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Unbundled Access to the Local loop: Enabling the competitive provision of a full range of electronic communication services including broadband multimedia and high-speed internet

CONTENTS

1. Introduction
 - 1.1. Objectives
 - 1.2. Background
 2. Means of access to the local loop
 3. The competitive situation of markets
 4. Application of competition rules
 5. Application of Sector Specific Rules (ONP)
 6. Duties of National Regulatory and competition Authorities
 7. Conclusion
- Annex – Technical aspects of unbundled access to the local loop

1. INTRODUCTION

1.1. Objectives

The main policy objectives that underpin the existing regulatory framework, as set out in the Commission's Communication on the 1999 Review,¹ are:

- To promote an open and competitive European market for communications services;
- To benefit the European citizen in particular through creating new job opportunities;
- To consolidate the internal market in a converging environment.

The Commission Recommendation on unbundled access to the local loop² fits into this framework and with the conclusions of the Lisbon Summit, of accelerating Europe's transition to the new information society, in particular through the deployment of cheap internet services. It identifies actions that Member States are invited to take to address limited competition in the local access network where the incumbent continues to dominate both the provision of voice telephony and the development of higher bandwidth services.

Providing access to the local loop to all new entrants will increase the level of competition and technological innovation in the local access network, which will in turn stimulate the competitive provision of a full range of telecommunication services from simple voice telephony to broadband services to the customer. The types of broadband technologies now available (see annex I) are well suited to providing cost-efficient leased circuits and high speed internet access to small and medium enterprises, and to the top end of the consumer market. As the market grows and economies of scale are realised, lower prices will make these broadband services accessible to a large part of the population. Experience shows how quickly demand can grow once the price is right.

Several Member States have already mandated or have formally fixed dates for unbundling (Austria, Denmark, Finland, Germany, Italy, Netherlands, UK, see Fifth implementation Report³).

1.2. Background

The local loop refers to the physical circuit between the customer's premises and the telecommunications operator's local switch or equivalent facility. Traditionally it takes the form of pairs of copper wires (one pair per normal telephone line), but increasingly fibre optic cables are being deployed to connect large customers, and other technologies are also being rolled out in the local access network.⁴ Local loop unbundling has been mandated in certain Member States and is used mainly for the connection of those customers for which the deployment of optical fibre is not an economically viable alternative, such as small and medium enterprises (SMEs) and residential customers.

In its Communication on the 1999 Review, the Commission noted that the availability of unbundled access to the local loop increases competition and that it could in addition speed up

¹ COM(1999) 539. See <http://www.ispo.cec.be/infosoc/telecompolicy/review99/review99en.pdf>.

² OJ (to be published).

³ COM (1999)537, 11 November 1999, Fifth Report on the Implementation of the Telecommunications Regulatory Package, see <http://www.ispo.cec.be/infosoc/telecompolicy/5threport.html>.

⁴ Wireless local loops, power line networks etc, in addition to cable TV networks.

the introduction of high speed Internet access services. During the public consultation on the Review a broad consensus has emerged on the necessity of unbundled access to local loops for the emergence of advanced services in a competitive environment.⁵

This results from the fact that operators rolled out their local access networks over significant periods of time protected by exclusive rights and were able to fund its investment costs through monopoly rents. In addition, the ubiquity of the copper local loop access infrastructure controlled by the incumbent operator is not in all circumstances economically feasible to duplicate, and alternative local access infrastructures (cable-TV, wireless local loops, satellite, etc) cannot usually be constructed with the same ubiquity and competitive conditions within a reasonable time. In the absence of technical and commercial viable alternatives refusal to supply access by a dominant company holding such an infrastructure may in the circumstances of the specific case and in the light of the case-law of the Community courts, constitute an infringement of Article 82 of the Treaty.

2. MEANS OF ACCESS TO THE LOCAL LOOP

To overcome the limited current competition in the local access network referred to above, three means of access to the local loop are considered:

- (1) **Full unbundling of the local loop** (unbundled access to the copper pair for the competitive provision of advanced services by third parties)

In the case of full unbundling of the local loop, the copper pair is rented to a third party for its exclusive use. The lessee has full control of the relationship with its customer for the provision of a full range telecommunication services over the local loop, including deployment of digital subscriber line systems (DSL) for high speed data applications.

- (2) **Shared use of the copper line** (unbundled access to the high frequency spectrum of the local loop for the competitive provision of DSL systems and services by third parties)

In this form of access, the incumbent operator continues to provide telephone service, while the new entrant delivers high speed data services over the same local loop using its own high-speed ADSL modems. Telephone traffic and the data traffic are separated by means of a splitter before the incumbent's switch. The local loop remains connected to, and part of, the public switched telephone network.

- (3) **High speed bit stream access** (Provision of DSL services by incumbent)

'High-speed bit stream access' refers to the situation where the incumbent installs a high speed access link to the customers premises (e.g., by installing its preferred ADSL equipment and configuration in its local access network) and then makes this access link available to third parties, to enable them to provide high speed services to customers. The incumbent may also provide transmission services to its competitors, to carry traffic to a 'higher' level in the network hierarchy where new entrants may already have a point of presence (e.g. a transit switch location).

⁵ Communication from the Commission on the results of the public consultation on the 1999 Communications Review (COM(2000)xxx).

This type of access does not actually entail any unbundling of the copper pair in the local loop (but it may use only the higher frequencies of the copper local loop as in (2) above).

Further technical details can be found in the attached Annex.

The Commission considers that these three means of access to the local loop should be seen as **complementary**. The availability of only some of these means of access is not enough. Together they serve to reinforce competition and improve choice for all users, by allowing the market to decide which offering best meets users needs, taking into account the evolving demands of users and the technical and investment requirements for market players.

3. THE COMPETITIVE SITUATION OF MARKETS

This section examines the present competitive situation in local loop related markets and the economic rationale for unbundling the local loop. In spite of the liberalisation of voice telephony on 1.1.1998 in most Member States, the incumbent's market power remains unchallenged on a significant part of telecommunications markets. One of the main reasons for this is the bottleneck situation on the local loop related markets, because the incumbent's local loop is the key infrastructure providing incumbents with a privileged access to end-users for the delivery of retail telecom services.

3.1. Incentive effects of local loop unbundling on increased competition and economic efficiency

While commercial negotiation is the preferred method for reaching agreement on the price of local loop access, experience shows that in most cases regulatory intervention is necessary. The lack of competition in this area means that it is appropriate for the national regulatory authority (NRA) to impose obligations for pricing to be cost-oriented, based on specific principles and methods in order to achieve long-term sustainable and efficient competition and provide predictability to market players.

In order to achieve the aim of increased consumer choice the economic incentives created by the policy framework, in particular the pricing methodology, must encourage all operators to make appropriate investments. Thus when priced at a level that does not distort the 'make or buy' decision of an entrant, local loop unbundling can encourage long term infrastructure competition by allowing entrants to test out the market before building their own infrastructure, and can encourage a more competitive and innovative market for simple voice telephony and the roll-out of local broadband (high speed) services. While it is possible that the incumbent will introduce these technologies in its own time, the speed of take-up is likely to be increased if entrants are also allowed to upgrade the incumbent's local loops and offer broadband service directly to users. This freedom for new entrants to rollout services independently of the decisions of a dominant operators is a strong argument for local loop unbundling rather than resale because, with resale, entrants are constrained to offering similar services to those provided by the dominant provider.

It is important to establish the framework for any mandated access to local loops of incumbents, and accompanying pricing controls, against a standard of promoting economic efficiency, enabling wider competition and maximising consumer and user welfare.

3.2. Market analysis – Market power of incumbents - The local loop's key rôle.

In the Full Competition Directive⁶, the Commission distinguished various fixed telephony retail services: the initial connection, the monthly rental, local calls, regional calls and long distance calls. While categories of services have to be monitored closely, particularly given the speed of technological change, and regularly reassessed on a case-by-case basis, these services are presently normally not substitutable for one another, and would therefore be considered as forming different relevant markets.

The local loop is primarily an infrastructure allowing the delivery of retail telecommunications services. Two main categories of retail services markets are involved :

- the first is the traditional fixed telephony retail services offered to residential users, to professionals and small firms and to large businesses. This market is already very well developed and mature;
- the second is a new emerging market and consists in high-speed telecommunication services which can be delivered on the local loop in the form of DSL services.

Additionally, the local loop is a commodity which can be priced and rented to competitors: this means that as soon as access is given to this part of the incumbents' network a new access market develops which is also a relevant market to take into consideration.

As a result of the liberalisation of voice telephony services as of 1.1.1998 in most Member States, the service offerings of new entrants have developed quickly particularly in the international calls market and, to a lesser extent, the regional calls market. At the same time, given the cost of investment in local access network infrastructure and/or dependence of the service offerings of the incumbent, competition in provision of full voice telephony services (including the connection, monthly rental and local calls markets) is concentrated on business customers in urban areas. As a result each of these markets has a very different competitive situation and, whilst the market share of the incumbents has decreased in international and regional call markets, they still deliver the bulk of access services to end-users – the connection and the line rental - and hold a share of the local calls market which, except in the UK, is well above 90% and in most cases close to 100%.

The incumbents' local access network (ie the copper pairs connecting end-users to the closest distribution frames) is not the only technical infrastructure allowing for the provision of retail services to end-users. Other alternatives exist such as fibre optic networks, wireless loops or upgraded cable TV networks. However, none of these alternatives can be considered as an equivalent. Fibre optic networks are presently only competitive on upstream transmission links and, as concerns the retail distribution network, in special niches like networks connecting office buildings or a narrowly defined geographical area. Wireless loops appear in the near and medium term future most suitable to address the specific needs of professional clients and small firms, or individual end-users with particular needs, but would remain uneconomic for serving the large majority of the residential clientele. Cable networks which were designed for one-way TV need costly upgrades for the provision of two-way telecom services, and the provision of high speed services on cable involves customers sharing the capacity of a cable channel, which means that high speed data via cable modems does not offer the same capacity as the copper pair upgraded with DSL technologies, which is

⁶ Directive 96/19/EC, recital 20. OJ L 74, 22.03.1996, p.13.

dedicated to every single end-user. Additionally cable networks do not normally, except maybe in a few countries where the situation would have to be assessed on its own merits, have a nation-wide coverage which would allow entrants to serve the same geographic markets as incumbents, whether for traditional voice telephony retail services or new DSL services. Other innovative technologies such as the use of electricity networks do not appear to be a technically or economically viable alternative solution at present. While this may over time change, at present none of these alternative networks, nor even their combined use, can for the purposes of delivering retail narrow and large bandwidth telecommunications services be considered as a nation-wide alternative to the incumbents' copper pair.

The incumbents' local loop networks have been developed nation-wide in each of the Member States. New entrants have licences delivered by the national authorities and are also expected to compete on the national markets. Therefore the geographic market where competition would in the absence of a bottleneck situation normally develop is the national territory of each Member State: this is what already happens for international and long distance calls for which, owing to access via interconnection, no bottleneck situation impedes the deployment of nation-wide offers by new entrants. The bottleneck situation experienced so far for the provision of access and local calls services and now for the provision of high speed services does not prevent new entrants from developing local networks, at a more limited level, such as in densely populated urban areas, but with these networks they are normally unable to compete nation-wide on an equal footing with incumbents, providing the same whole range of services (see below). The Member States' territory is, according to the existing case law, a substantial part of the common market.

Thus, without unbundled access to the incumbents' local loop, and despite recent major steps like the introduction of carrier preselection for telephone calls, new entrants are unable to compete on several markets including the provision of high speed services to most end-users. This situation may change over the long run. New developments shall have to be monitored closely.

Incumbent operators enjoy a position of dominance on the traditional – narrowband – market for telephony services. This is clear from an examination of the market shares of incumbents - the most traditional way to assess dominance. The incumbent's market share is in all circumstances well above 50%, even on the most competitive relevant market –international calls- in the most open geographical market, the United Kingdom, where liberalisation started already in the 1980s. As noted above in other markets, such as local calls the market shares of the incumbents is in the majority of cases well above 90%, and often close to 100%.

While interconnection and carrier selection allow for an opening to competition of the long distance and international calls markets, the local loop is the key infrastructure for providing access services to end-users (i.e. the connection and line rental) and remains within the incumbents' control. Although in some countries carrier preselection also allows the delivery of local call services (call origination) by alternative operators, where this is not yet the case the local loop is also a key infrastructure for providing local calls services. Therefore the local loop is a bottleneck infrastructure for the nation-wide distribution of retail access and also, in most cases, local call services, which form two relevant markets of non substitutable services.

The situation in the new markets for high speed services is less obvious. Where new high speed services are offered the presence of incumbents is nevertheless already strong and they would under the present conditions be able to consolidate their dominant position on this new market as well, owing to their privileged access to end-users through the nation-wide existing copper pair networks.

Thus it appears that the control of the incumbent's nation-wide local loop gives them a considerable leverage for maintaining their dominant positions on existing voice telephony retail markets, in spite of their liberalisation, or for establishing similar positions on new emerging markets for high bandwidth services. The incumbent's copper pair is the key infrastructure for providing: i) access voice telephony retail services, which includes call termination; ii) local call (origination) services⁷; and iii) high bandwidth services to end-users. These services form three separate relevant markets.

Given the size of investments required, the absolute cost of nation-wide duplication of the incumbents' network with a similar population coverage is likely to be a barrier to entry for any competitor. This infrastructure appears to be with present technologies economically unfeasible⁸, or unreasonably difficult to duplicate at a nation-wide level⁹ in a reasonable time period, even for the most important competitors of existing incumbents, in particular incumbent operators from other Member States which develop their activities in neighbouring European countries, alone or in cooperation with others.

A refusal from an incumbent to give access to competitors on its local loop is thus likely to eliminate the possibility for new entrants to compete at all on the nation-wide market¹⁰ for the three identified services, and they would be limited to regional and local markets where they succeed in building alternative networks. It is highly improbable that all those alternative networks put together will in a reasonable time period be able to match the incumbents' nation-wide network of copper pairs and address the same entire customer population. It is therefore considered that the local loop is presently essential and thus access is necessary for competitors in order for them to be able to compete nation-wide on a level playing field with incumbents on the three identified retail services markets and to address the same customer population.

Given the speed of technological change and market developments which influence the technical and economic assessment of alternatives to the copper pair, the present analysis may need to be reviewed and is without prejudice to individual case-related decisions.

4. APPLICATION OF COMPETITION RULES

4.1. The duty of the dominant operator under competition rules to grant access to the local loop

Refusing to grant access to the local loop to competitors requesting access is likely to imply various forms of abuses of dominant position under article 82 of the Treaty.

- Refusal to deal: on the three relevant markets identified, *where the incumbent is the only provider of services over the local loop*, a refusal to let competitors have access to the incumbent's local loop may under certain circumstances be contrary to Article 82, if it would prevent any competition on the relevant nation-wide markets and if it is indispensable for the provision of nation-wide services to end-users as appears to be the

⁷ Where carrier selection and preselection is not yet available for local call (origination) services.

⁸ See Judgment of the E.C.J. of 26 November 1998. Oscar Bronner GmbH & Co. KG v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG and Mediaprint Anzeigengesellschaft mbH & Co. KG. Case C-7/97., paragraph 44.

⁹ Except maybe in the smallest of EU countries, Luxembourg.

¹⁰ See Oscar Bronner Judgment, paragraph 38.

case at present. The dominant operator would have to provide local loop access to all competitors on no less favourable conditions than those for its own downstream operations. Under a certain set of conditions access to the local loop may be requested:

- *sufficient capacity* must be available in the incumbent's network to provide access;
- a refusal of access would *limit the emergence of new services or prevent any competition on the relevant markets as defined above*;
- the *requesting party is ready to pay a non discriminatory price* for the access;
- and there is *no objective justification for refusing access*.

- **Discrimination:** on the three relevant markets identified, *where the incumbent is already providing local loop access to at least one operator*, be it one of its own subsidiaries, a refusal of access may under certain circumstances amount to discrimination and constitute an abuse of dominant position.
- **Limitation of production, markets, or technical development to the prejudice of consumers.** Refusal of access in the form of shared access or full unbundling may in certain circumstances limit the development of emerging markets like high speed telecom and internet services, or impede the development of competition on existing markets such as traditional voice telephony services.

An incumbent, by making the shared access on high speed services (see section 2) conditional upon the continued provision of its own narrow bandwidth telecom services to the same end-users, and thereby refusing full local loop unbundling, may in certain circumstances behave in an abusive way. Such restriction would lead to a distortion of competition, by limiting the possibility of competitors to enter the markets or to develop their activities, and, given the fact that full unbundling has successfully been introduced in a number of countries, would need to be objectively justified.

4.2. Dominant operators' duties regarding the conditions of access and pricing

Where dominant operators do not formally refuse upon request partial or full unbundling of the local loop, but define a set of conditions of access which restrict competition, other forms of abuse may occur which would as well constitute infringements of Article 82 of the treaty.

- **Delays.** Access should normally be granted promptly. If granting access is delayed, the incumbents would in practice be able to reserve for themselves the emerging market for high speed services based on DSL technologies, thereby extending their dominant positions for the network into this new area of activity, or deferring the possibility for new entrants to compete on a level playing field on several voice telephony relevant markets. The effects of such delays without objective reasons could therefore be the same, at least in the short term, as an outright refusal to give access and be attacked under Article 82 on the same basis as a refusal.
- **Discrimination.** Abusive discrimination can take many different forms, such as discriminatory pricing, delays in granting access or delays in remedying technical problems related to the access, the technical configuration of the access and in the specific case of local loop access (e.g. if access does not include operating system and support services or other functions used by the incumbent to offer services via the local loop), discrimination in the terms on which collocation is (or is not) offered. Such practices could constitute discriminatory behaviour as caught by Article 82(c).

- *Price abuses.* Prices may be another way for incumbents, while formally granting access to the local loop, to restrict competition. Three main categories of price abuses can potentially occur. Excessive access prices to the loop, predatory prices on services offered to end-users or margin squeezes between the two latter prices could all constitute infringements of article 82 of the Treaty. The scope for margin squeezes is likely to be higher where the incumbents' tariffs have not been fully rebalanced on a cost recovery basis.

5. APPLICATION OF SECTOR SPECIFIC RULES (ONP)

5.1. General

The Open Network Provision (ONP) framework concerns the harmonisation of conditions for open and efficient access to, and use of, public telecommunications networks and, where applicable, public telecommunications services. The ONP Directives set out conditions for access to, and use of, specific types of networks and/or services; thus the Leased Lines Directive¹¹ deals with access to and use of leased line transmission capacity, the Voice Telephony Directive¹² deals with access to and use of public telephone networks and services, including special innovative access, and the Interconnection Directive¹³ deals with interconnection of and access to public telecommunications networks and services in general.

'Network access' as used in ONP Directives means making accessible some part or parts of an existing network for use by another party, but does not involve an interference with ownership of the network element(s). Obligations in sector specific Directives to deal with or meet requests for network access (which apply to operators notified as having significant market power) do not oblige incumbents to provide full unbundled access to local loops, although this is without prejudice to obligations to provide 'access' that may be imposed on dominant operators under competition rules. Only the leased line Directive mandates notified operators to lease transmission capacity under harmonised conditions to third parties for their exclusive use.

5.2. Special network access

Shared access to the high frequency spectrum of the local loop is covered by Article 16 of the Voice telephony Directive and Article 4 of the Interconnection Directive. High speed bit stream access services are covered by Article 16 of the Voice telephony Directive and the provision of associated transmission capacity (back-haul) by Article 10 of the Leased lines Directive. Full unbundled access to the local loop is not covered by the ONP Directives.

¹¹ Council Directive 92/44/EEC of 5th June 1992 on the Application of Open Network Provision to Leased Lines (*OJ L 165, 19.6.1992, p.27*), as amended by Directive 97/51/EC of the European Parliament and of the Council of the 6 October 1997 (*OJ L 295, 29/10/1997 p 23*), and Commission Decision 98/80/EC of 7 January 1998 (*92/44/EEC OJ L 014, 20/01/1998 p. 27*).

¹² European Parliament and Council Directive 98/10/EC of 10 February 1998 on the application of open network provision to voice telephony (*OJ L 101, 01/04/1998 p. 24*).

¹³ Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (*OJ L 199/32 26.7.97, p.32*), as amended by Directive 98/61/EC of the European Parliament and of the Council of 24 September 1998 with regard to operator number portability and carrier pre-selection (*OJ L 268, 03/10/1998 p. 37*).

Where an operator notified as having significant market power under the Voice Telephony Directive provides shared access to the local loop for its own services, it is granting itself special network access, in that it is making use of the fixed public telephone network for providing publicly available telecommunications services. In these circumstances, the notified operator must apply similar conditions to other organisations providing similar services, and must provide special network access facilities and information to others under the same conditions and of the same quality as they provide for their own services or those of their subsidiaries or partners (Directive 98/10/EC, Article 16(7)).

Where a notified operator is **not** already providing itself with such access, it must at least deal¹⁴ with reasonable requests for special network access. Given that the majority of EU operators grant themselves shared access to the local loop for their own services, a request for such access from a new entrant cannot be considered to be an *unreasonable* request. Then, the obligation to deal with requests for access can only be refused if the two following conditions are **both** met (article 16(1)):

- there are technically and commercially viable alternatives to the special access requested, and
- the requested access is inappropriate in relation to the resources available to meet the request.

Since shared access applies to existing local loops, it will only rarely be the case that resources are not available to meet the request, and so in most cases both conditions for refusal to provide access will not be met. Any such refusal would need to be justified on a line-by line basis.

5.3. High speed bit stream services

The provision of high speed bit stream services is not mandated under Community law, but where an incumbent operator provides bit-stream DSL services to its own services, subsidiary or third party, then, in accordance with Community law, it must also provide such forms of access under transparent and non-discriminatory terms or conditions to others (Directive 98/10/EC Article 16 (7)).

High speed bit stream access cannot be considered to be economically or technically equivalent to providing access to the copper pair in the local loop, since a high-speed bit stream service requires the new entrant to use the high-speed modems and other equipment provided by the incumbent, and that in turn affects the economics of the service and places restrictions on the type of modems that the customer of the new entrant can buy or rent.¹⁵

5.4. Leased line transmission capacity

Those operators notified as having significant market power for the fixed public telephone network have also been notified as having significant market power under the Leased lines Directive¹⁶ 92/44/EC. As such they have obligations to provide leased transmission capacity

¹⁴ Directive 98/10/EC imposes an obligation to ‘deal’ requests. Directive 97/33/EC imposes the stronger obligation to ‘meet’ requests.

¹⁵ International standardisation has not yet reached a stage where inter-operability between DSL systems from different manufacturers can be guaranteed without involving significant loss of performance.

¹⁶ See ISPO <http://www.ispo.cec.be/infosoc/telecompolicy/en/comm-en.htm#misc>
1 January 2000 - INFORMATION received from Member States concerning Organisations with Significant Market Power.

to others under the same conditions and of the same quality as they provide for their own services, or those of their subsidiaries or partners (Leased lines Directive Article 8(2) 92/44/EC).

When a notified operator provides a high speed bit stream service, it typically conveys customer traffic to one or more points where service providers can interconnect, so that the service providers do not have to build out their network to all local exchanges equivalent facilities. Where leased transmission capacity is provided internally for this, the non-discrimination provision of Article 8(2) of Directive 92/44/EC applies.

5.5. Collocation

To be effective, providing rights for unbundled access to the local loop must be accompanied by provision of rights for collocation. National regulatory authorities need to take steps to ensure that third parties that are granted unbundled access to local loops are also able to collocate equipment on the premises of the local loop operator. Article 11 of the Interconnection Directive 97/33/EC acknowledges the right of Member States to impose collocation arrangements. Where physical collocation is not possible due to space limitations, national regulatory authorities may require that provision is made for 'in-span' interconnection (sometimes called virtual collocation), whereby third parties are able to interconnect equipment that has been installed in a nearby location. A study carried out for the Commission has provided a set of recommendations and practical guidelines for NRAs and operators on implementation of collocation.¹⁷

Regulators will need to address both one-off provisioning costs and costs for collocation, since these are part of the total package for the new entrant seeking to benefit from the availability of unbundled local loops. The most appropriate way to recover such once-off costs is on the basis of up-front fixed charges. Alternatively if costs borne by the incumbent are recovered over a period, it would be normal to build a risk factor into the calculated charges.

6. DUTIES OF NATIONAL REGULATORY AND COMPETITION AUTHORITIES

National regulatory authorities (NRAs), set up in all EU Member States by national legislation adopted in transposition of EC Directives, are entrusted with the application of sector-specific telecommunications regulation. It is Community policy to encourage competition in infrastructure and competition in services, and NRAs must take this into account when acting. National regulatory authorities may also consider introducing a 'fast-track' dispute resolution procedure that will allow disputes about unbundled access to be settled promptly.

The NRAs have a particular role to play when defining the set of conditions and requirements applying to the incumbents' offers of unbundled access to the local loop. As regards prices and costs, while implementing the principle of transparency and cost-orientation regarding access to the local loops of incumbent operators, they should respect the following principles:

- costing and pricing rules should be transparent and objectively based;

¹⁷ See <http://www.ispo.cec.be/infosoc/telecompolicy/en/Study-en.htm> . January 1999 "Recommended Practices for Collocation and other Facilities Sharing for Telecommunications Infrastructure" - a study by Eutelis Consult/Horrocks Technology/Tera Consultants.

- pricing rules should ensure that the incumbent operator is able to cover its relevant costs plus a reasonable return;
- pricing of local loops should be compatible with the aim of fostering fair and sustainable competition, and providing efficient investment incentives in alternative local access network infrastructure¹⁸;
- pricing rules should ensure that there is no market distortion, in particular margin squeezes between the prices of wholesale and retail services offered by the incumbent.

In some cases, these principles may conflict with each other, in particular in situations where incumbent's retail tariffs remain distorted as a result of inherited tariff imbalances and continuing constraints on tariff re-balancing. In these circumstances, NRAs may have to consider transitional measures that avoid distorting competition in the short term while safeguarding competition in the long term.

EU competition rules continue to apply beside the sector-specific regulation and the NRAs, like any other public authority, are bound to respect the provisions of the EC Treaty¹⁹. In the Access Notice²⁰, the Commission has therefore stated that NRAs, when taking decisions on individual access agreements, have to respect both the sector-specific ONP-rules and the general competition rules. Decisions taken by NRAs in application of sector specific legislation can be subject to examination in the light of the EU competition rules. The same principles also apply as regards national competition authorities. As concerns public undertakings or undertakings to which the Member States grant special or exclusive rights, Article 86 of the Treaty specifically requires Member States neither to enact, nor to maintain in force any measure contrary to the rules of the Treaty, in particular competition rules. More broadly, as concerns all undertakings, Article 10 of the Treaty requires Member States to ensure the fulfilment of the obligations arising out of the Treaty and to abstain from any measure which could jeopardise the attainment of its objectives.

The Court has in particular ruled²¹ that that Article 10 (previously Article 5) and Article 86 (previously Article 90) of the EEC Treaty must be interpreted as :

- (i) prohibiting the national authorities from encouraging the conclusion of agreements on tariffs contrary to Article 81(1) or Article 82 of the Treaty, as the case may be;
- (ii) precluding the approval by those authorities of tariffs resulting from such agreements.

This would also apply to any practice infringing article 82. The Commission will examine whether Member States, in particular NRAs or competition authorities, maintain or enact measures contrary to Community competition rules and thereby either infringe Article 86 of the Treaty, read in conjunction with Article 82, or article 10 of the Treaty, also read in conjunction with Article 82. In such an event, it shall take appropriate action.

¹⁸ This in principle may be provided by a pricing system based on current costs. Current costs are the costs of building an efficient modern equivalent infrastructure and providing such a service at today's prices.

¹⁹ See Case 66/86 (*Ahmed Saeed*).

²⁰ See Access Notice, paragraph 19.

²¹ See above mentioned Case 66/86 (*Ahmed Saeed*), paragraph 58.

7. CONCLUSION

Providing access to the local loop to all new entrants will increase the level of competition and technological innovation in the local access network, which will in turn stimulate the competitive provision of a full range of telecommunication services from simple voice telephony to broadband multimedia and high speed internet services to the customer.

These three means of access to the local loop identified in section 2 **complement** each other and should all be available as market offerings. Together they serve to reinforce competition and improve choice for all users, by allowing the market to decide which offering best meets users needs, taking into account the evolving demands of users and the technical and investment requirements for market players. This will stimulate the roll out of high speed internet access services to small business users and consumers, facilitating the growth of e-commerce and e-business.

In all cases, **competition rules** apply, and refusals by dominant operators to open the local loop to competitors requesting access may imply various forms of abuses of dominant position under article 82 of the Treaty, such as refusals to deal and limitation of production, markets, or technical development to the prejudice of consumers. Where access is granted, fair and non discriminatory conditions of access are crucial for successfully opening the local loop on the development of a competitive market telecommunications services, in particular high speed services. This requires close monitoring of delays, prices and contractual arrangements between incumbents and new entrants.

The Commission is confident that the recommended unbundling of the local loop will be a major new step towards more competitive and efficient telecommunications markets, and will facilitate the accelerated development of internet services.

Annex – Technical analysis on Access to the Local Loop

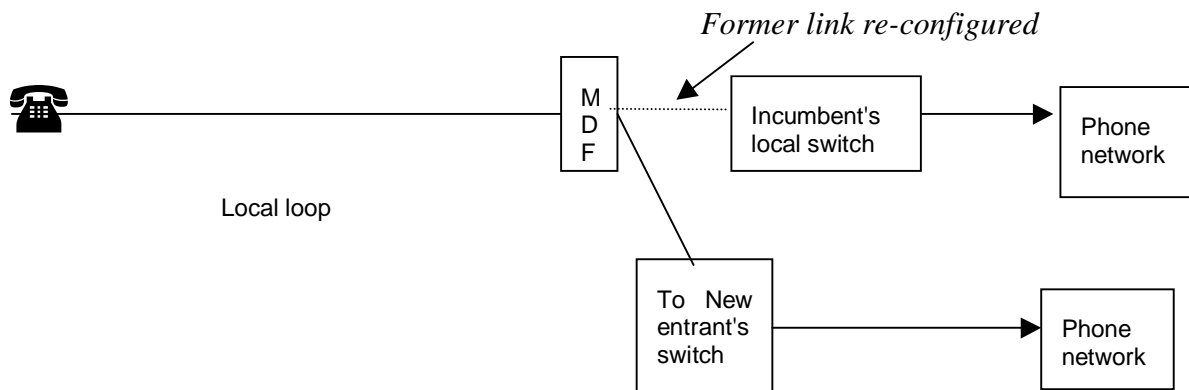
1 - MODALITIES FOR UNBUNDLED ACCESS TO THE LOCAL LOOP

(1) Full Unbundling to the local loop

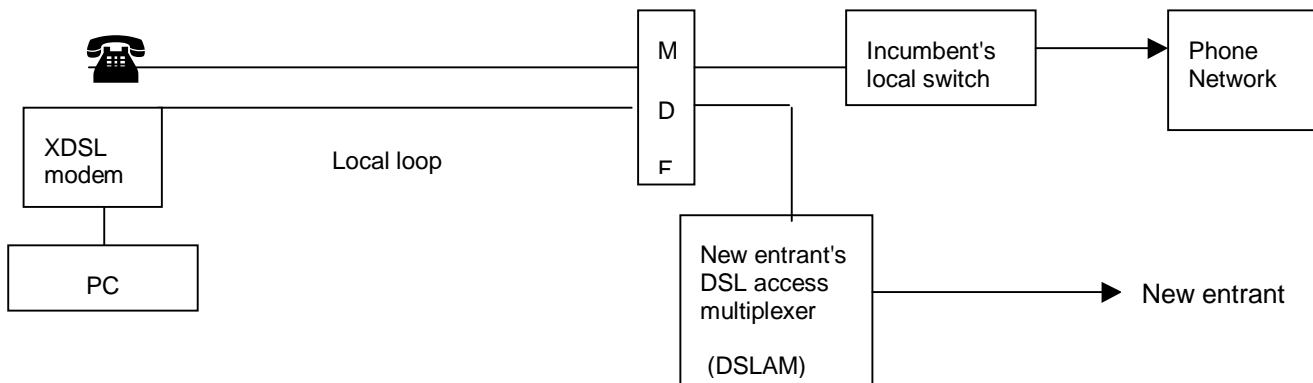
In the case of full unbundling of the local loop, a copper pair is rented to a third party for its exclusive use. The lessor will lose control of the relationship with its customer for the provision of communications services, and any universal service obligations of the lessor will no longer apply with respect to that specific customer.

Examples of use:

Example i) The customer wishes to change telephone and/or leased line service supplier, and the new entrant uses an unbundled local loop to take over the subscriber from the incumbent and to provide competitive services. (As noted above, few new entrants now restrict themselves to a simple telephone service offering of this type; they prefer to provide broadband data services or a multi-service voice and data offering.)



Example ii) The new entrant uses an unbundled local loop to provide high speed data service to a customer over a second line, using any type of DSL modems. The customer retains the incumbent as provider of telephone services on the first line.



Full unbundled access to the local loop will allow competitors to provide their customers with a variety of versatile and cost-efficient broadband services, based on innovative DSL technologies (e.g. HDSL for 2 Mbit/s leased lines, VDSL for high capacity circuits up to 50 Mbit/s, see Table 1). This will certainly contribute to improve the competitive situation of leased lines and broadband services in the European Union.

Table 1 – Technologies available for the provision of broadband services (1 copper pair)

<p>DSL, or Digital Subscriber Line, is the umbrella term for a family of technologies that transform the copper local loop into a broadband line capable of delivering multiple video channels into the home.</p> <p>There are a variety of DSL technologies and these are generically known as xDSL. Each type of DSL technology has a unique set of characteristics in terms of performance (maximum broadband capacity), distance over which maximum performance is maintained (as measured from the switch), frequency of transmission, and cost.</p> <p>The main Digital Subscriber Loop (xDSL) technologies over one pair of copper wire and some of their technical characteristics and applications are:</p> <p>Asymmetric DSL (ADSL) – used for fast internet access</p> <p>Symmetric DSL, (SDSL) and High speed symmetric DSL (HDSL) – used for 2Mbit’s leased lines</p> <p>Very high-speed DSL (VDSL) – used for high capacity leased line and broad-band services</p> <p>Further information on DSL technologies can be found at http://www.adsl.com/adsl_forum.html ></p>

(2) Shared Access to the Local loop

In this form of access, the notified operator continues to provide telephone service, while the new entrant deliver high speed data services over the same local loop using its own high-speed ADSL modems. Telephone traffic and the data traffic are separated by means of a splitter before the incumbent’s switch. The local loop remains connected to, and part of, the notified switched network.

Standardisation of ADSL systems have reached a level of maturity whereby international agreement exists on its secure deployment in the local loops of incumbents²². In addition, the

²² The International Telecommunication Union (ITU) has worked out technical specifications for ADSL full rate - with speeds up to 8 Mbit/s downstream and 1 Mbit/s upstream - in its Recommendation G.992.1 This includes a number of country-specific variants in order to accommodate regional local loop infrastructure differences. ADSL can achieve its highest speeds at a distance of 4km or less. The connection also allows the provision of voice phone service on the basic frequency band of the same line.

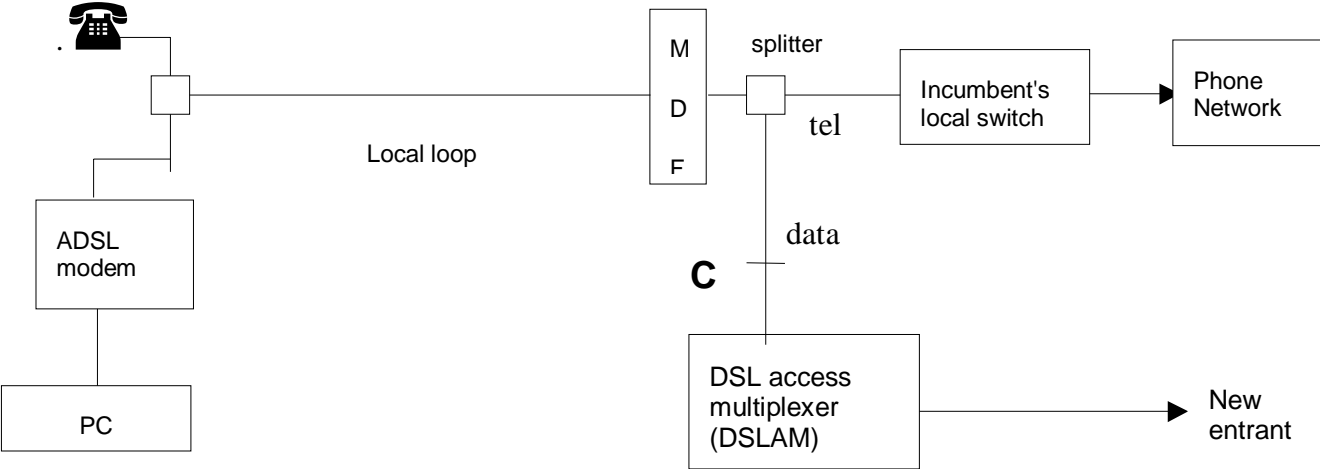
In addition ITU has worked out a variant ADSL solution in its Recommendation G.992.2, also known as G.Lite, that is very easy to deploy in the customer premises because is ‘splitter-less’ (it needs a very simple serial filter that separates voice and data and does not call for any rewiring at the customer premises). Speeds are up to 1.5 Mbit/s downstream to the user and 385 kbit/s upstream. Some PC

industry has also worked out commercial solutions for the interoperability of ADSL systems in a multi-vendor environment.²³

Example

The new entrant supplies the customer with an ADSL modem for connection at his/her premises, and a installs a DSL access multiplexer or DSLAM (which combines ADSL modems and a network interface module) on the incumbent's premises, under a collocation agreement.

The interface between the incumbent's system and the new entrant is at point C in the diagram (ie with in this case the splitter being installed by the incumbent).



This type of access may provide the most cost effective solution for a user wishing to retain the telephone service being provided by the incumbent, but seeking a fast internet service from an Internet Service Providers (ISP) of his or her choice. The ISP has full control of the commercial and technical conditions of the ADSL service that it makes available to its users.

(3) High speed bit stream access

'High-speed bit stream access' refers to the situation where the incumbent installs a high speed access link to the customers premises (e.g., by installing its preferred ADSL equipment and configuration in its local access network) and then makes this access link available to third parties, to enable them to provide high speed services to customers. The incumbent may also provide transmission services to its competitors, using its ATM or IP network, to carry competitors traffic from the DSLAM to a 'higher' level in the network hierarchy where new entrants may already have a point of presence (e.g. a transit switch location).

This type of access does not actually entail any third party access to the copper pair in the local loop (but the incumbent may use only the higher frequencies of the copper local loop in the same way as explained above).

suppliers are already marketing PC equipment with integrated G.Lite-ADSL modems so that standard universal solutions can be rolled-out in a large scale in the residential market .
²³ See the works of the Universal ADSL Working Group (<http://www.uawg.com>).

For a new entrant, the problem in exploiting access to unbundled copper pairs is that it entails building out its core network to the incumbent's local exchanges where the copper pairs are terminated; in a typical European country this could number several thousand sites. High speed access services, when combined with a transmission service that delivers traffic to the new entrant's point of presence, can be attractive, in particular in the early stage of the new entrant's network deployment, in that it allows the new entrant to deliver broadband service to customers in advance of its own network build-out. For the incumbent, provision of a high speed bit stream service is attractive in that it does not involve physical access to copper pairs, and so does not hinder the progressive modernisation of the local access network (ie replacing copper by fibre). Many incumbent operators are already providing such services²⁴.

However, on its own, a service of this type allows the incumbent to retain control of the rate of deployment of high speed access services, and the geographical regions in which these service are rolled out. The incumbent's priorities may not match those of the new entrants. Such services should therefore be seen as complementing the other forms of unbundled access described above, but not substituting them.

2 – OTHER TECHNICAL ISSUES ON ACCESS TO THE LOCAL LOOP

2.1. Transparency

All the ONP directives contain generic obligations for notified operators to publish prices, terms and conditions for their network offerings in order to ensure market transparency and non-discrimination.

The Recommendation proposes publication of a reference offer for unbundled access to the local loop, covering network elements to which access is offered, collocation services, operational support systems, supply conditions and prices. Reference access offerings need to be drawn up and published in a timely and detailed manner, under the supervision of the national regulatory authority.

The Commission intends to publish, on a regular basis, prices in Member States for unbundled access to local loops, in the same way as it currently publishes interconnection prices.²⁵

2.2. Industry co-operation and co-ordination

Local loop unbundling raises a number of technical and operational issues that are best agreed between the parties involved, but under supervision of the national regulatory authority to ensure fair treatment. The Recommendation proposes that national regulatory authorities encourage the setting up of co-operation mechanisms at national level involving all interested parties, under the general supervision of the national regulatory authority, to address issues such as :

- spectrum limitations and electromagnetic compatibility (EMC), in order to avoid interference between the various systems being used on local loops, and interference between local loop systems and radio systems;

²⁴ See indicative ADSL offers from notified operator in Member States at '<http://www.ispo.cec.be/infosoc/telecompolicy/en/comm-en.htm#misc>'.

²⁵ See <http://www.ispo.cec.be/infosoc/telecompolicy/en/comm-en.htm#misc>.

- operational aspects linked to provision of unbundled local loops (ordering and provisioning procedures and time-scales, technical qualification of loops, service level agreements, maintenance procedures, problem escalation procedures, etc);
- access to operational support systems of the local loop provider;
- codes of practice for collocation;
- the content of access offerings (ie, technical product descriptions, line coding certification, prices of loops, list of MDF sites, collocation prices, one-stop shopping ordering and maintenance – as indicated in Annex I of the Recommendation).

2.3 International co-ordination

Many of the problems faced in individual Member States are similar across the Community, and there is scope of interchange of information to ensure that experience and good practice is passed on. The European Telecommunications Platform is addressing these issues (see <http://www.etp-online.org/>).

The Recommendation encourages such interaction e.g. by recommending that national regulatory authorities publicise national activities in this area, and encourage co-ordination and information inter-change with interested parties in other Member States.