacom to develop the network in order to offer higher-quality and faster services and the competition on the Belgian broadband market.

Moreover, it must be looked into what additional measures are necessary to continue to sufficiently stimulate competition in an NGN-NGA context.

Below the different above-mentioned problems are studied and different solutions are applied that imply adaptations of the market analysis document of 10 January 2008 regarding markets 11/2003 and 12/2003[17]. The text under the headings 'remedy' and 'justification' must therefore be added to the market analyses decision.

TRANSPARENCY REGARDING FUTURE NETWORK DEVELOPMENTS

Problem definition

In the chapter on announcements it was already revealed that the Institute has asked Belgacom for more clarity over the past few months (even years) regarding network developments, but has not received it on time and it was not clear enough. Belgacom always waited until the last minute to inform the Institute about the plans for future network developments. The Institute has also been in the dark for a long time about the possible phasing out of exchanges by Belgacom.

An extreme example of lack of transparency is the phasing out of the ATM network: the Institute had to read in the newspaper that this would happen within 3 to 5 years, while a couple of days earlier Belgacom still refused to communicate to the Institute a time schedule to this effect. Belgacom points out in its reaction to the consultation that the date of end of 2012 was already announced in October 2007 and has been officially confirmed in the meantime as target date.

This way the Institute tails along behind the facts and it is hard to anticipate Belgacom's plans causing certain elements of great importance to market competition to be already set without the possibility to change them.

A clear communication on the future plans must ensure that the sector receives enough clarity on the impact on their investments and that further investment is encouraged.

Alternative operators notice in the reaction to the consultation that Belgacom has not been transparent towards the sector about its FTTC/VDSL development. Thanks to the reaction to the consultation of Belgacom operators learn for the first time that VDSL investments have started in 2003, a remote optical platform is required, the VDSL coverage already amounts to 61% now and that further roll-out up to 80% by 2011 is planned for the largest part. Such aspects have a far-reaching impact on the sector and took place without consultation and in consequence alternative operators are now presented with a fait accompli.

Remedy

[17] Since the new EC recommendation of December 2007 markets 11/2003 and 12/2003 have been known as markets 4 and 5.

The Institute imposes the following transparency measure:

Belgacom will provide BIPT and alternative operators with its plans to develop networks (increase of the number of distribution frames, sub-distribution frames, cable distribution frames, technology used, network structure…), per region over a 5-year period. The information communicated includes among others

- all adptations planned to the existing wholesale access points
- all closing downs planned of points where wholesale access is provided
- the time schedule of the network transformations expected/planned (globally and individually per access point)

These plans must be adapted and communicated each year.

Justification

On the one hand 5 years is necessary for alternative operators as this period coincides with the indispensable visibility to make major investments in networks. Five years correspond to the standard period to invest in local loop or subloop unbundling and is therefore an appropriate time period.

On the other hand the regulator must have a good overview of the coming changes to assess the consequences for the market competition. This role is emphasised by the "Explanatory note" of the European Commission[18]:

> *"In applying remedies, regulators need to find ways to promote the deployment of new and more efficient network architectures while at the same time recognising the investments made by new entrants on the basis of current architectures. National authorities will need to carefully follow and evaluate developments in order to ensure that appropriate access remedies are maintained for the forward-looking periods for which competition is judged to be ineffective, and to avoid undermining or discouraging efficient entry".*

Belgacom considers that 5 years is too long because the technological developments cannot be taken into account and that it becomes compulsory to disclose strategies too long in advance. Belgacom thinks that its intention to announce infrastructure changes at least twelve months in advance is more than sufficient.

The Platform points out that a certain number of alternative operators are also quoted and that they have no other possibility to offer their services than through the network access of the incumbent operator and to plan their investments without any transparency on what will happen.

To ensure fair competition and to stimulate investment it is important to have enough transparency in advance because otherwise no investment will be made. A clear view on future network evolutions is necessary for the OLO so that he can adapt his business model and prepare himself to the future network and the new products. One year to develop and launch alternatives is much too short for this.

[18] "Explanatory Note to the Commission Recommendation on relevant Products and Service markets" of 13 November 2007

Lack of transparency would increase the investment risk in the telecom sector and consequently operators would leave the market or would at least invest less. Therefore the measure proposed with 5 years transparency and flexibility for Belgacom to review it yearly on the basis of technological evolutions is proportional and justified.

In case Belgacom decides to roll out “fibre to the home” (FTTH) for example, the regulator and alternative operators must be informed as soon as possible about these developments in order to be able to assess the consequences for the market because the different possible FTTH scenarios each have an entirely different impact on the market.

Altough it could be harmful to Belgacom to communicate detailed commercial offers (prices, services…) releasing information about infrastructure development cannot have a great impact on the market. Operators all over Europe regularly publish coverage cards and in this context, location plans are not directly copied by competitors.

Moreover BIPT would be ready to deliberate with Belgacom on the best approach to communicate exclusively precise relevant information to operators and ensure that this information is only disclosed to the operators concerned.

CLOSE-DOWN OF THE ACCESS POINTS TO THE LOCAL LOOP OR SUBLOOP

Problem definition

Belgacom declared during its general meeting on 9 April 2008 that in the context of the modernisation of its network and the transition to IP technology about 10% to 15% of its exchanges would close down.

On 13 June 2008 Belgacom submitted its plans to BIPT. 65 exchanges are concretely concerned by a closing down.

The impact of the closing down of 65 exchanges is considerable. Although it only concerns 10 to 15% of the number of exchanges 40% of the BRUO lines and 14% of the BROBA lines are affected and moreover there is co-location space in 52 of these exchanges. Moreover it is also important to note that this closing-down can also have implications for interconnection points for voice services and mobile backhaul.

Moreover there are a number of exchanges on the list for which a new co-location space was planned for the coming months. It is very likely that these investments will not take place if the Institute does not provide for more transparency soon enough about what will happen with these planned close-downs. The withdraw of this additionnal investment can have far-reaching consequences on competition on the Belgian broadband market.

The first exchanges have to be empty by 1 January 2013. Therefore alternative operators have to leave these exchanges during the period 2011-2012.

In a number of exchanges which will close down Belgacom plans a mini MDF so that services can still be delivered to the street cabinets which are not equipped with VDSL2 from this mini MDF. The SC's equipped with VDSL2 should not be linked to this mini MDF. Belgacom will foresee a co-location possibility in these mini MDFs.

By closing down a number of access points to the local loop or subloop Belgacom sees to it that alternative operators do not recover the investments they have made to develop their proper network.

Remedy

The Institute considers that the following measures are necessary:

If Belgacom decides to close down a site for access to the local loop or subloop, Belgacom has to leave this point open for at least five years after the announcement to the Institute and the BRUO offer beneficiaries if an unbundling offer still applies to that location.

If no operator has invested in an unbundling offer for that distribution frame, sub-distribution frame or cable distribution frame, Belgacom may close it down one year after the announcement.

It can be deviated from the foreseen periods of 1 to 5 year if Belgacom comes to a bilateral agreement with the operators concerned.

Before terminating the wholesale service, Belgacom has to provide for the migration to a fully-fledged alternative for the current services that are terminated because of the closing down of exchanges. This fully-fledged alternative is discussed in the next chapters.

The current network must be kept at the same time than VDSL installation by Belgacom where Belgacom only closes LEXs partially. In case of partial close-down unbundling to every connected SC through co-location must remain possible by moving up the equipment.

If Belgacom wants to close down more quickly a site where operators are already interconnected (before a five year period) Belgacom can negotiate with the operators concerned an acceptable alternative solution (like the provision of appropriate services from another site), the migration schedule and the financial consequences of a migration to such a solution. If Belgacom can reach an agreement with these operators it may close down the site at the end of the agreed migrations.

Justification

A number of access obligations are applicable to Belgacom as PSM operator. According to the market analysis decision of 11 January 2008 it is forbidden to Belgacom to withdraw access without the express consent of BIPT or the court:

> *In accordance with Article 61, § 1, subsection three of the Act on electronic communications Belgacom is not entitled without the consent of BIPT or a court to interrupt the provision of a performance regarding unbundled access if this should cause damage to the operator who subscribed to this service. The consequences of services break for the end-user and the alternative operator are so serious that this break may not take place without prior consent of BIPT or a court.*
>
> *Moreover Belgacom is not allowed to withdraw services from its reference offer without prior consent of BIPT. Belgacom is compelled to use the acquisitions of the reference offers which were previously accepted unless one of these obligations should go against the objectives of the act on electronic communications.*

Therefore the Institute has the power to determine the conditions to be fulfilled by Belgacom before the access of alternative operators is withdrawn by the closing down of exchanges.

The decision of Belgacom to close down a few exchanges is inspired by the wish to save money in the field of current operating costs for these sites and possibly to generate big profit by selling buildings. When, in this context, some sites (i.e. where OLOs are present) are kept open during a limited period, it means no loss for Belgacom in its current situation but

rather less money saving or profit. Moreover when Belgacom has a real (financial or operational) motive to close down a site, it should be able to offer OLOs an attractive alternative solution enabling operators to leave these sites and Belgacom to close them down.

The necessity of specific measures

Since 2001 the rules included in the BRUO reference offer[19] have a much shorter notification time of 12 months in the event of the close-down of a co-location space. These rules which at that time were established for co-location space within the framework of BRIO, where investment in interconnection is significantly less important than for LLU, are irrelevant within the framework of the migration to a VDSL network and the close-down of a large number of LEXs. These plans do not speak about updating the LLU wholesale offer but rather about cancelling the current provisions.

It concerns here exceptional circumstances requiring specific measures. In the past it always concerned the close-down of co-location space and the access present there but it was still possible to receive unbundled access to the same end-users through another location enabling services to continue.

Belgacom also recognises it by explaining in its presentation of 14 June 2008 that the close-down planned of 02NOR is absolutely not linked to Belgacom's "Move-to-All-IP"-plans. MDF access to 02NOR is kept and the alternative operator can equip the same end-users with a BRUO line through co–location in 02MAR, while no unbundled access at that level is possible for the 65 announced LEXs threatened with closing-down.

BIPT has always the power to adapt the existing BRUO rules to new market conditions as it is now the case by NGN/NGA to guarantee competition on the broadband market.

The period

Belgacom has to continue operating the access point depending on a distribution frame, sub-distribution frame or cable distribution frame for at least 5 years after the announcement of the closedown to enable the alternative operators to:

- find an alternative solution after the decision to close down the operation by Belgacom, ensuring the continuity of service to the end-user;

- have a 5-year overview on investments relating to the choice of interconnection with a Belgacom network element;

- this five-year period corresponds to the depreciation period for investments that the Institute used for its BRUO and BROBA cost models. The BROBA 2007 decision of 29 November 2006 reads:

  As to the precise period the Institute maintains its former approach of depreciating the DSLAMs over a 5 year period. The Institute considers this to be a right balance between the depreciation period as applied in accounting (which is probably shorter) on the one hand and the real (technical) life that can be observed for certain types of assets (in the meantime clearly more than 5 years).

  Contrary to what Belgacom claims five year is no disproportional long period because between the application for new co-location space, the effective bringing into service of it

[19] Chapter 12 "Evolution of the ULL offer" in the document "BRUO Main Body"

and the reaching of a critical mass to really depreciate it many months are passing by. If you add these months to the depreciation period internally used by Belgacom itself (4 year since 2004) a 5 year period is very realistic;

- for alternative operators to obtain enough return on investment. Because of the late LLU breaktrough compared to other European countries the Platform itself requests a 8 to 12 year period. 5 year is the happy medium between encouraging new technologies and getting enough return on investment;

- 1 year is proportional to find an alternative solution and to guarantee service if no co-location is present in that exchange. The minimum period of 3 years as requested by the Platform is not necessary here because the additional condition imposed is that Belgacom must provide for migration to a fully-fledged alternative before the closing down can take place. These additional conditions reduce the time needeed to search, negotiate and implement the alternatives for the services offered by Belgacom on this location (such as backhaul, interconnection, …).

Finally BIPT would like to stress the importance of enough return on investment. It is important that investing operators receive sufficient return because otherwise they will not be inclined to invest in Belgium in the future, which would have far-reaching consequences on the future market dynamics and would severely harm competition.

Maintaining co-location space in the event of partial close-down of MDF or creation of a mini MDF

To replace certain MDFs closed down Belgacom intends to create mini MDFs so that it can continue to serve the customers who are connected to the SCs which are not equipped with VDSL equipment. To that end Belgacom must disconnect in this mini MDF a number of existing pairs of feeder cables. One or several DSLAMs must also come in these mini MDFs and it must therefore be possible to install in the mini MDFs every possible electronic equipment.

According to this non discrimination principle these mini MDFs must also have the space necessary for the equipment of the operators who subscribed to the BRUO offer.

However the BRUO offer beneficiaries cannot enjoy the same economies of scale that can be reached by Belgacom and it is likely that mini MDFs will be limited to a customer base which is insufficiently accessible for a valid business plan (the current situation showing a lack of unbundling at LDC level is a good example of it) while it is also possible that the SCs with VDSL are not cost-effective enough and that the corresponding phone pairs are still present at this new mini MDF level.

Therefore the Institute considers it proportionate to impose that minimum 20% of the pairs (figure calculated according to the market share of alternative DSL operators) of every SC depending on a closed MDF is accessible from a mini MDF created in replacement. Extra costs to add the corresponding blocks and to connect the above-mentioned pairs are indeed limited compared to the total realisation costs for the mini MDF and make it possible to keep the population percentage which remains accessible for unbundling in a feasible way while linking the mini MDF and the SC would limit competition through infrastructure. If Belgacom wants to keep its own retail services from the mini MDF for the customers who are connected to a specific SC, all pairs must be accessible so that Belgacom cannot create any new bottlenecks.

As the unbundling of the VDSL subloop network is considered as a very expensive option it is proportionate to keep the current network in parallel to the VDSL installation by Belgacom

where Belgacom closes only partially LEX and where co-location remains possible to move equipment.

Risk

BIPT notes that the scenario in which a distribution frame close-down is announced 5 years in advance involves risks as this could be an incentive to Belgacom to announce the close-down of as many distribution frames as possible much too soon in order to prevent alternative operators from investing in unbundling. As there is a risk that Belgacom does not close down a distribution frame contrary to its announcement, BIPT would have no other choice but to impose a fine on Belgacom in order to prevent such abuse.

The risk that the announced close-down of a distribution frame does not take place, would decrease if BIPT obliges Belgacom to make the announcement 3 years in advance and to let alternative operators continue to provide their services through that distribution frame until two years after its close-down. This scenario, however, would be discriminating against Belgacom retail.

COST ORIENTATION DURING CLOSE-DOWN OF THE ACCESS POINTS TO THE LOCAL LOOP OR SUBLOOP

Problem definition

The question is raised which tariff should be applied for regulated products at cost-based tariffs if Belgacom no longer uses the network elements itself and what the tariffs are if two parallel access networks remain operational.

The different steps Belgacom has to take to close down different access points to the (sub)loop should not have competition-distorting effects on the price.

Remedy

To provide the sector with sufficient transparency, the Institute wishes to anticipate the phasing out of certain exchanges as of today and to impose the following remedy during the transition period between the old network structure and the new one.

The prices of offers for unbundled access depending on a distribution frame, a sub-distribution frame or cable distribution frame that is no longer being operated by Belgacom for its own use (but is temporarily still operated by alternative operators) are equal to the prices of the offers for unbundled access depending on a distribution frame, a sub-distribution frame or cable distribution frame that is being operated by Belgacom for its own retail services.

Justification

The obligation to maintain identical prices for offers regarding unbundled access depending on a distribution frame, a sub-distribution frame or cable distribution frame that is not or no longer being operated by Belgacom for its own use, is necessary to ensure that alternative operators have a good overview of the cost-effectiveness of their investments. If this obligation is not imposed, Belgacom could apply differentiated tariffs that are clearly higher for access depending on network elements that Belgacom is no longer operating for its own retail services and the obligation for Belgacom to maintain access to these services would lose strength.

OLOs based their previous investments on the assumption of stable (or even declining) LLU tariffs and on the assumption that the sites would remain operational during at least five years, which corresponds to the standard period for a local loop unbundling investment. To protect theirs investments (as well as delivering appropriate signals to investors) a stabile situation must therefore be maintained for five years.

The operators who have invested in BRUO must have enough visibility on the price that they will pay during the transition because otherwise they will not be inclined to invest in Belgium in the future, which would have far-reaching consequences on the future market dynamics and would severely harm competition.

This transition to new technologies ensures that the OLOs must plan and carry out heavy new investments to adapt themselves to the new reality. The objective of this measure is to avoid any additional cost for the OLOs during the transition period for the network changes that are imposed on them, for which they were not able to prepare themselves enough for the past few years because of a lack of transparency.

It is also important to point out that the transition to a new architecture has advantages reducing costs for Belgacom and already enables many operational optimisations and savings during transition. The Institute must therefore see to it that Belgacom does not pocket all advantages while OLOs have to put up with all the disadvantages of a lack of transparency by Belgacom.

Maintaining stable prices does not entail any loss for Belgacom but rather less money saving or benefit than hoped if it should close down its sites or increase the price of them. Belgacom is free to conclude an agreement with the OLOs to close down their sites with a termination notice of less than five years and therefore price would no longer be an issue.

CO-LOCATION AT STREET CABINET LEVEL

Problem definition

Several studies[20] show that the costs and administrative steps necessary for the civil engineering works and the installation of street cabinets are two important factors that slow down the infrastructure-based competition.

The costs for civil work are inversely proportional to the population density in that area and also depend on the already present structure (ducts, sewers, ...) that can be used to install fibre optics and limit the necessary investment costs.

A high level of demand for additional support services at street cabinet level (such as ducts, unused optical fibre or backhaul and access to the remote optical platform) arises to transport the data traffic from the street cabinet to the aggregated network node causing the costs for VDSL2 roll-out to drop considerably.

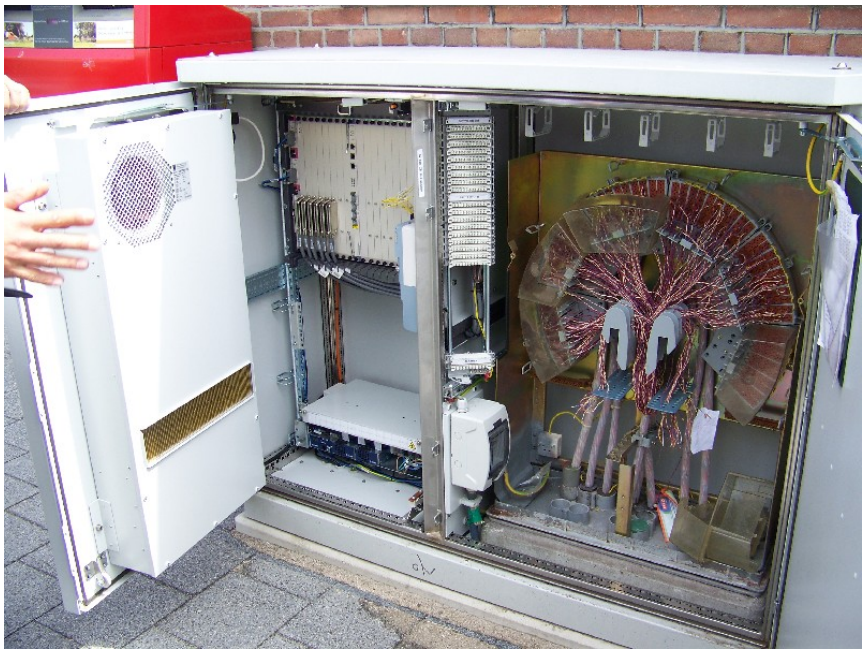
The Platform points out that Belgacom has chosen for a scenario that can hardly be duplicated (the low economies of scale of VDSL as well as the additional difficulties to place an additional ROP). Alternative operators fear that with these raised entry barriers Belgacom

[20] J.P.Morgan: “The Fibre Battle”; Analysys: “The business case for sub-loop unbundling in the Netherlands”; OVUM: “FTTCab: an investment assessment”; WIK: “Technische und ökonomische Aspekte des VDSL-Ausbaus – Glasfaser als Alternative auf der (vor-)letzten Meile“; Ontwerp van gemeenschappelijk standpunt « Regulatory principles of NGA » ERG (07)16

wants to eliminate the remaining DSL competition and thus wants to monopolise again the very high rate broadband market.

It is a fact that Belgacom chose a less flexible solution than KPN in the Netherlands. KPN places a new street cabinet above the existing one, where standard room is foreseen for DSLAM equipment of two operators and by using flexible walls it is possible to fasten an additional module to host more operators.

Picture: Remote Optical Platform of Belgacom



Picture: KPN solution: street cabinet on the existing street cabinet with room for the DSLAM equipment of 2 operators

The Belgian solution provides for a separate street cabinet next to the existing one where only limited room is foreseen by Belgacom for its own retail services. However the DSLAM part does not appear to be smaller than the one of KPN. Therefore the possibility to install 2

DSLAMs in it certainly has to be examined. Nonetheless one should wonder here whether Belgacom should, as a forward-looking operator, have provided for more place and by choosing for a small cabinet wanted to hinder the further development of competition.

Remedy

The corresponding remedies, imposed by the Institute, in terms of transparency, non-discrimination and cost-orientation are:

- New sites

  For each connection of a new site or the placement of optical fibre ducts on existing sites, Belgacom will propose to the operators to divide the work for the placement of the optical fibre ducts on the parts that are useful for access to the LEXs, LDCs and SCs. Likewise, Belgacom will suggest to the operators to divide the distribution frame where its DSLAM will be installed.

  To enable the beneficiaries to adapt their implementation plans, Belgacom will announce the corresponding plans at least 4 months in advance before the fixed proposal for shared use is sent; the beneficiaries will have 2 months to respond to this proposal.

- Support services

  Regarding the already connected sites, Belgacom will offer to divide the ducts (duct sharing), to lease “dark fibre” or to provide for Ethernet backhaul options from every co-location space in the local loop up until the LEX, LDC and SC.

- Remote Optical Platform

  Belgacom will provide for the access to the remote optical platform to enable co-location.

An ad hoc reference offer should only be provided for if and when OLOs request such services for specific locations. These co-location and backhaul services of Belgacom must observe the non-discrimination and cost orientation principles. The Institute will therefore closely follow the qualitative and quantitative elements of the services offered.

Based on the transparency principle alternative operators have however a notion of the technical architecture of Belgacom so that the technical aspects of subloop unbundling are clear when drawing up a business case. The following elements must especially been communicated:

- technical description of how the introduction of optical fibre takes place;
- technical description of how active elements are provided with electric power;
- technical description of how tie cables must link the blocks with the active elements;
- technical description for the installation of own equipment in remote optical platform

Justification

Simultaneous roll-out

It is absolutely necessary to divide the work and related costs in order to create a competitive market in the context of new technologies with a large bandwidth.

It is considerably faster and cheaper if the alternative operator can roll out fibre optics and install VDSL2 in a street cabinet together with Belgacom. Economies of scale become much more important and it is a lot more difficult for the smaller operators to remain competitive if they cannot roll out simultaneously or do not have access to the infrastructure already present.

In this context the Institute points out that Belgacom already has a 60% VDSL coverage of the population, so it is very likely that fibre is already provided to the most interesting street cabinets and therefore a simultaneous roll-out is no longer an option and in consequence the importance of support services is increasing.

Support services and remote optical platform

The Analysys study shows that subloop unbundling is not financially feasible if there is no access to additional support services at street cabinet level (such as ducts, unused optical fibre or backhaul and access to the remote optical platform) to transport the data traffic from the street cabinet to the aggregated network node.

Without these remedies it is clear that SLU based competition will never take place on the Belgian market. OLOs should refer to Belgacom bitstream offer to duplicate the broadband offers of the incumbent operator.

Concerning the duct sharing obligation, to lease "dark fibre", to provide for backhaul possibilities and to grant access to the remote optical platform, BIPT took the following elements into account:

- the necessity to stimulate efficient investment by Belgacom and the alternative operators. The latter must be motivated to climb higher on the investment ladder;

- the necessity, in accordance with Article 12 of the Framework Directive, 2002/21/EG, to stimulate the shared use of infrastructure;

- Belgacom is the only operator who installed ducts and dark fibre linking with each other the various crucial points in the Belgacom network (such as interconnection points and street cabinets);

- allowing the different backhaul possibilities enables alternative operators to choose the most appropriate solution and the objectives pursued. Moreover the Analysys study shows that the feasibility of subloop unbundling is very limited even with Ethernet backhaul. Offering the different possibilities is therefore necessary to stimulate subloop unbundling at as much locations as possible.

  Article 12 of the Access directive makes it possible to grant access to a SMP operator to network elements and impose the services linked to it if conditions are such that competition development is hindered at retail level. SMP operators can be obliged to share co-location or other forms of infrastructure (such as ducts, buildings, posts). According to the ERG opinion on NGN/NGA the imposition on a SMP operator of duct sharing and dark fibre as support service is justified in accordance with this article. It was transposed into Belgian law and it is laid down in Article 61 of the Act on electronic communications of 13 June 2005;

- the necessity of duct sharing is emphasized by the Commission in the explanatory note accompanying the appropriate recommendation:

As networks evolve in most Member States and existing metallic loops are replaced partially, or even totally, by fibre, the existing local loop may become significantly shorter than today's local loops, or even entirely disappear. In such cases, where no alternative infrastructure is likely to become available to allow replication, then access to either ducts or alternative network elements must be considered. Access to ducts could be an important part of any remedy imposed to address problems associated with physical network access.

- this measure explains the decision of 10 January 2008. This decision obliges Belgacom on page 122 to give already access and particularly to "give a co-location possibility or other forms of resource sharing". Therefore these aspects were already clear in the decision of 10 January 2008 and can also be deduced from the non-discrimination obligation on page 135 of this decision:

  "*as far as very high rate is concerned, it means an equal treatment between Belgacom and a third operator unbundling in the installation of the necessary equipment for the new ADSL2+ and VDSL2 technologies*.

- Belgacom was aware that operators could ask for co-location services in the street cabinets (just like at LEX level) when it decided to build its ROP. However it intentionnaly ignored this potential demand. If OLOs request for specific street cabinets the available space in existing ROPs has to be analysed as well as if need be the potential costs to upgrade the ROP street cabinets so that a reasonable cost oriented solution can be suggested.

Without these access obligations the only option left for the alternative operator to provide an ultra high-speed broadband service would be to carry out the civil engineering work himself. In the vast majority of the cases it will not be possible to carry out this work under the same circumstances as Belgacom considering the access Belgacom has to rights-of-way and existing infrastructure as well as its economies of scale in the civil engineering works negotiations. Moreover it is also very likely that the local authorities will for aesthetic reasons not authorise the various alternative operators to build their own remote optical platform to prevent a proliferation of street cabinets. The Institute must also stimulate the mutual division of infrastructure to keep the civil engineering work to a minimum and to encourage efficient investment.

The consequence of the lack of these additional services would be that the competition of very high rate broadband services is strongly hindered and will make infrastructure competition through unbundling disappear.

A reference offer

Even with such measures it is not clear whether OLOs will obtain a market share large enough (and will reach enough additional ARPU from their services) to justify the fixed investment costs linked to the use of the subloop. In consequence BIPT considers that it is not proportionate to oblige Belgacom to provide for such backhaul and co-location services in the absence of a reference offer.

An ad hoc reference offer should only be provided for if and when OLOs request such services for specific locations. So in this particular case it should not be asked to Belgacom to make additional investments (for example by upgrading existing ROP street cabinets to free enough space for OLOs) before an OLO introduced a justified request for co-location services in street cabinets clearly specified.

The necessity of a reference offer for unbundled access to the local loop is recognised to allow quick, efficient and non discriminatory unbundling. It also facilitates the negotiations on agreements relating to access because they can be based on conditions known by every party. On the other hand it makes it possible to check the observance of the other obligations, i.e the non discrimination obligation.

The Institute considers that some standardisation through a reference offer is possible even for difficult matters such as unbundling at street cabinet level. The Dutch subloop unbundling reference offer with fixed rates for the use of street cabinets shows that it is possible.

Belgacom wrongly claims that it has been possible to ask subloop unbundling at SC level since 2001. The offer described in the Main Body & Product description contains no tariffs and does not say whether remote optical platform is also necessary for subloop unbundling.

Based on the transparency principle alternative operators have already a notion of the technical architecture of Belgacom. The availability of essential information is moreover necessary to encourage operators to invest in co-location at street cabinet level. Without this necessary transparency alternative operators cannot see by themselves whether a business plan for VDSL2 through unbundling is financially feasible in some areas and infrastructure competition is hindered.

FULLY-FLEDGED ETHERNET BASED BITSTREAM OFFER Problem definition

The technological evolution towards NGNs (Next Generation Networks) and NGA (Next Generation Access) will cause the current ATM network of Belgacom to be replaced by Ethernet technology. Ethernet will first come as overlay with ATM and ATM will only be rolled out by 2012.

Alternative operators are asking for an open debate on the migration to Ethernet. According to the OLOs it is essential that it becomes clear as soon as possible when, how and at what price migration will take place so that competition is not hindered and so that nobody is presented with a fait accompli without any possibily to discuss anymore.

Belgacom points out that it will give OLOs enough time to make the transition. When the concrete details are known Belgacom will make the necessary adaptations to the reference offers. Belgacom will only talk about a migration to Ethernet in the course of 2009.

According to the decision of 10 January 2008 Belgacom is obliged to make a VDSL2 bitstream offer. Belgacom has not transmitted this Ethernet-based offer yet to the Institute.

Remedy

The Institute thinks it absolutely necessary to anticipate this development by adding the following remedy regarding non-discrimination and transparency:

Belgacom has to submit for approval to BIPT and afterwards publish a bitstream reference offer which is adapted to the new Ethernet network. This offer has to provide for enough diversification possibilities. The same levels of quality than the current bitstream offer must among others at least remain possible and there have to be enough interconnection levels. On the other hand there must be similar possibilities to use all the DSLAM functions such as in BRUO.

Justification

Not imposing this measure would lead to discrimination between Belgacom and the other operators since Belgacom only uses a technology for itself. Not providing a bitstream version based on Ethernet technology comes down to nonobservance of the access obligation as the access is then terminated upon phasing out of the current ATM network.

The Analysys Mason study (see annex) shows that unbundling is no financial feasible option for the most street cabinets and that a fully-fledged bitstream offer is necessary to maintain broadband competition in Belgium. This offer has to provide for enough possibilities of diversification as regards quality and functionality to offer a whole range of services to end-users.

The reference offer must allow enough differentiation so that the different needs for the Internet use of end-users and business customers can be met. Moreover this new reference offer must be a fully-fledged alternative for unbundling from the LEX considering that Belgacom sees to it due to the closing down of a large number of exchanges that unbundling is not financially viable in many cases. The advantage of the BRUO reference offer was the possibility of working out a much larger diversification and a more varied retail product offer at more attractive prices and by doing so the various needs of customers could be anticipated. This possibility will disappear in most cases because of the low feasibility of subloop unbundling. To avoid the reduction of competition because of product diversification the bitstream offer must provide for a larger diversification possibility. Just like in BRUO it must become possible in the new bitstream offer to use all DSLAM functions if technically possible.

Considering that the VDSL2 bitstream reference offer is probably the only possibility for the survival of xDSL competition at retail level it is important to submit a first proposal of this new retail offer as soon as possible to the sector for discussion. The lack of such a proposal would have as consequence that Belgacom receives a competitive advantage considering that Belgacom would then be the first to be able to offer innovative broadbrand products based on VDSL2 technology to end-users and would benefit from a first mover advantage. Alternative operators must receive enough time to get ready for these innovations and have a clear view on what they can expect in the future so that no alternative operators leave the market because of a lack of transparency.

BITSTREAM VDSL1

Problem definition

In the long run Belgacom will replace VDSL1 by VDSL2. In a first place VDSL2 cards are also installed next to the VDSL1 cards in order for the ROPs to be open for VDS coverage through VDSL2. In a later stage VDSL1 technology will therefore disappear.

Remedy

BIPT imposes an additional remedy relating to non discrimination on:

The bitstream offer will include access to the use of the VDSL1 technology for the remote optical platforms where no VDSL2 technology is available.

Justification

Bitstream access to VDSL1 is necessary contrary to the remedies for the unbundling market (where it is not advisable to install new VDSL1 DSLAMs given the interference) taken into

account the possibility that Belgacom will cover some areas only through VDSL1 and not through VDSL2.

Not imposing this measure would lead to blatant discrimination between Belgacom and the other operators and would give rise to unfair competition as in certain areas only Belgacom would be able to provide VDSL services to the customer and would therefore be the first to haul in the customers.

This additional measure expires when bitstream customers can be connected through VDSL2 technology in all remote optical platforms.

TAKING EFFECT

Thid decision of the Institute regarding Next Generation Networks (NGN) and Next Generation Access (NGA) comes into force on 15 December 2008.

APPEAL PROCEDURES

According to the Act of 17 January 2003 on the status of the regulator of the Belgian postal and telecommunications sectors you have the possibility to lodge an appeal against this decision with the Brussels Court of Appeal, Poelaertplein 1, 1000 Brussels, within sixty days of its notification. The higher appeal is lodged by 1° serving a bailiff's notification upon the opposing party; 2° filing an application, in as many copies as there are parties involved, with the office of the higher court; 3° sending a registered letter to the court registry; 4° by statement of claim, addressed to each party involved or represented in the case. Except for the case in which the appeal is lodged by statement, the bailiff's notification will include the stipulations of Article 1057 of the judicial code under penalty of nullity.

M. VAN BELLINGHEN
Member of the Council

G. DENEF
Member of the Council

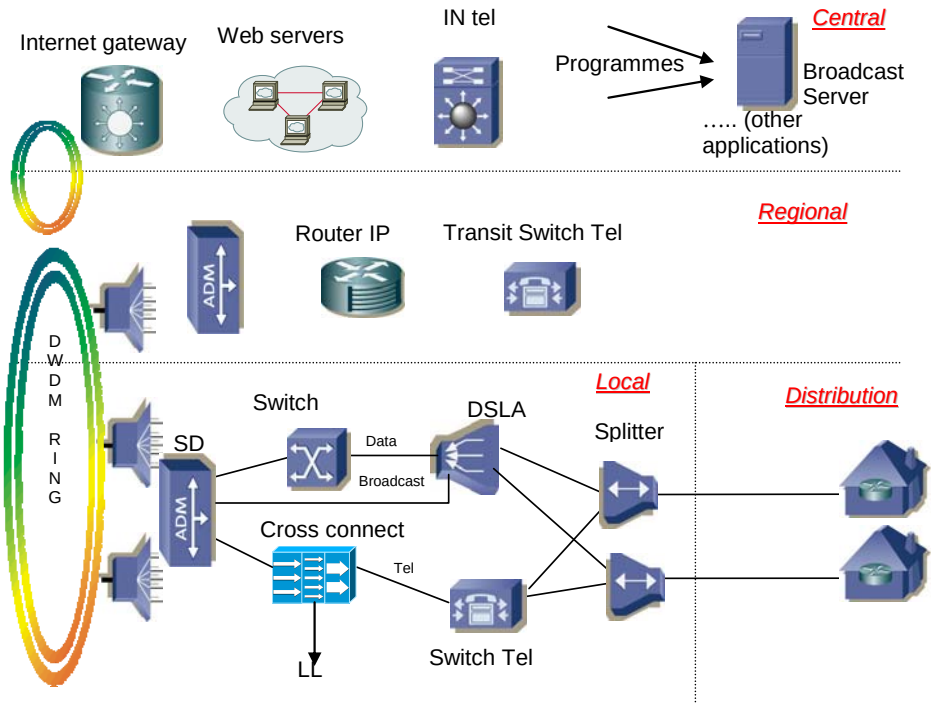
C. RUTTEN
Member of the Council

E. VAN HEESVELDE
Chairman of the Council

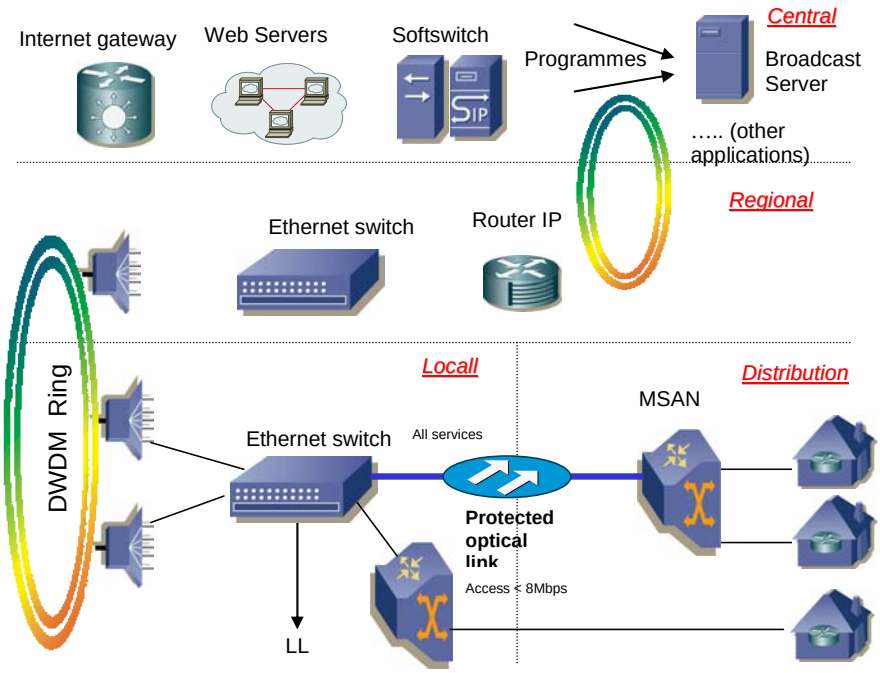
ANNEX 1 : SCHEMATIC NETWORK PRESENTATION

The schematic presentations below give a synthetic overview on the NGNs development. These are theoretical schemes that by no means anticipate the technological solutions that Belgacom will implement.

The current network



An NGN network



ANNEX 2: GLOSSARY

ADSL (Asymmetric Digital Subscriber Line)
Variation on xDSL technology, which makes use of high and inaudible frequency ranges with a view to simultaneous transmission of voice and data (see xDSL).

ATM (Asynchronous Transfer Mode)
Technique enabling optimum use of capacity in backbone lines, which are the network's motorways, and thus ultra fast data transmission.

Backbone (backbone network)
Serving as the spines of the telecommunications system, backbones are high-speed international networks to which lower-capacity networks are connected.

Backhaul
The backhaul is the capacity of transmission linking an operator's backbone network to a concentration point for end-users or an interconnection point.

Bandwidth
Indicates the transmission capacity of a transmission link and determines the amount of information (in bits per second) that can be transmitted simultaneously.

Bitstream
Digital transmission.

Broadband
The collective whole of technologies using either telephone or cable for high-speed data transmission.

BROBA (Belgacom Reference Offer Bitstream Access)
Belgacom is required to publish a reference offer that includes the technical conditions and tariffs for its bitstream access service used by beneficiaries.

BRUO (Belgacom Reference Unbundling Offer)
Belgacom is required to publish a reference offer that includes the technical conditions and tariffs for its local loop and subloop unbundling service used by beneficiaries.

Co-location
Principle according to which the alternative operator rents space by the incumbent operator to place his own equipment.

Convergence
This concept is used to denote the fact that telecommunications, IT and audio-visual services are merging together and can increasingly be provided over the same networks (cable, terrestrial or satellite radio networks) by using the same terminal equipment (IT terminals, mobile phones, television sets).

Bit rate
Volume of data carried over a given time on a given network.

DSLAM (Digital Subscriber Line Access Multiplexer)
A multiplexer that enables a DSL-type service (ADSL, ADSL 2+, SDSL, …) to be provided through telephone lines. A DSLAM contains the xDSL modem cards and regroups the traffic from the different lines connected to it (after having separated that traffic from voice traffic coming from conventional telephony through a filter/splitter) and transmits it to the operator's or access provider's network via an ATM package data network.

ERG (European Regulators Group)
Group bringing together the European Commission and regulators of 25 Member States, with the purpose of furthering coordination of their policies and coherent application of the European regulatory framework.

Ethernet
Standardised telecommunication technology offering a very high data transmission speed and which will replace ATH in the network core.

FTTC/FTTCab (Fibre to the Curb/Fibre to the Cabinet)
Access network where optical fibre is installed up to the street cabinet (SC) and copper wire for the 'last mile' between the street cabinet and the end-user.

FTTH (Fibre to the Home)
Access network where optical fibre is installed up to the living room.

IP (Internet Protocol)
Data transmission protocol for the Internet.

SC (Street cabinet)
Street cabinet where telecom equipment is installed and where copper wires come from each living room.

LEX (Local Exchange) / LDC (Local Distribution Centre)
The local loop is a star structure which starts from a Local Exchange (LEX). This structure is linked with one or more street cabinets (SC). In the larger local loops there can also be between a LEX and a SC a Local Distribution Centre (LDC) linking certain street cabinets. In Belgium there are 695 LEXs.

Migration
The possibility of switching from one service to another.

Ontbundeling van de lokale lus (LLU)
The infrastructure of the local loop requires investment that is prohibitive for the entry of new players on the market. This is to the detriment of competition levels. Unbundling is aimed at boosting competition by enabling new competitors to offer broadband data transmission services. In case of unbundling the alternative operator has access to the copper pair of the end-user at LEX level and links this copper cable with his own equipment.

NGA (Next Generation Access)
The current access network where a copper wire goes through between the end-user and the exchange (LEX or LDC) will be entirely or partly replaced by optical fibre in the next years.

NGN (Next Generation Network)
Next Generation Network (NGN) refers to the development of the current network infrastructure. The purpose of this network development is to reduce the operational costs and enable new high-speed innovative services for end-users.

Retail
Sales to end-consumers, whether private customers or companies.

ROP (Remote Optical Platform)
Street cabinet where active telecom equipment based on VDSL technology is placed. Is linked trough tie cable with the SC to supply connection with end-user (scenario Fibre to the Cabinet).

SDSL (Symmetric DSL)
This technology does not allow simultaneous routing of voice and data, but routing of equivalent upstream and downstream bit rates, adjustable from 64 kbit/second to 2 Mbit/second, depending on the needs and on the characteristics of the line. (see xDSL).

SMP (Significant Market Power) – SMP Operator
BIPT analyses the level of competition in the market and designates itself the SMP players on that basis; it also sets out these SMP operators' obligations.

Subloop unbundling of the local loop (SLLU)
Unbundling at street cabinet level. To that end the equipment of the alternative operator must be placed in the SC to offer data services to the end-user.

VDSL (Very High Rate DSL)
Transmission technology offering very high bit rates but over a shorter range than ADSL (see xDSL).

xDSL (Digital Subscriber Line)
Group of technologies offering high-speed transmission through one or several copper pairs by using very-high-frequency signals. xDSL breaks down into ADSL, SDSL, and VDSL. Each of these subgroups has specific applications and special characteristics.

ANNEX 3: STUDY ON SUBLOOP UNBUNDLING

1 Background

Analysys Mason has been commissioned by the Belgian Institute for Postal services and Communications (BIPT) to investigate the business case for sub-loop unbundling (SLU) for alternative operators in Belgium.

With local loop unbundling (LLU), the line is handed over from the incumbent operator to other alternative operators (OAOs) at the Main Distribution Frame (MDF).[1] In contrast, with sub-loop unbundling (SLU) the line is handed over at the street cabinet, which is much closer to the end user than the MDF. The deployment of fibre-to-the-cabinet (FTTC) and the use of the *sub-loop* from the street cabinet (utilising VDSL technology) significantly reduces the length of copper loop required to reach customers, enabling high downstream bandwidths of several tens of Mbit/s to be offered to many customers, as well as important improvements in upstream speed compared to ADSL2+ technology. This development is likely to be attractive to business customers, and will also help providers to offer IPTV and video streaming services to the mass market, therefore representing a means to increase the range of services offered and the revenue per client achieved. However, such a deployment requires significant investment as the number of street cabinets (around 30 000 in Belgium) is much higher than the number of MDFs (around 1000).

As presented by the BIPT in its Consultation document on NGN and NGA (February 2008), the incumbent operator Belgacom has already commenced a very aggressive FTTC/VDSL roll-out, with coverage reaching over 60% of population in spring 2008 and 80% forecasted in the long term. Moreover, Belgacom announced in June 2008 that, following its network upgrade, it plans to close 65 local exchange buildings during the period 2013-18 and as a result, wishes to cease providing services such as LLU that depend on those local exchanges (when these buildings are closed).

In this context, BIPT is currently considering additional measure to be imposed on the wholesale network infrastructure and broadband access markets (Markets 11 and 12 of the 2003 list of relevant markets[2]) so as to continue stimulating competition to the benefit of end users. Analysys Mason has already carried out analysis for the national regulators of Ireland (ComReg) and the Netherlands (OPTA) to assess the commercial attractiveness of SLU in these countries.[3] On the basis of this project experience, we have developed for BIPT an economic model that takes into account the specificities and characteristics of the Belgium market so as to assess the commercial attractiveness of SLU to alternative operators in Belgium. This work aims at contributing to BIPT's assessment of appropriate and justified remedies for Markets 11 and 12, by identifying the key levers to promote the development of competition in the Belgian market.

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1 Which can be located either in a local exchange (LEX) or in a local distribution centre (LDC), which is itself linked to a LEX by an optical fibre.

2 Markets 4 and 5 of the 2007 list of relevant markets

3 These reports can be found on http://www.odtr.ie/_fileupload/publications/ComReg0810a.pdf and http://www.opta.nl/download/Analysys+Final+Report.pdf

2 Approach

2.1 Methodology

Main principles

Our model examines the business case of an alternative operator in the Belgian market and compares the cost of LLU and SLU under different conditions of coverage, backhaul, co-location and market share. In order to do this, we calculate the relevant network costs downstream of each local exchange for LLU and for SLU, as presented in Figure 2.1 below.

- **For LLU**, we consider the relevant network costs within the LEX and all its attached LDC that are incurred by the alternative operator in order to provide double-play services (Internet access and telephony) by renting the (full) local loop of the incumbent.
- **For SLU**, we consider the relevant network costs from the LEX and all its attached LDC to and within street cabinets (SC), that are incurred in order to provide triple-play services (TV, Internet access and telephony) by renting the (sub) local loop of the incumbent.[4]

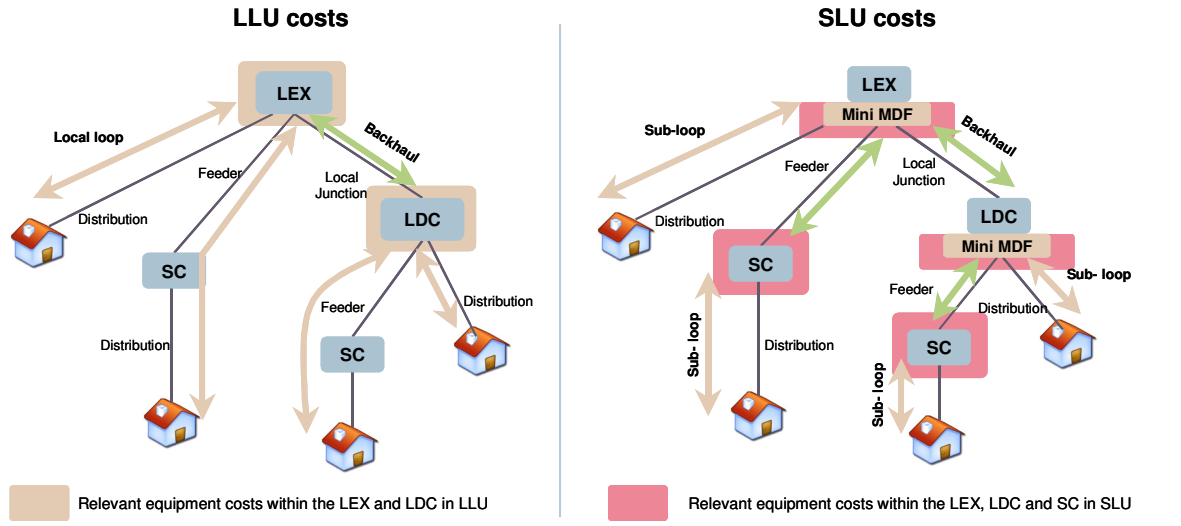

Figure 2.1: Schematic of LLU and SLU costs incurred by alternative operator [Source: Analysys Mason]

Triple-play services, in the context of SLU, are considered because it is commonly recognised by operators that FTTC/VDSL investment can only be justified in the context of additional revenues (over and above those achieved via LLU-based services) such as those offered by the triple-play approach.

4 In order to take all of the incremental costs for triple-play services into account, we also consider the costs of content rights and a video platform (which are located higher in the network hierarchy than the local exchange).

The main outputs of the cost model are:

- The NPV of the cost over a period of 10 years of providing services using the two delivery options (LLU and SLU), divided by the NPV of the number of customers. This calculation makes it possible to assess the average cost per subscriber per year taking into account the phasing of costs.

- The difference of the average cost (per subscriber per year) for these two delivery options, which represents the incremental ARPU[5] that would be necessary for the alternative operator to cover the cost difference calculated between SLU and LLU.

Network topology

Our model considers the same network inputs as the BIPT local loop cost model,[6] such as the number of LDC/SC/lines per LEX, the distance between the LEX/LDC/SC, and so on.

The share of lines per street cabinet that the modelled alternative operator will unbundle is an important input for the model. We have first estimated the total proportion of lines that will support services provided by all of the alternative operators, with a progression from the current 8% to around 20 % in 2018. We have then examined two possibilities:

- The modelled alternative operator has 50% of the total market share of all the alternative operators – this represents a "leading" DSL alternative operator.

- The modelled alternative operator has 100% of the total market share of all the alternative operators – this represents either a leading alternative operator which has consolidated the other DSL alternative operators in the market, or an alternative operator that is providing wholesale services to all of the other DSL alternative operators.

We have derived the length of the backhaul needed on the basis of the topology and factors used in the BIPT local loop model, as well as on real data provided by Belgacom. We have considered four possible backhauling options:

- **Build own**, whereby the alternative operator builds its own backhaul (trenching, putting ducts, installing fibre) to connect its street cabinets from the LEX or LDC and, where applicable, connects its LDC to the LEX.

- **Duct sharing**, whereby the alternative operator rents the ducts from another operator and installs its own fibre.

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5 Assuming that fixed costs are the same in the two delivery options and therefore that this additional ARPU also represent additional margin

6 Described in the annex to the decision by BIPT board taken on 13 June 2007 regarding BRUO rental fee.

- **Fibre lease**, whereby the alternative operator leases dark fibre from another operator.
- **Ethernet backhaul**, whereby the alternative operator uses a bitstream type of service (comparable to a BROBA offer priced by user) to connect the street cabinet to the LEX.

It should be noted that in the absence of regulated services corresponding to the last three of these backhaul options, we have used estimates for these main cost drivers based on reference offers or current prices in other EU countries (including Netherlands, Ireland, France, etc.), or have used Analysys Mason estimates.

In modelling the installation of relevant equipment at street cabinet locations, we have considered three options:

- **Build own ROP** (Remote Optical Platform), whereby the alternative operator builds its own platform next to Belgacom's street cabinet, pays for a tie cable to get access to the sub-loop and installs its equipment in this platform.
- **Share ROP with one OLO**, whereby the alternative operator shares with another alternative operator the costs of building a shared platform close to Belgacom's street cabinet, with a tie cable to get access to the sub-loop. In this option, both alternative operators install their equipment in a single platform, so that the cost, although higher in total than for one operator, is shared between the two alternative operators.
- **Share ROP with incumbent**, whereby the alternative operator uses a potential regulated co-location offer in Belgacom's ROP. We have evaluated the price of this offer as the incremental cost for the incumbent operator for an extended platform that can accommodate two operators, compared to the cost of a platform for one operator alone.

Services provided

In our interviews with the main Belgium operators, it was their view that the main source of revenues in order to cover the additional cost of FTTC/VDSL compared to ADSL will be from TV services, currently not provided by alternative operators on the basis of ADSL services. For this reason, we have differentiated the services provided based on LLU and SLU as follows:

- services provided with LLU in our model are double-play services (Internet access and telephony)
- services provided with SLU are triple -play services (TV, Internet access and telephony).

Model structure and main cost elements

As presented in Figure 2.2 below, the model calculates for one local exchange at a time, and is populated by a file which contains data for all the LEXs ordered by decreasing number of lines.

Depending on the coverage selected, our model then calculates the total cost associated with that coverage. We have sorted the LEXs by decreasing number of lines in order to consider different coverage options, starting with the most densely populated regions where scale effects for SLU are more important.

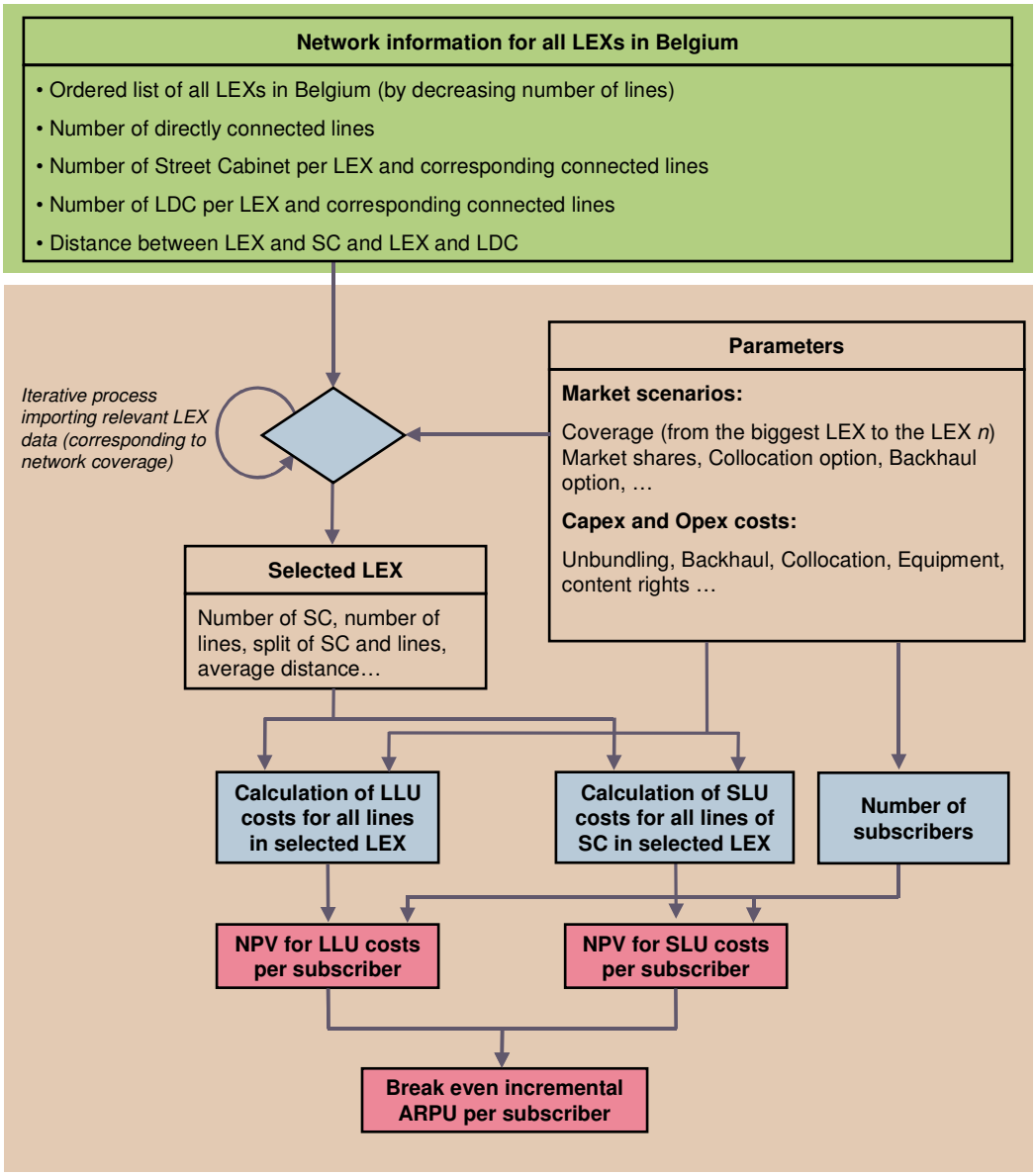

Figure 2.2: Overview of model methodology [Source: Analysys Mason]

The table below shows the main cost elements, by category, considered in both the LLU and SLU cases in the model.

Cost elements	*Capex*	*One-off opex*	*Recurring opex*
Video content rights (only relevant for SLU business model)			√
Backhaul (*build own backhaul, duct sharing, fibre lease, Ethernet backhaul*)	√	√	√
Unbundling (*local loop or sub-loop line rental, connection/ disconnection charges*)		√	√
Equipment and maintenance (*DSLAM, video platform*)	√		√
Co-location (*ROP costs, power, tie cables*)	√	√	√

Figure 2.3: Cost elements considered for LLU and SLU in the model [Source: Analysys Mason model]

The annex of this document details all the main unit costs considered in the model.

3 Key findings

We present below the key findings of our analysis.

3.1 Replicating Belgacom's business model is not realistic for an alternative operator

We have first assessed the commercial viability of an alternative operator that would theoretically try to replicate Belgacom's business model – that is, by:

- covering 80% of the population in Belgium
- using a "Build own" option for backhauling
- using a "Build own ROP" option for installing its equipment.

Under this scenario, we assumed that the alternative operator would have 50% of the total alternative operator market share (estimated to represent 10% of the copper lines within the coverage area by 2018).

As presented in Figure 3.1, under these assumptions, from the local exchange, the costs to provide LLU-based services amount to EUR326 per customer per year, and EUR2336 for SLU-based services. The incremental ARPU necessary to cover the additional costs between SLU and LLU is therefore EUR168 per month, which is clearly not realistic.

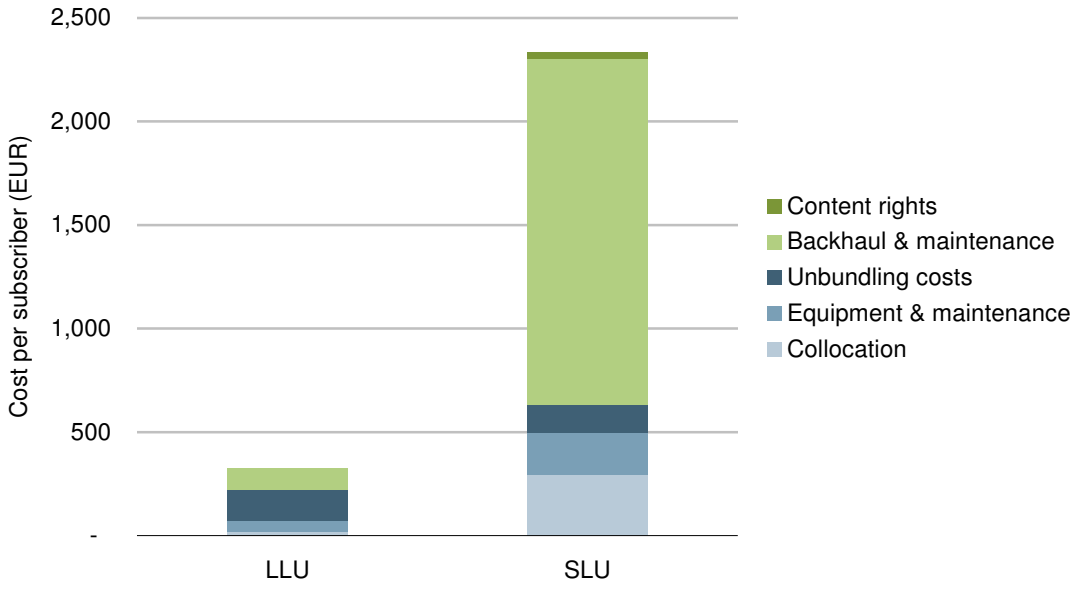

Figure 3.1: LLU and SLU annual costs per subscriber, assuming 80% coverage [Source: Analysys Mason]

It should be noted that that this figure does not represent the business case of the incumbent operator since :

- Belgacom can expect (and already achieves) a much higher market share than the one considered for the modelled alternative operator
- The incumbent can enjoy a lower cost of backhaul than the alternative operator (and these costs represent more than 70% of the cost per line in the SLU case). This is due to the mutualisation of the incumbent infrastructure with other services and potentially lower unit cost than the one we have considered in this study for alternative operators since Belgacom has the opportunity to roll out its backhaul network on an "opportunistic basis" (e.g while maintaining its network or when civil work is necessary)
- Belgacom could consider a longer investment perspective than the 10-year perspective that we have considered in this study for alternative operators.

3.2 Different levers can be identified to improve the SLU business model

In order to assess the commercial attractiveness of an SLU business model for an alternative operator, we have reviewed the following options :

- population coverage
- backhaul options
- co-location options
- market share.

3.2.1 Population coverage

Figure 3.2 below shows the impact of the number of LEXs covered, sorted by increasing number of lines, on the average annual cost per subscriber for LLU and SLU.

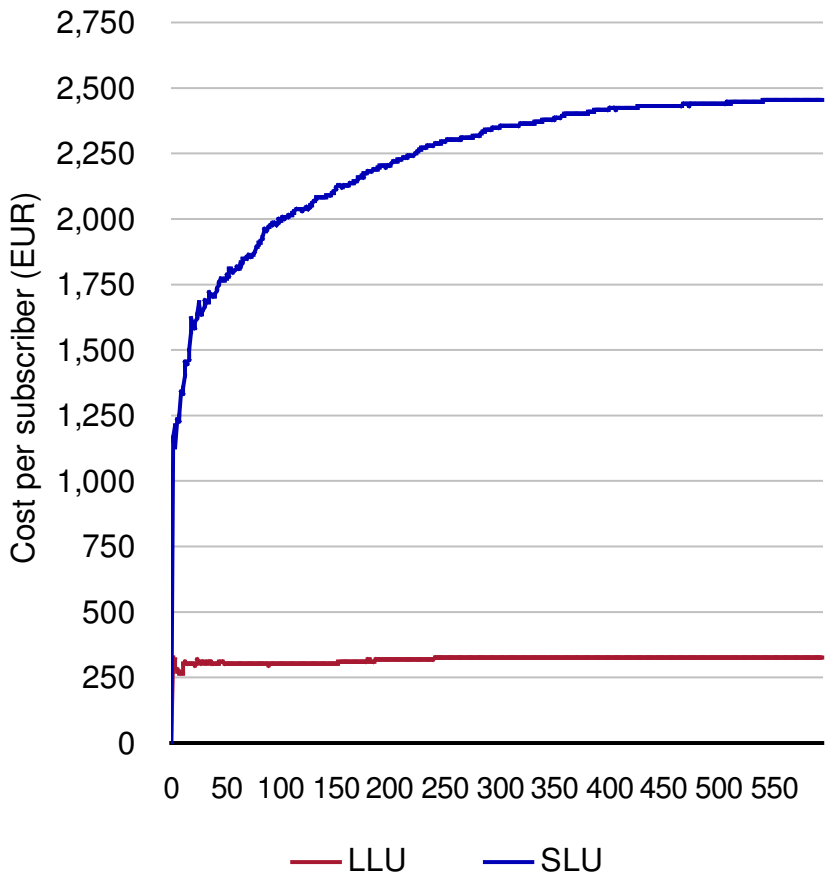

Figure 3.2: Impact of coverage on the average annual cost per subscriber for LLU and SLU [Source: Analysys Mason model]

As illustrated by the figure above, the SLU business case is more sensitive to scale effects than the LLU business case, so that reducing coverage has a bigger impact on SLU profitability than for LLU. In order to consider a realistic coverage scenario for an alternative operator, we assume that an alternative operator will not look to cover more than the 50 biggest LEXs (representing less than 10% of total LEXs in Belgium), in total covering around 30% of the population in Belgium.

As presented in Figure 3.3 below, under these assumptions[7] the additional costs of providing services with SLU compared to LLU total EUR1468 per customer per year. The incremental monthly ARPU necessary to cover these additional costs therefore represents EUR122 per month.

[7] Alternative operator covering 50 LEXs, building its own backhaul and its own ROP, with 50% of total alternative operator market share.

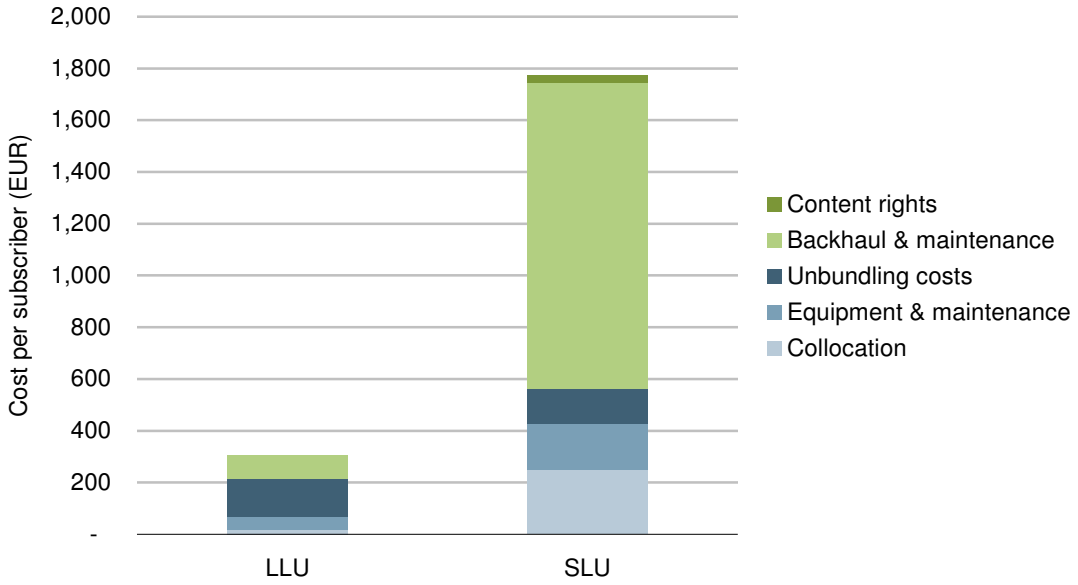

Figure 3.3: LLU and SLU costs per subscriber for the 50 biggest LEXs [Source: Analysys Mason]

3.2.2 Backhaul options

Figure 3.4 below shows the impact of the different backhaul options on the average cost per subscriber for SLU with all other parameters kept as in section 3.2.1 above, namely:

- 30% of the population covered
- using a "Build own ROP" option to install its equipment
- 50% of total alternative operator market share.

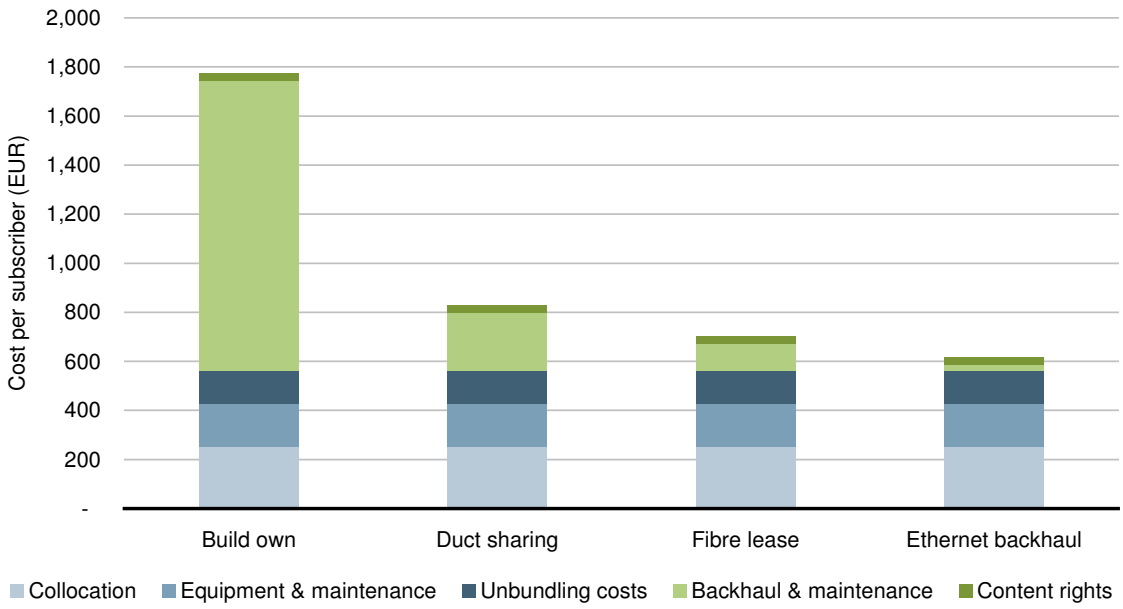

Figure 3.4: Impact of backhaul choice on SLU cost per subscriber for the 50 biggest LEXs [Source: Analysys Mason]

As illustrated in the graph above, backhaul is a fixed cost that is difficult to cover with a limited number of customers served by street cabinet. Given the average size of a street cabinet (typically 150 lines in total) and the market share considered for alternative operators (typically 10% to 20%), the "Ethernet backhaul" option, with a flat cost per customer, provides the most efficient cost structure.

Under these assumptions, the additional costs to provides the services with SLU compared to LLU amount to EUR399 per customer per year. The incremental monthly ARPU necessary to cover these additional costs represents around EUR33.

3.2.3 Co-location options

Figure 3.5 below shows the impact of the different co-location options on the average cost per subscriber for SLU, with all other parameters kept as in section 3.2.2, namely:

- 30% of the population covered
- Ethernet backhaul option
- 50% of total alternative operator market share.

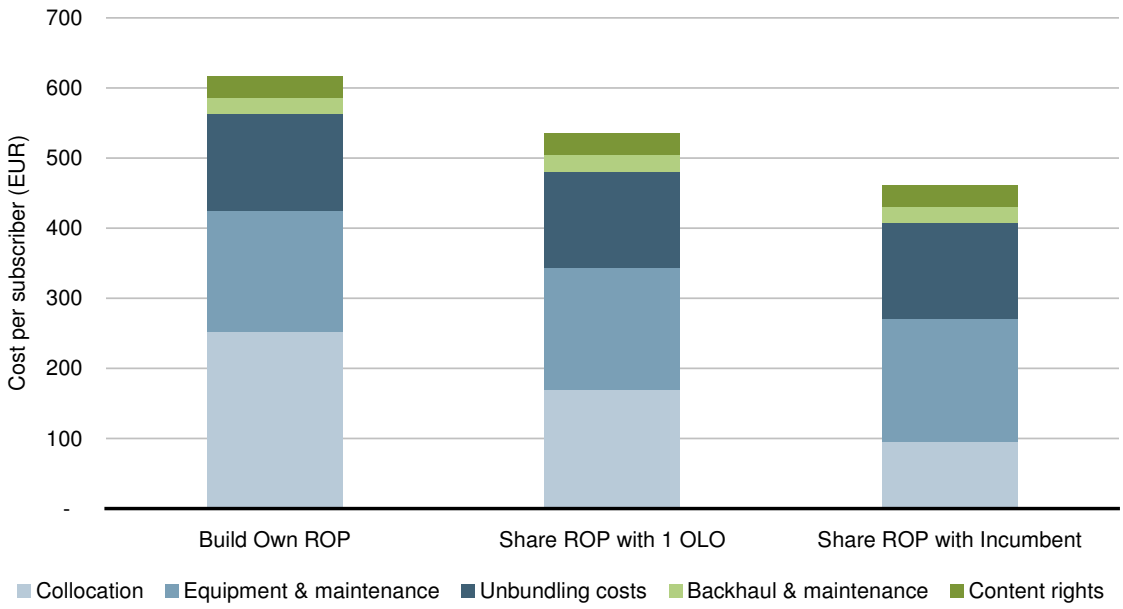

Figure 3.5: Impact of co-location choice on SLU cost per subscriber for the 50 biggest LEXs [Source: Analysys Mason]

The graph shows that, in a similar manner to the backhaul solutions discussed above, building a street cabinet represents a fixed cost that is difficult to cover with the limited number of customers that an alternative operator can serve using that street cabinet. The co-location option "Share ROP with incumbent" provides the best cost structure for the modelled alternative operator.

Under these assumptions, the additional costs to provides the services with SLU compared to LLU are EUR244 per customer per year. The incremental monthly ARPU necessary to cover these additional costs represents around EUR20.

3.2.4 Market share

Figure 3.6 below shows the impact of the market share (in terms of lines) reached by an alternative operator in 2018 on the average cost per subscriber for SLU, with all other parameters kept as in section 3.2.3, namely:

- 30% of the population covered
- "Ethernet backhaul" option
- "Share ROP with incumbent" co-location option.

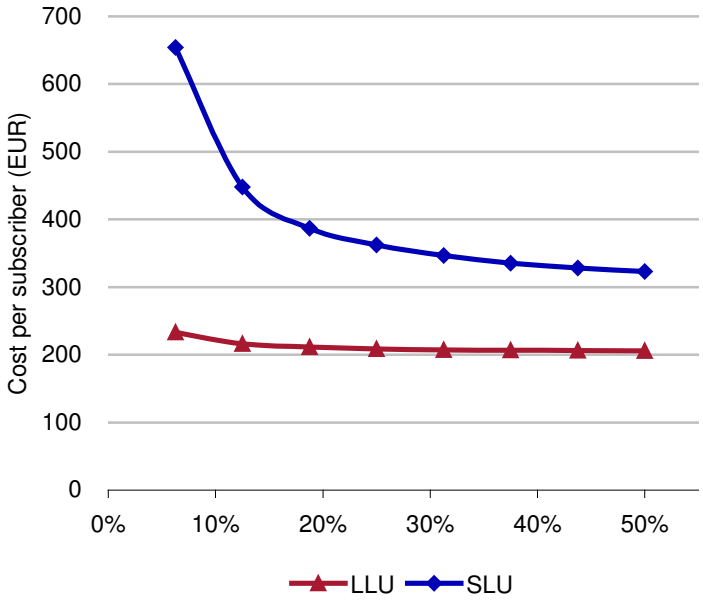

Figure 3.6: Sensitivity analysis on market share for the 50 biggest LEXs [Source: Analysys Mason]

As illustrated by the graph above, the market share of the alternative operator is a very important parameter that can significantly improve the SLU business model in comparison with LLU. For example, if an alternative operator can manage to unbundle around 20% of the lines in the area where it rolls out services (e.g. on the street cabinet to which it is connected)[8], the additional costs to provides the services with SLU compared to LLU are EUR154 per customer per year. The incremental monthly ARPU necessary to cover these additional costs represent EUR12.8.

Figure 3.7 below details the types of costs for LLU and SLU under these assumptions.

8 Either by assuming a consolidation of the DSL alternative operators in the market, or by assuming that the modelled operator has an SLU business model that relies on providing wholesale offers to other alternative operators.

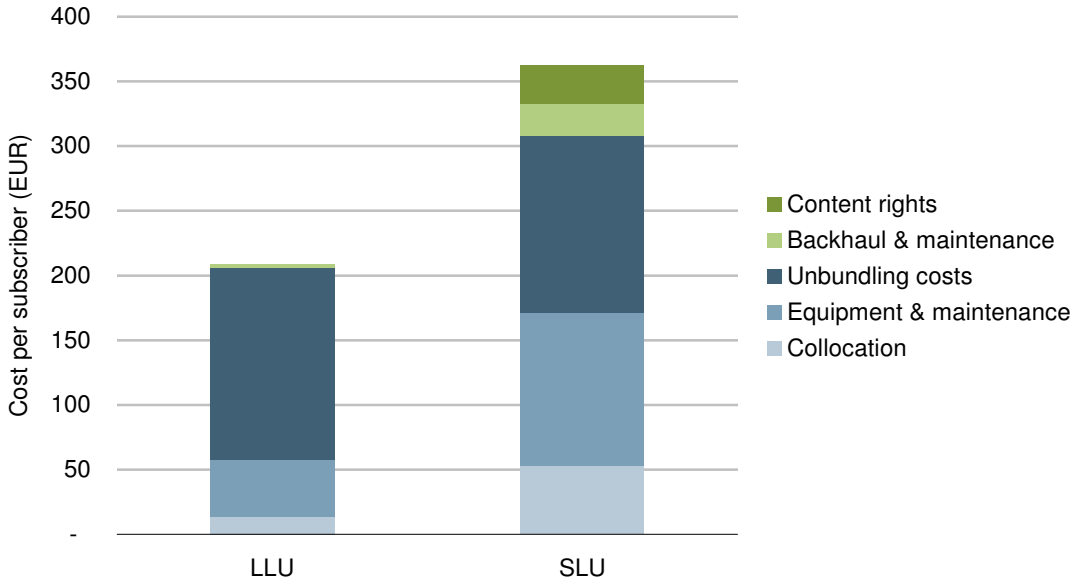

Figure 3.7: LLU and SLU costs per subscriber for the 50 biggest LEXs with around 20% market share in terms of lines [Source: Analysys Mason]

3.3 Conclusion

The results of our model show that, in the current market conditions, and especially without regulatory intervention regarding the conditions under which backhaul and co-location services are made available for SLU, the SLU business model is clearly not as commercially attractive as LLU for an alternative operator.

However, it seems that a viable case can be constructed provided a strict set of conditions are met, which we detail below:

- the alternative operator limits its SLU roll-out to the densest part of Belgium (typically the 50 biggest LEX representing the densest 30% of the Belgian population)
- backhaul links to the MDFs are rented from the incumbent
- the operator co-locates its equipment with the incumbent
- it gains a market share of around 20% (of copper lines) in the area where it rolls out services
- SLU allows the operator to provide triple-play services which enable it to achieve an increase in ARPU of around EUR13 per month compared to the double-play services that can be provided via LLU.

The figure below illustrates these key messages by showing, from an initial coverage of 80%, the relative impact of each of these factors of coverage, backhaul, co-location and market share on the

incremental monthly ARPU necessary to cover the additional costs represented by the SLU model over the LLU model.

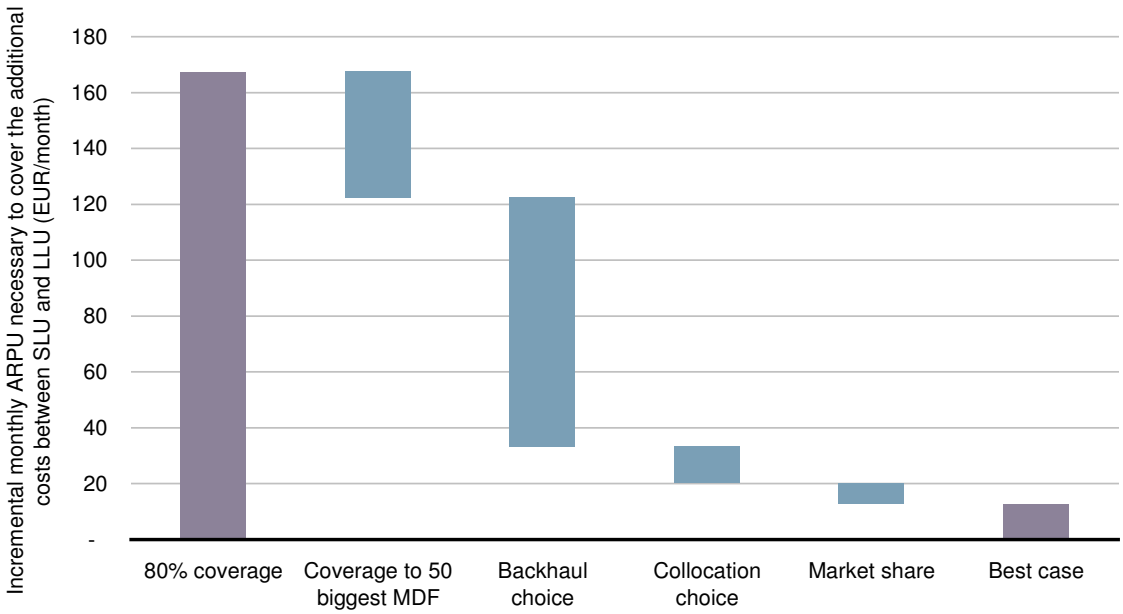

Figure 3.8: *Impact of the different network deployment choices and scenarios on the incremental ARPU necessary to cover the additional cost between SLU and LLU [Source: Analysys Mason]*