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**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**

**(Second edition)**

**{(C(2007) 5406)}**

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## EXPLANATORY MEMORANDUM

### 1. INTRODUCTION

This document provides the background to the review and revision of the Recommendation on relevant markets within the electronic communications sector that are susceptible to regulation under EU law. The initial Recommendation, which was adopted by the Commission in February 2003, is being revised in the light of market developments and the experience of applying the regulatory framework since July 2003.

The Lisbon European Council of March 2000 highlighted the potential for growth, competitiveness and job creation of the shift to a digital, knowledge-based economy. In particular it emphasised the importance of access to inexpensive, world-class communications infrastructure and services. When the European Council revitalised the Lisbon strategy in March 2005, it re-emphasised the need to promote innovation and to spread the EU citizens' access to the information society. It called for better regulation and a reduced administrative burden for entrepreneurs and for a completion of the internal market.

As part of the renewed Lisbon strategy for growth and jobs, the Commission proposed in June 2005 a new strategic framework, i2010 – European Information Society 2010, laying out broad policy orientations. The goal is to promote an open and competitive digital economy with an emphasis on ICT as a driver of inclusion and quality of life.

Accordingly, the legislative package for the electronic communications sector aims to establish a harmonised regulatory framework for networks and services across the EU and seeks to respond to convergence trends by covering all electronic communications networks and services within its scope. The EU legislative package had to be transposed into national law by 25th July 2003. Despite delays in several Member States, national implementation measures are now in place throughout the EU.

The regulatory framework for electronic communications networks and services comprises five Directives:

Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services<sup>1</sup>, hereinafter the Framework Directive;

Directive of the European Parliament and of the Council on the authorisation of electronic communications networks and services<sup>2</sup>, hereinafter the Authorisation Directive;

Directive of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and associated facilities<sup>3</sup>, hereinafter the Access Directive;

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<sup>1</sup> OJ L 108, 24.4.2002, p.33.

<sup>2</sup> OJ L 108, 24.4.2002, p.21.

<sup>3</sup> OJ L 108, 24.4.2002, p.7.

Directive of the European Parliament and of the Council on universal service and users' rights relating to electronic communications networks and services<sup>4</sup>, hereinafter the Universal Service Directive;

Directive of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector<sup>5</sup>.

Article 15(1) of the Framework Directive requires the adoption of a Recommendation on Relevant Product and Service Markets. The Commission adopted the initial edition of this Recommendation on 11 February 2003. The Recommendation identified those product and service markets within the electronic communications sector, whose characteristics may be such as to justify the imposition of regulatory obligations set out in the specific Directives. The markets identified in the Recommendation were defined in accordance with the principles of competition law, without prejudice to markets that may be defined in specific cases under competition law.

Under Article 15(1) of the Framework Directive the Commission is required to regularly review the Recommendation. In June 2006, the Commission launched a public consultation on a review of the Recommendation. The views gathered in this consultation have provided input to the revision of the Recommendation. This Explanatory Memorandum sets out in greater detail the reasoning behind the proposed changes to the Recommendation.

The Recommendation should be considered in conjunction with the 'Guidelines for market analysis and the assessment of significant market power' referred to in Article 15(2) of the Framework Directive<sup>6</sup> (hereinafter, "the Guidelines"). National regulatory authorities ("NRAs") are required, taking utmost account of this Recommendation and the Guidelines, to define relevant markets appropriate to national circumstances, in particular relevant geographic markets within their territory, in accordance with the principles of competition law and to analyse those product and service markets, taking the utmost account of the Guidelines. On the basis of this market analysis, NRAs will determine whether or not these markets are effectively competitive and impose, amend, or withdraw regulatory obligations accordingly.

The regulatory framework is aimed at ensuring harmonisation across the single market and guaranteeing legal certainty. This Recommendation plays an important role in achieving both of these objectives, as it seeks to ensure that the same product and services markets will be subject to a market analysis in all Member States and that market players will be aware in advance of the markets to be analysed. It will only be possible for NRAs to regulate markets which differ from those identified in this Recommendation where this is justified by national circumstances in the sense that the three cumulative criteria referred to in Article 2 of this Recommendation are met, and where the Commission does not raise any objections, in accordance with the procedures referred to in Article 7(4) of the Framework Directive.

Competing network infrastructures are essential for achieving sustainable competition in networks and services in the long term. When there is effective competition, the framework requires ex-ante regulatory obligations to be lifted. Where competition is not yet effective granting others access to facilities in a way that levels the playing field but does not remove

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<sup>4</sup> OJ L 108, 24.4.2002, p.51.

<sup>5</sup> OJ L 201, 31.7.2002, p.37.

<sup>6</sup> OJ C 165;11.7.2002, p.6.

incentives for new infrastructure investment ensures that users enjoy choice and competition during the transition to a fully competitive market. Investment in new and competing infrastructure will bring forward the day when such transitional access obligations can be further relaxed.

NRAs define relevant markets appropriate to national circumstances, taking utmost account of the product markets listed in the Recommendation, in particular relevant geographic markets within their territory. The definition of relevant markets can and does change over time as the characteristics of products and services evolve and the possibilities for demand and supply substitution change. This is particularly important where the characteristics of products and services are continually evolving, where new products and services appear and where the way in which such products and services are produced and delivered evolves as a result of technological development. The convergence phenomenon where similar services can be delivered over different types of network is one example. This means that it will be necessary to continue periodically re-examining the markets identified in this revised Recommendation. At the same time the underlying purpose of the regulatory framework (and its ex ante market analysis and possible regulation) is to deal with predictable problems of lack of effective competition that have their origin in structural factors in the industry. The fact that the framework deals with situations where any lack of effective competition is durable means that a degree of continuity (as opposed to frequent revisions of this Recommendation) is warranted. With the Recommendation having been in force for more than four years, the time is now ripe to revise the initial edition on the basis of market developments.

## **2. MARKET DEFINITION, IDENTIFYING MARKETS AND DEFINITION OF OTHER MARKETS**

### **2.1. Methodologies used to define markets**

In the regulatory framework, markets are defined in accordance with the principles of competition law, as explained in the Commission Notice on Market Definition<sup>7</sup> and the Guidelines.

The main purpose of market definition is to identify in a systematic way the competitive constraints that the undertakings face. The objective is to identify those actual and potential competitors of the undertakings that are capable of constraining their behaviour and of preventing them from behaving independently. The market definition arrived at can depend on the relative weight given to demand-side and supply-side substitutability, and can also depend on the prospective time horizon considered. It is important to bear in mind that market definition for the purposes of the Recommendation is not an end in itself but is a means of assessing effective competition for the purposes of ex ante regulation.

As stated in the Commission's Guidelines and Access Notice<sup>8</sup>, there are in the electronic communications sector at least two main types of relevant markets to consider, that of services or facilities provided to end-users (retail markets) and that of access to facilities for operators necessary to provide such services to end-users (wholesale markets). Within these two types of markets, further market distinctions may be made depending on demand and supply-side characteristics.

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<sup>7</sup> OJ C 372, 9.12.1997, p.5.

<sup>8</sup> OJ C 265, 22.8.1998, p.2.

The starting point for the identification of markets susceptible to ex ante regulation is the definition of retail markets over a given time horizon<sup>9</sup>, taking into account demand-side and supply-side substitutability<sup>10</sup>. Having defined retail markets, which are markets involving the supply and demand of end-users, it is then appropriate to identify the corresponding wholesale markets which are markets involving the demand and supply of products to a third party wishing to supply end-users.

As the market analyses carried out by NRAs have to be forward-looking, markets are defined prospectively<sup>11</sup>. Their definitions take account of expected or foreseeable technological or economic developments over a reasonable horizon linked to the timing of the next market review. Moreover, given the possibility to review a market at regular intervals, a NRA would be justified in taking into account past performance and existing market position as well as expectations concerning forthcoming developments<sup>12</sup>.

Markets defined in the Recommendation are without prejudice to the markets defined in specific cases under competition law. Markets identified in the Recommendation, while based on competition law methodologies, will not necessarily be identical to markets defined in individual competition law cases. As explained in paragraph 27 of the Guidelines, the starting point for carrying out a market analysis for the purpose of Article 15 of the Framework Directive is not the existence of an agreement or concerted practice within the scope of Article 81 EC Treaty, nor a concentration within the scope of the Merger Regulation, nor an alleged abuse of dominance within the scope of Article 82 EC Treaty, but is based on an overall forward-looking assessment of the structure and the functioning of the market under examination. NRAs and competition authorities, when examining the same issues in the same circumstances and with the same objectives, should in principle reach the same conclusions. However, given the differences outlined above, the possibility that markets defined for the purposes of competition law and markets defined for the purpose of sector-specific regulation may not be identical cannot be excluded.

## **2.2. The basis for identifying markets that are susceptible to ex ante regulation in this Recommendation**

Article 15(1) of the Framework Directive requires that the Recommendation identify those product and service markets within the electronic communications sector, the characteristics of which may be such as to justify the imposition of regulatory obligations set out in the specific Directive<sup>13</sup>. It is therefore appropriate first to consider the characteristics that may render a particular market susceptible to ex ante regulation.

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<sup>9</sup> Ex ante regulation addresses a lack of effective competition that is expected to persist over a given horizon. Therefore, the time horizon for market definition and identification for the purposes of this Recommendation should tie in with the period during which possible ex ante regulatory remedies are likely to be imposed. The period may depend on whether an existing obligation is being maintained or reviewed, or a new obligation is being imposed.

<sup>10</sup> See section 2 of the SMP Guidelines.

<sup>11</sup> Framework Directive recital 27.

<sup>12</sup> See paragraph 20 of the SMP Guidelines.

<sup>13</sup> Whereas for the initial Recommendation Annex I to the Framework Directive listed a number of markets that were to be included, this is no longer the case for the current second edition of the Recommendation.

In this context, it should be borne in mind that the Framework Directive is based on the premise that there is a need for ex ante obligations in certain circumstances in order to ensure the development of a competitive market (see e.g. recital 25).

So far the experience of liberalisation in the European Union has been that entry barriers often constitute a significant impediment to the development of competitive markets in the electronic communications sector. These barriers to entry may be legal or regulatory barriers. There are also structural barriers to entry which may, for example, result from continuing control over legacy infrastructure that is impossible or difficult to duplicate, network externalities or economies of scale and scope. Where barriers to entry are high, even an undertaking that is more efficient than the incumbent is unlikely to be able to enter a market and create competition to the benefit of the consumer in the absence of regulatory intervention. The existence of high barriers to entry in a market is therefore considered a first indication that regulatory intervention may be required in order to ensure the development of a competitive market.

In view of the character of electronic communications markets, for regulatory intervention to be justified, market characteristics should be analysed not only in a *static* but also in a *dynamic* manner. Does the market, in the absence of regulation, tend towards effective competition? Market dynamics may make barriers to entry disappear over time, for example as a result of technological developments. Convergence of previously distinct markets may increase competition. Or simply, there may be sufficient players active in the market for effective competition to emerge behind the barriers to entry. Possibilities for the market to tend towards a competitive outcome, in spite of high barriers to entry, need also to be taken into consideration in analysing whether market characteristics may justify ex ante regulation.

Thirdly, recital 27 of the Framework Directive indicates that, in addition, ex ante regulatory obligations (with respect to electronic communications networks and services) should only be imposed where Community competition law remedies are not sufficient to address the problem<sup>14</sup>. Ex ante regulation and competition law serve as complementary instruments in achieving their respective policy objectives<sup>15</sup> in the electronic communications sector and in dealing with lack of effective competition. At the same time, a principle underlying the regulatory framework is that ex ante regulation should only be imposed where competition law remedies are insufficient and should be rolled back when it is no longer needed.

It is therefore considered that the criteria for identifying markets for the purposes of ex ante regulation should include an overall assessment of the effectiveness of competition law alone in addressing the market failures concerned. Such an assessment will draw on the experience gained from the application of competition law and the imposition of ex ante regulatory obligations in the electronic communications sector as a complementary instrument. Only markets where national and Community competition law is not considered sufficient by itself

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<sup>14</sup> Recital 27 also indicates that newly emerging markets, where de facto the market leader is likely to have a substantial market share, should not be subjected to inappropriate obligations. The Commission considers that 'emerging markets' are markets which are so new and volatile that it is not possible to determine whether or not the '3 criteria' test described below is met.

<sup>15</sup> Article 8 of the Framework Directive requires NRAs to pursue a number of objectives including: ensuring users derive maximum benefit in terms of choice, price and quality; ensuring there is no distortion or restriction of competition; encouraging efficient investment in infrastructure and promoting innovation; encouraging efficient use and effective management of radio frequencies and numbering resources.



to redress market failures and to ensure effective and sustainable competition over a foreseeable time horizon should be identified for potential ex ante regulation.

For the aforementioned reasons, it is considered that the following specific cumulative criteria are appropriate to identify which electronic communications markets are susceptible to ex ante regulation.

The first criterion is that a market is subject to high and non-transitory entry barriers. The presence of high and non-transitory entry barriers, although a necessary condition, is not of itself a sufficient condition to warrant inclusion of a given defined market. Given the dynamic character of electronic communications markets, possibilities for the market to tend towards a competitive outcome, in spite of high and non-transitory barriers to entry, need also to be taken into consideration.

The second criterion, therefore, is that a market has characteristics such that it will not tend over time towards effective competition. This criterion is a dynamic one and takes into account a number of structural and behavioural aspects which on balance indicate whether or not, over the time period considered, the market has characteristics which may be such as to justify the imposition of regulatory obligations as set out in the specific Directives of the new regulatory framework.

The third criterion considers the insufficiency of competition law by itself to deal with the market failure (without ex ante regulation), taking account of the particular characteristics of the electronic communications sector.

**(i) Barriers to entry and to the development of competition**

With respect to the first criterion, two types of barriers to entry, and to the development of competition in the electronic communications sector, appear to be relevant: structural barriers and legal or regulatory barriers.

A structural barrier to entry exists when the state of the technology, and its associated cost structure, and/or the level of demand, are such that they create asymmetric conditions between incumbents and new entrants impeding or preventing market entry of the latter. For instance, high structural barriers may be found to exist when the market is characterised by absolute cost advantages, substantial economies of scale and/or economies of scope, capacity constraints, and high sunk cost. Such barriers can still be identified with respect to the widespread deployment and/or provision of local access networks to fixed locations.

An important qualification of the first criterion is whether high entry barriers are likely to be non-transitory in the context of a modified Greenfield approach (i.e. in the absence of regulation in the market concerned under this regulatory framework but including regulation which exists outside this framework). In this respect it is not sufficient to examine whether entry has occurred or is likely to occur in the market at all. The NRA will therefore examine whether the industry has experienced entry and whether entry has been or is likely in the future to be sufficiently immediate and persistent to limit market power. Small-scale entry (e.g. in a limited geographic area) may not be considered sufficient since it may be unlikely to exercise any constraint on the dominant undertaking(s). Barriers to entry will also depend on the minimum efficient scale of output, and the fraction of costs which are sunk.

A specific and different type of barrier to the development of effective competition can also occur in the electronic communications sector where interconnection is required to enable a calling party to make a call to a specific subscriber number. In cases where a charge is levied for terminating the call, (which is passed on as a retail charge to the calling party), the terminating network operator can affect competition adversely by raising a rival's costs or by passing on inefficiencies to competitors. This barrier by itself need not lead to an absence of competition. For example, where the receiver rather than the calling party is responsible for paying any charge associated with incoming calls or traffic, the incentive to raise termination charges above costs is absent. Technological solutions might also provide a way round the technical barrier.

Legal or regulatory barriers are not based on economic conditions, but result from legislative, administrative or other state measures that have a direct effect on the conditions of entry and/or the positioning of operators on the relevant market.

Examples are legal limits on the granting of rights of way or rights of use of frequencies. The latter limitation is typically linked to a related technical or technological barrier, e.g. a constraint on the amount of spectrum that can be assigned and consequently a limit on the number of undertakings that can enter a market. Additional entry is blocked unless additional spectrum becomes available or secondary trading of spectrum is permitted. A significant legal or regulatory barrier to entry may also exist when entry into a particular market is rendered non-viable as a result of regulatory requirements, and in addition this situation is expected to persist for a foreseeable period. Regulatory requirements may lead to some services being provided at below cost or at rates of return that deter entry. One example is the retail pricing of access to the public telephone network (and local calls) at a fixed location or address. In cases where services fail to cover their forward-looking incremental costs, entry into local access is deterred. Tariff re-balancing will address such a barrier. However, broader policy concerns and objectives may mean that the situation persists for a significant period. For legal or regulatory barriers to be considered valid for the purposes of this three-criteria test, such barriers should be necessary to manage a legitimate public policy objective. In the event that legal or regulatory barriers cannot be removed without significant negative effects on such legitimate public policy considerations and within a reasonable time frame, a non-transitory entry barrier could be said to exist.

## **(ii) Dynamic aspects – no tendency to effective competition**

The second criterion is that the market has characteristics such that it will not tend towards effective competition without ex ante regulatory intervention. The application of this criterion involves examining the state of competition behind the barrier to entry, taking account of the fact that even when a market is characterised by high barriers to entry, other structural factors or market characteristics and developments may mean that the market tends towards effective competition. This is for instance the case in markets with a limited, but sufficient, number of undertakings behind the entry barrier having diverging cost structures and facing price-elastic market demand. In such markets, market shares may change over time and/or falling prices may be observed.

There may also be excess capacity in a market that would allow rival firms to expand output very rapidly in response to any price increase, provided that there are no barriers to expansion behind the barriers to entry. Such barriers to expansion could exist, for example, if small-scale entry does not allow firms to move from the fringe to the core of the market occupied by the established firm(s).

Market dynamics may also be changed by technological developments or by the convergence of products and markets. Innovation-driven markets characterised by ongoing technological progress may indeed tend towards effective competition. In such markets, competitive constraints often come from innovative threats from potential competitors that are not currently in the market. In such innovation-driven and/or converging markets, dynamic or longer-term competition can take place among firms that are not necessarily competitors in an existing “static” market.

The tendency towards effective competition does not necessarily imply that the market will reach the status of effective competition within the period of review. It simply means that there is clear evidence of dynamics in the market within the period of review which indicates that the status of effective competition will be reached in the longer-run without ex ante regulation in the market concerned. Where market dynamics are changing rapidly care should be taken in choosing the period of review so as to reflect the pertinent market developments. Anticipated events must be expected within a meaningful timeframe and on the basis of concrete elements (e.g. business plans, investments made, new technologies being rolled out) rather than something which may be theoretically possible.

The simple fact that market shares have begun to decrease in recent years or uncertain technological future developments are in themselves insufficient to find that the market tends towards effective competition.

In general, the later effective competition is expected to materialise in the future, the more likely it is that the second criterion will be fulfilled.

### **(iii) Relative efficiency of competition law and complementary ex ante regulation**

The final decision to identify a market that fulfils the first two criteria (high and persistent entry barriers and absence of characteristics such that the market would tend towards effective competition) as justifying possible ex ante regulation, should depend on an assessment of the insufficiency of competition law by itself (without ex ante regulation) to address the market failure.

Ex ante regulation would be considered to constitute an appropriate complement to competition law in circumstances where the application of competition law would not adequately address the market failures concerned. Such circumstances would for example include situations where the regulatory obligation necessary to remedy a market failure could not be imposed under competition law (e.g. access obligations under certain circumstances or specific cost accounting requirements), where the compliance requirements of an intervention to redress a market failure are extensive (e.g. the need for detailed accounting for regulatory purposes, assessment of costs, monitoring of terms and conditions including technical parameters and so on) or where frequent and/or timely intervention is indispensable, or where creating legal

certainty is of paramount concern (e.g. multi-period price control obligations). However, differences between the application of competition law and ex ante regulation in terms of resources required to remedy a market failure should not in themselves be relevant.

In practice NRAs should consult with their National Competition Authority (NCA) and take into account that body's opinion when deciding whether use of both complementary regulatory tools is appropriate to deal with a specific issue, or whether competition law instruments are sufficient.

In summary, whether an electronic communications market is susceptible to ex ante regulation would depend on the persistence of high entry barriers, on the lack of a tendency towards effective competition and on the insufficiency of competition law by itself (without ex ante regulation) to address persistent market failures. For those markets listed, the Recommendation creates a presumption for the NRA that the three criteria are met and therefore NRAs do not need to reconsider the three criteria. However, it is open to a NRA to assess the three criteria in terms of whether they are satisfied for their specific market if the NRA believes that this would be appropriate. The results of any such analysis should follow the normal market notification procedure.

The three-criteria test focuses on market characteristics. It is intended to determine where persistent market failures, that ultimately cause consumer harm, are most likely to exist. As such the three-criteria test is different from the SMP assessment. Whereas the three-criteria test focuses on the general structure and characteristics of a market in order to identify those markets whose characteristics are such that they need to be analysed in more detail on a national basis by NRAs, the SMP assessment focuses on the market power of a specific operator in a given market with a view to determining whether that operator should or should not be made subject to ex ante regulation in that particular market. Meeting the three-criteria test does not automatically mean that regulation is warranted. Regulation will only be warranted if on a market that meets the three-criteria test, one or more operators are found to have significant market power<sup>16</sup>. NRAs should follow the same basic criteria and principles when they identify markets other than those appearing in this Recommendation. The Commission will use these criteria when making future revisions to this Recommendation.

### **2.3. The definition by NRAs of other relevant markets**

In this Recommendation, care has been taken to identify on an EU-wide basis markets whose characteristics may be such as to justify the imposition of regulatory obligations as set out in the specific Directives. This list of relevant markets may not be exhaustive in the context of national circumstances, which may vary from Member State to Member State.

Should an NRA identify an instance of consumer harm that cannot be addressed by imposing regulation on a market in the Recommendation it may consider defining a new market. NRAs should ensure that such a market (i) is defined on the basis of competition principles laid down in the Commission Notice on the definition of relevant market for the purposes of Community competition law, (ii) is consistent with the Commission Guidelines on market analysis and the assessment of significant market power, and (iii) satisfies the three criteria set out above. Since the imposition of ex ante regulation on a market would in most cases potentially affect trade between Member States as described in recital 38 of the Framework

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<sup>16</sup> See section 4 below for a market-by-market overview.

Directive, the Commission considers that the identification, analysis and regulation of a market that differs from those of the Recommendation is subject to the procedure provided for in Article 7 of the Framework Directive.

There may, moreover, be a number of ways in which the borderlines of a specific product or service market may be drawn differently at a national level than set out in the Recommendation, for the purposes of market analysis. For example, in the first round of market analyses certain NRAs have, on the basis of specific national circumstances and consistent with competition law principles, segmented the wholesale terminating segments of leased lines into various product markets according to the capacity of the leased lines.

When NRAs consider redefining markets more narrowly or more broadly for reasons related to national market circumstances, such market definition must be consistent with competition law principles as set out in the Guidelines. This also applies in relation to defining the geographic scope of a market (section 2.4).

#### **2.4. The definition of relevant geographic markets**

According to established case law, a relevant geographic market comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, in which area the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different<sup>17</sup>.

In the electronic communications sector, the geographical scope of the relevant market has traditionally been determined by reference to two main criteria: the area covered by the network and the scope of application of legal and other regulatory instruments (para. 59 Guidelines). This corresponds generally to the territory of the Member State concerned since the consideration centres on the scope of the potential SMP operator's network and whether that potential SMP operator acts uniformly across its network area or whether it faces such different conditions of competition that its activity is constrained in some areas but not in others.

However, investment in alternative infrastructure is often uneven across the territory of a Member State, and in many countries there are now competing infrastructures in parts of the country, typically in urban areas. Where this is the case, an NRA could in principle find sub-national geographic markets. The NRA would need to identify the competitors of the potential SMP operator(s) and assess the area of supply of these competitors. Competitors include both actual competitors providing competing offers in the relevant product market and entrants who are likely to enter the market in the case of a small but non-transitory price increase of the incumbents' offer on that market. According to competition law principles, only short-term entry (i.e. less than one year) is taken into account for the purpose of market definition. The fact that competitors have a supply area which is not national does not suffice to conclude that there are distinct markets. Further evidence relating to demand-side and supply-side substitutability on the relevant market will have to be considered. Regional competitors can indeed exercise a competitive pressure reaching beyond the area in which they are present when the potential SMP operator applies uniform tariffs and the regional competitor is too large to ignore. Moreover, there should be evidence that the pressure for

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<sup>17</sup> Guidelines on market analysis, quoted at paragraph 56.

regional price differences comes from customers and competitors and is not merely reflecting variations in the underlying costs.

In the absence of sub-national markets, the existence of geographically differentiated constraints on a SMP operator who operates nationally, such as different levels of infrastructure competition in different parts of the territory, could be taken into account in the context of remedies.

## **2.5. The analysis of markets identified as susceptible to ex ante regulation**

Certain of the markets identified in the Recommendation are interrelated and for NRAs there is a logical sequence for analysing these markets.

In general, the market to be analysed first is the one that is most upstream in the vertical supply chain. Taking into account the ex ante regulation imposed on that market (if any), an assessment should be made as to whether there is still SMP on a forward-looking basis on the related downstream market(s). This methodology has become known as the “modified greenfield approach”. Thus the NRA should work its way along the vertical supply chain until it reaches the stage of the retail market(s). A downstream market should only be subject to direct regulation if competition on that market still exhibits SMP in the presence of wholesale regulation on the related upstream market(s).

For example, with regard to wholesale broadband access, it is recommended that NRAs first analyse the market for local loop unbundling. Taking into account regulation imposed on that market, the market for wholesale broadband access should then be analysed. If that market continues to exhibit SMP on a forward looking basis despite the presence of LLU regulation (unless the NRA finds that the market no longer fulfils the three-criteria test and excludes it from regulation on that basis), appropriate regulation on the wholesale broadband access market should be imposed.

Likewise, NRAs should take into account regulation imposed on the market for wholesale (physical) network infrastructure access when analysing the wholesale market for fixed origination. Remedies imposed on the markets for local loop unbundling should then be taken into account when assessing SMP on a forward-looking basis on the retail fixed access market.

Given that the analysis of these markets must be conducted within the context of the entire value chain from the wholesale input market through to the final output market, it is imperative that, for NRAs to be in a position to carry out their tasks, they should have access to data at all levels in the value chain. This is particularly pertinent in relation to the retail level. As noted elsewhere by the Commission<sup>18</sup>, NRAs have all the necessary powers under the current framework to ensure that they are in a position to obtain such data. In the specific context of accounting separation, such data requirements may be extensive in order to ensure coherence, given the extent of joint and common costs which may transcend both SMP and non-SMP markets. Therefore an accounting separation obligation may require the preparation and disclosure of information for markets where an operator does not have SMP.

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<sup>18</sup> 2005/698/EC Commission Recommendation of 19 September 2005 on Accounting Separation and Cost Accounting Systems under the Regulatory Framework for Electronic Communications.

In addition to cost accounting data requirements, an NRA must be in a position to gather whatever data is necessary in order to make an assessment of market dynamics and market evolution, such as price or tariff data, market shares, etc. Article 5 of the Framework Directive provides the legal basis for such data collection.

## 2.6. Remedies

Remedies are the final part of a process which starts with market definition and identification as a market susceptible to ex ante regulation, is followed by market analysis and, in the event of an SMP designation, moves to corrective action. Markets susceptible to ex-ante regulation are selected on the basis of the criteria set out in section 2.2. The identification of a market for analysis does not of itself mean that that market requires regulatory intervention. It is only where NRAs find that effective competition is lacking on a given market that they impose remedies. Even then there needs to be careful consideration of which remedy should be applied. The regulatory framework is very flexible. NRAs have a suite of regulatory tools at their disposal, as set out in Directive 2002/19/EC and Directive 2002/22/EC. When imposing a specific obligation on an undertaking with significant market power, the NRA will need to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in the light of the NRA's basic objectives as set out in Article 8 of the Framework Directive.

These basic objectives require NRAs to:

- promote competition in the provision of electronic communications networks, electronic communications services and associated facilities and services;
- contribute to the development of the internal market;
- promote the interests of the citizens of the European Union.

The Framework Directive also requires NRAs to seek to agree between themselves on the types of instruments and remedies best suited to address particular types of situations in the marketplace. In particular, as noted in the Guidelines on market analysis, in order to establish that a proposed remedy is compatible with the principle of proportionality, the action to be taken must pursue a legitimate aim and the means employed to achieve the aim must be both necessary and the least burdensome, i.e. it must be the minimum necessary to achieve the aim.

A number of considerations are set out in the Directives qualifying the use of specific remedies. In particular, before imposing the more onerous remedies, NRAs need to be mindful of the initial investment by the facility owner, bearing in mind the risks involved in making the investment. The NRAs have a duty to safeguard competition in the long term, which will inter alia be a function of the need to assess the technical and economic viability of using or installing competing facilities and the effect of such an intervention on possible investment in those facilities. This is especially important where new technologies or networks are being deployed in unproven markets.

In principle, the proposed obligations should pertain to the relevant product market in which SMP has been found. However, in dealing with lack of effective competition arising from a position of SMP in an identified market, it may be necessary to impose several obligations to remedy the competition problem relating to services both inside and outside the market. In principle, an NRA may impose obligations in an area outside but closely related to the relevant market under review, provided such imposition constitutes:

- the most appropriate, proportionate and efficient means of remedying the lack of effective competition found on the relevant market; and
- an essential element in support of obligation(s) imposed on the relevant SMP market without which those obligations would be ineffective.

For instance, an obligation of accounting separation may cover the disclosure of information related to a market on which the operator does not have SMP, which is closely associated with the markets on which the operator does have SMP.

### **3. HORIZONTAL ISSUES**

In the application of market reviews a number of general themes remain relevant. These include the issues of self-supply, bundling, next generation networks (NGNs), emerging markets and price and margin squeezes.

#### **3.1. Self-Supply**

The issue of how to take into account the self-provision of wholesale inputs arises frequently in both defining and analysing markets. In some cases, what is under consideration is the self-supply of the incumbent operators. In others, it is the self supply of alternative operators.

In many cases the incumbent is the only firm that is in a position to provide a potential wholesale service. It is likely that there is no merchant market as this is often not in the interest of the incumbent operator. Where there is no merchant market and where there is consumer harm, it is justifiable to construct a notional market when potential demand exists. Here the implicit self-supply of this input by the incumbent to itself should be taken into account.

In cases where there is likely demand substitution, i.e. where wholesale customers are interested in procuring from alternative operators, it may be justified to take the self-supply concerned into consideration for the sake of market delineation. However, this is not justified if alternative operators face capacity constraints, or their networks lack the ubiquity expected by access seekers, and/or if alternative providers have difficulty in entering the merchant market readily.

#### **3.2. Bundling**

Communications companies provide a multitude of services to their customers, which are often sold as a bundle<sup>19</sup>. In most cases the individual services in the bundle are not good demand-side substitutes for each other yet may be considered to be part of the same retail market if there is no more independent demand for individual parts of the bundle. On the supply side, bundling two or more components into one product is driven by savings in production, distribution and transaction costs, and the ability to improve the quality of the product. Bundling may also be related to the technology used where a given network can be configured to provide a large range of services.

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<sup>19</sup> Bundling refers to situations where a package of two or more goods is offered. Cases where only the bundle is available and not the components are referred to as pure bundling. Cases where both the bundle and the components are available on the market are referred to as mixed bundling if the bundle is sold at a discount to the sum of the prices of the components.



On the demand side, consumers may have a preference for a bundle if there are significant transactional costs. In this case, consumers may prefer to purchase the services as a bundle and from a single supplier. Hence the bundle may become the relevant product market. Whilst certain bundles are well established (voice and SMS on mobile), others are at an earlier stage of development such as bundles of television and internet. If, in the presence of a small but significant non-transitory increase in price there is evidence that a sufficient number of customers would “unpick” the bundle and obtain the service elements of the bundle separately, then it can be concluded that the service elements constitute the relevant markets in their own right and not the bundle.

### **3.3. Next Generation Networks (NGNs)**

'Next generation networks' (NGN) cover modernisation of the 'core' part of the network (i.e. moving to an all-IP architecture), and the 'access' part of the network (i.e. rolling out optical fibre all or part of the way to the customers' premises).

Most operators have plans to migrate to NGNs with the aims of reducing operational costs and offering new and innovative high speed services to customers, but the relative priority being given to core and access network modernisation varies between operators, depending on the state of their network and the competitive environment. While the costs of modernisation are substantial, NGNs also offer significant long-term operational savings and, in addition, provide a platform that will support new, innovative – and potentially profitable – services. Such changes will continue over a much longer period than the period covered by this revised Recommendation.

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 '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 (see also section 3.4 below on emerging markets).

Deployment of NG access networks raises complex challenges on how to maintain a 'level playing field' for all competitors. Many incumbents are rolling out fibre to the street cabinet (FTTC) and then using VDSL technology over the copper sub-loop between the street cabinet and the customer's premises. Other operators, where the network architecture does not support this model, are planning for fibre to the home (FTTH). Some NG access models will result in a completely different local network architecture, where the intermediate node at the level of the 'central office' or 'main distribution frame' will eventually cease to exist.

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 effects of NG access networks on the ULL and wholesale broadband access markets are discussed in more detail in section 4.2.2.

The transition to all-IP networks and the increasing ability of end-users to configure some of their own electronic communications services may begin to undermine the market-power problems that have been identified to date with call termination on (fixed) networks. However, the impact of these technological developments is still unclear and will need to be further assessed in subsequent editions of this Recommendation.

### **3.4. Emerging Markets**

Recital 27 of the Framework Directive notes that newly emerging markets, where de facto the market leader is likely to have a substantial market share, should not be subjected to inappropriate obligations.

The purpose of refraining from intervening on newly emerging markets is to promote competition and innovation. At the same time the Guidelines on market analysis make it clear that foreclosure of such markets by the leading undertaking should be prevented.

In general, new and emerging markets are unstable, exhibiting uncertainty of supply and demand and fluctuations in market shares. They are characterised by a significant degree of innovation which can lead to abrupt and unexpected changes (as opposed to a natural evolution over time).

The Commission considers that ‘emerging markets’ are markets which are so new that it is not possible to establish whether or not the ‘three-criteria’ test is met. Only markets which satisfy the three criteria warrant consideration for ex ante economic regulation, although consumer protection rules may nonetheless apply.

When new products or services are launched, it is often unclear whether the same service could be provided in some other manner. As a market matures, however, it is easier to determine the nature of entry barriers and how long they are likely to persist. If there are no entry barriers and the service matures successfully and starts to become a mass market, entry should be expected under normal circumstances. Announcements that firms intend to enter independently would certainly point to the fact that entry barriers are not high. However, caution must be exercised in relation to making the opposite assumption as announcements may not be made in advance of market entry.

Even when entry barriers can be identified and their non-transitory nature confirmed, there is still the question of the dynamic behind the entry barrier. It may be that new services are associated with considerable expenditure on networks, content and other services. This may lead to a firm realising that the only way to recoup this investment over a reasonable period of time is to allow third-party access. Provided that it is offered in an open and pro-competitive way, such access could help to provide a level of service competition and move the market away from an outcome that causes considerable harm to consumers. Nevertheless, the normal considerations relating to the second criterion also apply.

The differentiation between old and new markets needs to be analysed carefully. Technological developments and new investments such as an upgrade of an existing service do not automatically lead to a new or emerging market. For example, retail broadband markets have tended to evolve in terms of bandwidth or speed, and other product characteristics. In this case, infrastructure investments can have an impact on the end-user product, and it will be necessary to ascertain whether the end-user considers the new and the previous products to be substitutes. In the early phase of the market, it may be difficult to identify any switching between the two products. However, an NRA will have to anticipate or forecast end-users' behaviour and apply a forward-looking approach. If the forecast determines that the upgraded or newly developed product will substitute the previous product, and the latter will disappear from the market, then the upgraded or newly developed product cannot constitute a new market. The lack of substitutability of a product has to be established from both demand- and supply-side perspectives before it can be excluded from the markets in question.

### **3.5. Price and margin squeezes**

When there is regulation at wholesale and/or retail level, the possibility of price or margin squeezes can result from regulatory intervention and it should be assessed in that context.

That often involves checking the structure of regulated prices or the aggregate of services over which possible margin squeezes might arise. Article 5 of the Framework Directive provides NRAs with the legal basis to obtain any and all pertinent information, regardless of whether the market is identified in the annex to the Recommendation. This applies not only to costs but also to retail pricing in order to allow the NRA to establish and monitor justified and appropriate remedies with respect to wholesale access.

For the assessment of a margin squeeze it is irrelevant whether both wholesale and retail prices are regulated or only one of the two. The relevant questions in this context are (i) whether the spread between wholesale and retail prices cover the retail costs of the dominant firm and (ii) whether the dominant firm is free to avoid the margin squeeze on its own initiative.

Given that a price squeeze test is one element of the overall assessment, involvement of, or collaboration with, the national competition authority is desirable.

#### **4. EXAMINATION OF MARKETS IN ORDER TO IDENTIFY RELEVANT MARKETS FOR THE PURPOSES OF THE RECOMMENDATION**

This section examines the broad market areas within the electronic communications sector, analyses briefly the general market structure of the relevant retail and wholesale markets within those broad areas, and identifies the specific markets that are susceptible to ex ante regulation.

A key aim of the regulatory framework is to enhance user and consumer benefits in terms of choice, price and quality by promoting and ensuring effective competition. It is only where consumer harm could be expected in the absence of regulatory intervention that a market should be susceptible to ex ante regulation. The starting point is therefore a characterisation of retail markets, followed by a description and definition of related wholesale markets.

NRAs have powers as a last resort and after due consideration to impose retail regulation on an undertaking with significant market power. However, regulatory controls on retail services should only be imposed where NRAs consider that relevant wholesale or related measures would fail to achieve the objective of ensuring effective competition<sup>20</sup>. In principle, lack of effective competition may occur at the retail level or the wholesale level or both. That means that NRAs may need to examine the overall degree of market power of undertakings and the impact on effective competition. The identification of a retail market (as part of the value chain) for the purposes of ex ante market analysis does not imply, where there is a finding of a lack of effective competition by a NRA, that regulatory remedies would be applied to a retail market. Regulatory controls on retail services can only be imposed where relevant wholesale measures would fail to achieve the objective of ensuring effective competition at retail level.

Markets should be examined in a way that is independent of the network or infrastructure being used to provide services, as well as in accordance with the principles of competition law. For the purposes of the second edition of the Recommendation, the starting point for market definition and identification is those markets that were identified in the initial Recommendation.

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<sup>20</sup> Universal Service Directive recital 26.

## 4.1. Product and service markets in the electronic communications sector

Electronic communications networks and services are defined in the Framework Directive. Electronic communications services include telecommunications services and transmission services in networks used for broadcasting, but exclude services providing or exercising editorial control over content transmitted using electronic communications networks and services. They do not include information society services, as defined in Directive 98/34/EC, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks<sup>21</sup>.

In the initial Recommendation, a general division was made between services provided at fixed locations and those provided at non-fixed locations. Overwhelmingly, despite some moves towards hybrid<sup>22</sup> or converged offerings, this distinction is considered to be still valid, because there is as yet insufficient evidence that the pricing of mobile services (to non-fixed locations) systematically constrains the pricing of services to fixed locations (or vice versa)<sup>23</sup>. A general distinction was also made between voice services and non-voice (data) services. These distinctions for the purposes of analysing markets do not imply an advance judgement that these services constitute separate markets. However, at the current time voice and data services are still considered overall to be sufficiently distinct in terms of demand substitution that they are analysed separately. At a wholesale level, this distinction between voice and non-voice services may be less easy. For example, a transmission channel may carry (or be capable of carrying) both voice and non-voice services<sup>24</sup>. These issues are dealt with in the relevant analysis sections.

Across the EU, different Member States have communication network topologies which differ significantly from each other. Since the adoption of the initial Recommendation, diversity has even increased as a consequence of the accession of twelve new Member States, the varying pace of broadband take-up, and the differing migration paths (in form and speed) towards next generation networks in the core of the network or in local access. Diverging national circumstances may lead NRAs to adopt a market definition different to what is proposed here, subject to the conditions set out in section 2.3 above.

## 4.2. Services provided at fixed locations

### 4.2.1. Public telephone services provided at fixed locations

The aim of this section is to (i) describe and define relevant retail markets for voice services provided at fixed locations<sup>25</sup>, (ii) define the linked wholesale markets and (iii) identify those markets which warrant ex ante regulation.

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<sup>21</sup> Framework Directive Article 2.

<sup>22</sup> A hybrid service is one where end-users are offered a combination of fixed and mobile services within one tariff package.

<sup>23</sup> See for example the Commission study of July 2006: A Review of certain markets included in the Commission's Recommendation on Relevant Markets subject to ex ante Regulation.

<sup>24</sup> This raises the question of technical neutrality with respect to the treatment of services and the means by which they are delivered. As well as recognising that some services may constitute substitutes, irrespective of technical provision, it is also necessary to recognise that different services may be characterised by different technical requirements within a given network, for example in terms of delay (real-time or not) and bandwidth (and the level and variance of these technical requirements).

<sup>25</sup> Dial-up Internet services are treated in section 4.2.2 on access to data and related services.

The initial Recommendation identified the following fixed telephony markets as susceptible to ex ante regulation:

- two retail markets for access to the public network at a fixed location, based on a distinction between residential and non-residential customers;
- two retail markets for local and/or national calls, based on a distinction between residential and non-residential customers;
- two retail markets for international calls, based on a distinction between residential and non-residential customers;
- a wholesale market for call origination at a fixed location;
- a wholesale market for call termination at a fixed location (single-network markets for call termination to end-users);
- a wholesale market for transit.

In addition, the initial Recommendation identified the wholesale market for unbundled access to metallic loops and sub-loops as a market susceptible to ex ante regulation. Local loop unbundling (LLU) allows alternative operators to provide retail access and voice services at a fixed location, as well as wholesale origination and termination services at a fixed location. Generally, however, alternative operators primarily invest in LLU to provide data services (mainly broadband Internet access), with voice services as a possible addition. Therefore, LLU was primarily examined in the context of data services in the initial Recommendation, and that is also the case in this revised Recommendation.

### ***Retail Markets***

The retail market at a general level can be described as the provision of a connection or access (at a fixed location or address) to the public telephone network for the purpose of making and/or receiving telephone calls and related services. The term "public telephone network" is used to preserve some continuity with the initial Recommendation and in accordance with the current directives. It is defined in Article 2 of Directive 2002/22/EC in such a way as to link access (for the purpose of making and/or receiving telephone calls) to services offered via a number or numbers in a national or international telephone numbering plan. Clearly it is possible (already) for end-users to 'make' and 'receive' voice and other calls (e.g. via IP-based connections) without exploiting the "public telephone network"; it is sufficient to have access to an electronic communications network that can be used for such purposes, e.g. broadband access. As networks are upgraded (see section 3.3 on next generation networks) the traffic associated with dedicated or managed telephone or voice services will be merged with other forms of traffic (such as data), although the existing numbering schemes for telephone services will be maintained. For this reason, under the revision of the regulatory framework, it is proposed to delete the definition of the "public telephone network" and retain but modify the definition of "publicly available telephone service". As a result of the evolution in the forms of access at fixed locations, and also the different ways of making voice calls, it will be necessary to decide whether or not such services constitute the same access market, or the same calls market, depending on whether or not they sufficiently constrain the ability to raise prices within the markets concerned.

Access (to the public telephone network at a fixed location) and related publicly available telephone services may be supplied by several possible means in respect of the undertaking providing the service and the technology that is used. The most common technology currently employed is via traditional telephone networks using metallic twisted pairs. Alternatives include cable TV networks offering telephone service, mobile cellular networks that have been adapted to provide an equivalent service to fixed locations or which are confined to a limited radius around a fixed location, and other wireless-based networks.

Broadband connections are also capable of facilitating delivery of narrowband services, though generally consumers will not upgrade to a broadband service solely for the purpose of accessing voice services. Consumers switch from narrowband to broadband connections primarily to get access to higher-speed Internet services. Such migration appears to be relatively independent of the price difference between both products in that the cross-price elasticity appears to be low. So far, many customers when switching to a broadband connection have kept their narrowband connection, indicating that both access products are used as complements rather than substitutes. NRAs should nevertheless examine the reasons for this and assess from a forward-looking perspective the likelihood of increased substitution, in particular in Member States where DSL-only offerings (so-called “naked DSL”) are available.

Households which choose only fixed narrowband access either have no demand for Internet access or their demand for Internet access is such that they would not respond to a small non-transitory price increase by upgrading to broadband. While households with broadband connections may be prepared to switch off their narrowband connections, those who are not broadband customers are not likely to switch given the focus of their demand. Therefore from such a starting point, i.e. fixed narrowband access in order to make use of narrowband services, broadband access is clearly not a substitute. Therefore, it is considered that fixed broadband access is not in the same market as fixed narrowband access. This is unlikely to change in the medium term.

For locations where there is demand for a large number of user connections, some form of dedicated access, such as leased lines, may be used. In general, as with broadband access, leased lines are not substitutable with fixed narrowband access. The retail and wholesale leased lines markets are analysed in section 4.2.3 below.

In the initial Recommendation, a distinction was made between residential and non-residential access. However, the market analyses and notifications under the Framework Directive have so far shown that the contractual terms of access, in most Member States, do not significantly and systematically differ between residential and non-residential access. Operators do not generally seek to classify different demand categories and do not normally register whether a particular access service is supplied to a residential or non-residential customer, so that collecting separate data for both groups of customers has in practice often proved to be difficult. From a supply perspective, since similar products (in particular public telephone network access lines) are often used by residential and non-residential users, suppliers to non-residential customers could generally divert their supplies to residential customers should prices to residential customers rise, and vice versa. On this basis, the Commission proposes in the draft revised Recommendation to define one single narrowband access market for residential and non-residential customers.

NRAs may, however, decide on the basis of national circumstances and in line with competition law principles to segment this market further where this would be appropriate

(for example, identifying distinct product markets for different types of access lines such as PSTN, ISDN2 and ISDN30 where it is found that no or very limited demand-side and supply-side substitution between such products exists).

Telephone services are usually supplied as overall packages of access and usage. Various options and packages may be available to end-users depending on their typical usage or calling patterns<sup>26</sup>. Although many end-users appear to prefer to purchase both access and outgoing calls from the same undertaking, many others choose alternative undertakings to the one providing access (and the receipt of calls) in order to make some or all of their outgoing calls. An undertaking that attempted to raise the price of outgoing calls above the competitive level would face the prospect of end-users substituting alternative service providers. End-users can relatively easily choose alternative undertakings by means of short access codes, (carrier selection via contractual or pre-paid means) or by means of carrier pre-selection. Whilst undertakings that provide access compete on the market for outgoing calls, it does not appear to be the case that undertakings supplying outgoing calls via carrier selection or pre-selection would systematically enter the access market in response to a small but significant non-transitory increase in the price of access. Therefore, it is possible to identify separate retail markets for access and outgoing calls.

As regards outgoing calls, the initial Recommendation distinguished between local and national calls on the one hand and international calls on the other hand, essentially on the basis of supply-side substitution, as well as the differing demand characteristics. Such a distinction remains valid. Also on the basis of supply-substitution both markets include fixed-to-fixed as well as fixed-to-mobile calls.

The experience so far under the market review procedure indicates that voice over broadband (VoB) services have increasingly become available across the EU. Substitutability between VoB and narrowband telephony depends on a number of factors such as product characteristics, numbering, quality of service, prices, broadband penetration etc. In countries where broadband penetration is significant, VoB services may exercise a competitive constraint on narrowband telephony services, provided that it is not possible for the incumbent operator to price discriminate between consumers that only have a narrowband connection and consumers that also have a broadband connection. Where substitutability exists, VoB services should be treated as part of the retail calls markets. On the basis of quality differences and product characteristics (e.g. whether conventional handsets can be used and/or whether a connected computer must be switched on in order to receive calls), unmanaged VoB services appear for the time being to be less of a substitute for narrowband telephony than managed VoB, but that distinction may disappear over time as the quality of unmanaged VoB services improves and technical features change.

In the absence of any regulation (at retail or wholesale level), the incumbent public telephone network operator(s) would face little competitive constraint in terms of price or quality of services and customers would have little choice of supplier in relation to either access or calls (with the possible exception of large business users). The following sections highlight the wholesale inputs that need to be identified to assess competitive outcomes at the retail level. Finally, the issue of whether wholesale regulation alone could render retail markets

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<sup>26</sup> The question of whether metered and un-metered (flat-rate) access to Internet are in the same or separate markets is considered in section 4.2.2.



effectively competitive is examined, in order to assess whether retail markets should remain susceptible to ex ante regulation.

### ***Related Wholesale Markets***

#### ***Wholesale call termination***

Call termination is the least replicable element in the series of inputs required to provide retail call services and is therefore analysed first. Wholesale call termination is required in order to terminate calls to called locations or subscribers. Undertakings owning or operating networks to provide telephone services may interconnect at relatively high levels in the network, i.e. at a few interconnect points. Consequently, call termination arrangements may in practice comprise call conveyance as well as call termination. However, undertakings faced with a price increase in say national call termination could purchase call termination separately from the call conveyance part. Therefore, it makes sense to focus on call termination as the relevant call termination market.

In the initial Recommendation the relevant market was as wide as each network operator. This was based on the fact that undertakings that supply wholesale call termination to other undertakings wishing to terminate calls did not price discriminate between termination charges to different subscribers or locations on their network.

In considering whether a wider definition is appropriate, it is necessary to examine the possibilities for demand and supply substitution that might constrain the setting of termination charges on a given network<sup>27</sup>. If all (or at least a substantial number of) fixed locations or subscribers in a given geographical area were connected by two or more networks, then alternative possibilities would exist for terminating calls to given locations. Another possible source of supply substitution would occur if it was possible technically for calls to a given location or end-user to be terminated by an undertaking other than the one operating the network that serves the given location. Currently no such supply substitution is possible.

Call termination charges at a wholesale level on a given network might be constrained via demand substitution but there is currently no potential for demand substitution at the wholesale level. However, there are possibilities for demand substitution at the retail level. Examples could comprise any means of communication that constituted a reasonable alternative to making a call to the location or subscriber number concerned. Such alternatives might include terminating the call to the person concerned via a mobile network, a call using a call-back arrangement, a call that does not involve a specific call termination arrangement (e.g. where parties set up their own IP-based call) or communication via messages of varying kinds (e.g. email, voicemail, paging). It is also necessary that the alternative possibility leads to an effective constraint on the setting of call termination charges by making it unprofitable for a network to raise call termination charges.

Such alternatives for demand or supply substitution do not appear currently to provide sufficient discipline on call termination at fixed locations or an argument in favour of a wider market definition, so that the relevant market appears to be call termination on individual networks with consequent satisfaction of the first criterion (i.e. high and non-transitory

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<sup>27</sup> It is also important to examine countervailing market power, in this case countervailing buyer power in negotiating call termination charges, but this is part of the effective competition analysis once the relevant market is defined.

barriers to entry). Each market for call termination on an individual fixed network is a monopolistic market with no tendency towards effective competition, where end-users are unable to systematically set up their own call termination, thus satisfying the second criterion. Effective regulation of termination services moreover requires frequent intervention on a coordinated basis and a detailed cost assessment. Termination rates should also be regulated ex ante in order to provide legal certainty to other operators when setting their retail tariffs, which are inter alia a function of the terminating charge. Competition law is therefore insufficient to address the market failure on this market.

However, such a market definition - call termination on individual networks - does not automatically mean that every network operator has significant market power; this depends on the degree of any countervailing buyer power<sup>28</sup> and other factors potentially limiting that market power. Networks, in exchanging traffic in the absence of regulation, will normally face some degree of buyer power that could limit their associated market power. Without any regulatory rules on interconnection, a network with few subscribers may have limited market power relative to a larger one in respect of call termination. The existence of a regulatory requirement to negotiate interconnection in order to ensure end-to-end connectivity (as required by the regulatory framework) redresses this imbalance of market power. However, such a requirement would not permit any attempt by a smaller network to initially set excessive termination charges. The existence of buyer power and the ability of network operators to raise termination rates above the competitive level should be examined on a case-by-case basis in the context of the SMP assessment on this market. Accordingly, one should examine the ability of network operators to raise termination rates not only vis-à-vis the incumbent fixed network operator but also vis-à-vis other operators that may have less buying power.

### *Wholesale access and call origination*

After termination, access and call origination are the next least replicable elements of the wholesale inputs required to provide retail call services. At the retail level, a distinction has been made between access and outgoing calls. An undertaking may make a decision to enter the combined market for access and calls or simply enter part or all of the calls market. In assessing the relevant linked wholesale markets, it is necessary, therefore, to bear in mind that there are a number of means of addressing the retail markets.

With respect to access, the main alternatives are between building (i.e. duplicating the existing local access network) and buying (i.e. using any existing local access network) as indicated below. The latter option potentially includes any transmission path that is capable of supporting voice services, e.g. a leased circuit, an unbundled local loop or the wholesale provision of a digital subscriber line (DSL) or bit-stream services. Such alternatives are also capable of supporting the provision of data services or multiple voice channels and are considered in more detail below.

With respect to calls services, the main elements required to produce such services are call origination, call conveyance (including routing and switching) of varying kinds and call

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<sup>28</sup> Considerations of relative market power are not limited to networks (of differing size or coverage) serving end-users at a fixed location or address but also apply to networks such as mobile cellular networks serving non-fixed locations. In circumstances where a 'fixed' network with significant market power is subject to a regulatory remedy (beyond the basic one to negotiate interconnect) such as regulated prices for call termination, market power relative to mobile networks would be affected.

termination. Related elements include signalling and the ancillary services needed, for example, for billing purposes. An undertaking that supplies retail telephone services could purchase these inputs separately or together, or produce all of them by constructing an extensive network, or purchase some and produce others.

One direct alternative to the purchase of call origination is to establish an access network (cable, fibre, wireless connection etc.) to the end-user location. Another alternative is to purchase or lease an established network connection to the end-user location (for example through local loop unbundling). Both alternatives entail considerable time and investments, a large proportion of which are sunk. Incumbents continue to enjoy, as regards the local access network, absolute cost advantages due to economies of scale and density. The market for fixed call origination consequently continues to exhibit high and non-transitory barriers to entry. Both the development of alternative access networks (cable, fibre, wireless, etc.) and the degree of local loop unbundling remain, for the time being, limited on a European scale. Where market entry has occurred, it has often been limited to particular geographical areas or to particular customer groups. Over the next three to four years, it is not expected that entry will occur on such a scale as to make this market tend towards effective competition. Finally, the remedies necessary to address the market failure (in particular access obligations including price regulation) could not effectively be imposed on the basis of competition law.

Wholesale call origination services (originating access or interconnection) can be provided in the form of minutes or in the form of capacity. They may also be supplied together with switching and/or call conveyance services (see below). The market identified for the purpose of this Recommendation is wholesale call origination services. The relevant market is considered to comprise call origination for telephone calls and for the purpose of accessing dial-up Internet service provision. Therefore the market is defined as call origination on the public telephone network provided at a fixed location.

### ***Wholesale Transit Services***

In addition to wholesale call origination and call termination, call conveyance or transit will be needed in order to complete a call. Transit services involve the transmission and/or switching or routing of calls. For an undertaking providing services to a limited number of end-users, an alternative to using wholesale transit services could be to use interconnected leased lines or dedicated trunk capacity. Transit services refer to the (long-distance) conveyance of switched calls on the public telephone network provided at a fixed location. This is a different product from, say, the provision of dedicated capacity in itself, even if some transit services are provided over leased circuits or links. The difference is that leased lines provide dedicated capacity between two fixed points whereas transit refers instead to switched calls on the public telephone network provided at a fixed location. Transit services therefore comprise conveyance both between switches on a given network and between switches on different networks, and including pure conveyance across a third network. Some parts of this transit service market are likely to become more competitive more quickly than others, but there cannot be a presumption that some switched call conveyance (from an incumbent to an entrant's network) is automatically different from other switched call conveyance (between two entrants' networks).

The provision of transit services can be self-provided or bought directly, or the elements necessary for the provision of such services can be bought separately and the services can be combined together. The range of operators providing services or indeed the necessary network elements (both self-supplied and to third parties) is almost entirely dependent on the traffic

volumes on particular transit routes. While for certain busy routes self-provision or even merchant offers by alternative operators are likely, for other less busy or thinner routes this may not be the case, meaning that the ability to provide geographically ubiquitous transit services may depend on incumbent-provided transit services. It may be that as regards thin routes (where the volume and value of transactions is relatively small) in selected Member States, entry is unlikely even in the medium term suggesting that in such circumstances the first criterion may be met. This is likely to vary within and between Member States but the first criterion is more likely to be met where the market defined is limited to those thin routes which cannot support multiple operators if such a limitation is appropriate and supported by the market analysis.

In some Member States this market has been found to be effectively competitive, although this is not the case in the majority of them. In the latter, new entrants are still dependent on the incumbent for the provision of transit services on many routes.

However, the situation is evolving as both alternative long-distance infrastructures and networks are built and developed, and as incumbents upgrade their core networks. On the one hand, incumbents may still have significant scale advantages helped by their large sunk investments and their greater network reach. On the other hand, as there is evidence of alternative operators successfully investing in long-distance networks, entry barriers can no longer be said to be high and non-transitory.

Two other factors affect the actual or potential state of competition on this market. The first is that the market for transit services is complementary to the ones for call termination and call origination. Depending on where boundaries have typically been drawn between these markets, the state of competition in transit services may be more or less developed. The second is that the majority of entry in this market may be for self-supply and no merchant market has developed. This would explain why there is evidence of parallel long-distance networks being established, and of effective competition in trunk leased capacity markets in many Member States, but limited findings of effective competition in wholesale transit services. As networks are developed further, it can be expected that increasing numbers of operators will enter the merchant transit market and that this discrepancy will disappear. In addition, the likelihood of the incumbent being constrained in the provision of wholesale transit services may vary between Member States depending on the balance and relative proportions of denser and less dense traffic routes.

Where the presence of alternative sources of supply constrains the incumbent's behaviour even as regards thinner routes, the transit market may on a case-by-case basis be found not to meet the second criterion. In fact, as time progresses the proportion of regulators no longer finding SMP is increasing, indicating a tendency toward effective competition. In any event, since the assessment for the forward-looking period is that this market does not in general satisfy the first criterion, the market for wholesale transit services is withdrawn from the recommended list.

As with the initial Recommendation the delineation between call origination, call termination and transit services can vary, according to network topologies and market conditions, and it is left to NRAs to define those elements constituting each part. It should be noted by the NRAs that while there is a degree of discretion in deciding the appropriate elements constituting call origination, call termination and transit services, these elements are additive, the sum of the three making the whole. This means, for instance, that if call origination and call termination are already defined then a notional market for transit is also defined by default.

## ***Retail Regulation***

In the initial Recommendation, in keeping with Annex 1 of the Framework Directive, two access markets and four calls markets were identified as being susceptible to ex ante regulation. Retail regulation can only be justified if, with all regulatory remedies in place on wholesale markets including Carrier Selection and Carrier Pre-Selection (including wholesale line rental where appropriate), there remains a lack of effective competition at the retail level.

Regarding retail access to the public telephone network at a fixed location, the only wholesale regulation that could impact on competition in this market is the regulation of the wholesale infrastructure access market, which enables new entrants to provide narrowband access services to retail customers. However, exploiting wholesale infrastructure access requires time and significant investments, a large portion of which are sunk. Moreover, new entrants in principle do not lease infrastructure access to provide narrowband access only. Wholesale infrastructure access therefore does not remove the high and non-transitory barriers to entering the retail access market at a fixed location, nor does it make this market tend towards effective competition. Even in combination with the development of other infrastructures such as cable or fibre-to-the-home etc., such a tendency is not yet observed at the European level. Therefore, even in the presence of wholesale regulation, the retail market for access to the public telephone network at a fixed location remains susceptible to ex ante regulation.

As regards the retail calls markets at a fixed location, the conclusion is different. Wholesale regulation, including Carrier Selection and Carrier Pre-Selection obligations, significantly reduces the barriers to entering these markets. This is evidenced by large-scale market entry of alternative operators across Europe, to the detriment of incumbents which overall have been losing significant market share. Market entry of operators based on Carrier Selection, Carrier Pre-Selection and Wholesale Line Rental, in combination with VoB services in Member States where there is significant broadband penetration, implies that overall in the EU, retail fixed calls markets tend towards effective competition. Potential restrictions of competition may still arise, for example through price squeeze strategies of incumbent operators that remain dominant on related upstream markets. However, where such strategies constitute an abuse of dominance, competition law provides the appropriate instruments to deal with such market failures. In addition, Article 5 of the Framework Directive provides NRAs with the legal basis to obtain pertinent information not only about costs but also concerning retail pricing, in order to establish and monitor justified and appropriate remedies with respect to wholesale access.

Therefore, the retail calls markets are no longer considered susceptible to ex ante regulation on an EU-wide basis. However, if an NRA finds that national circumstances require a different conclusion, it is open to that NRA to demonstrate that one or more of the retail calls markets in its country continue to meet the three-criteria test. This may for example, be the case in Member States where Carrier Select and Carrier Pre-Select obligations have only recently been introduced or so far remain ineffective (e.g. because of particular consumer habits) and where broadband penetration is low and VoB offerings insignificant.

## ***Conclusion***

On the basis of the above, it is considered that the following specific markets related to the provision of public telephone services at fixed locations should be included in the revised Recommendation:

### ***Retail level***

- Access to the public telephone network at a fixed location for residential and non-residential customers.

### ***Wholesale level***

- Call origination on the public telephone network provided at a fixed location.
- Call termination on individual public telephone networks provided at a fixed location.

#### ***4.2.2 Access to data and related services at fixed locations***

The aim of this section is to (i) describe and define relevant markets for access to generic data services (in particular the provision of Internet service) at fixed locations at a retail level, (ii) define the linked wholesale markets and (iii) identify the relevant markets which are susceptible to ex ante regulation.

In the area of data services at fixed locations, the initial Recommendation identified the following markets as susceptible to ex ante regulation:

- Wholesale unbundled access (including shared access) to metallic loops and sub-loops for the purpose of providing broadband and voice services;
- Wholesale broadband access.

### ***Retail Markets***

The increased use of Internet for a mix of communications services has created potentially wide-ranging retail markets for access to data and related services at fixed locations. In general, the provision of retail Internet access consists of two parts: (i) the network or transmission service to and from the end-user's location and (ii) the provision of Internet services, in particular end-to-end connectivity with other end-users or hosts. These two services may be bundled together.

At the current time, it is possible to identify three commonly available forms of Internet access: (i) dial-up service, (ii) high bandwidth services using digital subscriber line (DSL) technologies (or equivalents) or cable modems and (iii) dedicated access<sup>29</sup>.

In the period since the initial Recommendation large numbers of residential subscribers and small business users accessing Internet from fixed locations have switched from narrowband to broadband access either via cable modems or more commonly via DSL modems. Although so far consumers have switched to varying degrees across the Member States, the trend is clear and appears set to continue. Nevertheless, a significant number of users continue to have narrowband connections, including dial-up access via analogue telephone lines and ISDN<sup>30</sup>.

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<sup>29</sup> Higher bandwidth or broadband Internet services may be characterised as allowing downstream capacity to end-users in excess of 128 kbits/sec. The bandwidth of the service supplied may be asymmetric or symmetric. Dedicated access would typically involve the provision of symmetric bandwidth, with guarantees on contention rates or other quality of service parameters.

<sup>30</sup> See E-Communications Household Survey (Special Eurobarometer) published in April 2007.

From the demand-side perspective, substitutability between narrowband and broadband Internet access seems limited. There are a number of technical characteristics of broadband access that imply that certain applications are not viable over dial-up access. On this technical basis and from the standpoint of broadband, therefore, narrowband would be a separate market, because the services and/or the quality features of those services (including their uplink and downlink speed) which can be offered over a narrowband connection would not be seen as viable substitutes from the point of view of an end-user making use of a broadband connection<sup>31</sup>. In addition, a flat-rate or un-metered narrowband dial-up service may not be considered to be an ‘always-on’ service in the way that a broadband service typically is, as the service is likely to be interrupted if un-used for a given period. For a specific group of customers, in particular those which are less sensitive to bandwidth and speed, broadband access may be a substitute for narrowband access, but evidence shows that once customers have migrated from narrowband to broadband access, they are unlikely to switch back, even in response to a small but non-transitory increase in price. Substitutability is therefore primarily in one direction, from narrowband to broadband.

At the retail level, a number of broadband access possibilities at a fixed location exist, including DSL networks and cable TV networks that have been upgraded to provide a return path<sup>32</sup>. Satellite and terrestrial TV networks (provided they have adequate capacity and are linked to a return path) are also capable of providing data services and access to Internet<sup>33</sup>. In certain Member States local fibre networks are being rolled out on a limited scale. In the future, fixed broadband access via wireless technologies or power-line technologies could become more common. Experience under the market analysis and Article 7 review procedures so far indicates that at retail level broadband access services over these platforms, where available, generally belong to a single product market. Likewise, within the category of DSL-based services, there is no evidence suggesting that retail broadband services using ADSL, ADSL2, ADSL2+, VDSL or other DSL technologies would not be part of a single product market. However, when defining markets taking into account this Recommendation, NRAs should analyse on a case-by-case basis substitutability of services provided using these various technologies, thereby taking the principle of technology-neutral regulation as a starting point.

Price differentials can be observed between narrowband and broadband access but these can vary and they may depend on the data-rate or qualitative features of the services offered, the availability of flat-rate narrow-band offers, the degree of competition between different forms of broadband access or other factors. It is therefore not easy to discern whether separate retail markets exist, simply on the basis of price differentials.

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<sup>31</sup> The above analysis may well lead to different results were the starting point to be services offered on narrowband connections. In other words, asymmetric substitutability may occur whereby under certain conditions a broadband connection may be a viable substitute for a narrowband connection, since it offers additional features, whereas a narrowband connection may not be a viable substitute for a broadband connection. As broadband offers gradually become available at higher average speeds, substitutability with narrowband access further decreases.

<sup>32</sup> DSL remains the main technology for broadband access across the EU. The DSL share of fixed broadband lines in January 2007 was 81.8% compared to 15.5 % of lines provided by cable and 2.7 % by other technologies. DSL continues to grow in importance compared to cable.

<sup>33</sup> Internet access via the TV is becoming more common, although there are often limitations with respect to the content that can be accessed and the applications that can be used. In most cases a standard modem on a telephone line is used. However, the broadcast path could also be used in which case access would more closely resemble other higher-speed access methods.

At the same time, for the purposes of deriving wholesale markets, there are important distinguishing characteristics from a demand perspective between broadband services and dial-up or narrow-band service. At a retail level customers in the broadband market have a range of options to purchase connectivity at these speeds. Consumers can buy services from cable operators with upgraded networks using cable modems, they can buy services from new entrants using unbundled local loops that the entrant has modified or which have been modified for them, or the customer can buy these services directly from the incumbent. Other technologies such as wireless local loops are not widely available, but are capable of providing equivalent services. Between these options, provided prices are comparable, a consumer is likely to be indifferent.

In the narrowband market, dial-up services may be paid for on the basis of a subscription, usage or a combination of the two. Un-metered or flat-rate retail (subscription only) services are widely available in the Community.

Metered and un-metered (flat-rate) access can be considered to be part of the same market for a number of reasons. Firstly, the only difference between the products is the way in which tariffs are structured. Secondly, the two products appear to be substitutable for end-users, although there appears to be little evidence of end-users substituting metered service in response to price increases in un-metered services. Thirdly, if obligations exist to allow operators to buy wholesale call origination on an un-metered basis, supply substitution will be possible in that a hypothetical monopolist raising the price of un-metered access would induce other providers (of metered products) to offer an un-metered product at a lower, competitive price level. Therefore metered and un-metered call origination do not constitute distinct markets.

On the basis of the above, one can thus distinguish between: narrowband (dial-up) Internet access and broadband Internet access. The extent to which wholesale and/or retail regulation is warranted in order to ensure effective competition on these markets will be examined further hereafter. The relevant market for dedicated access is treated separately in section 4.2.3 below.

### ***Wholesale inputs to broadband Internet access***

In order for broadband access to Internet and related data services to be supplied to an end-user at a fixed location, a suitable transmission channel is required that is capable of passing data in both directions and at rates that are appropriate for the service demanded. Therefore, any undertaking providing services to end-users needs to build, establish or obtain access to a transmission channel to the end-customer locations that are served.

The least replicable element in the establishment of an access transmission channel to an end-user location is local access or the local loop. There are major obstacles, in terms of cost, time and legal barriers to duplicating the incumbent's local access network. Barriers to entering the local loop market are indeed high and non-transitory. Behind the barriers to entry, there is no tendency towards effective competition. While upgraded cable systems have become more widely developed and deployed in some parts of the Community, such systems overall still have a limited coverage. Moreover, the unbundling of cable networks at this stage does not appear technologically possible, or economically viable, so that an equivalent service to local



loop unbundling cannot be provided over cable networks.<sup>34</sup> Other access technologies including wireless local loops, digital broadcast systems and power-line systems are starting to become available, but only on a scale that imposes little if any constraint on the local loop operators. Thirdly, competition law would be insufficient to redress the market failure on the local loop market, as the compliance requirements of intervention in this market are extensive (including the need for detailed accounting, assessment of costs and monitoring of terms and conditions including technical parameters). The local loop market, which is equivalent to physical or infrastructure-based local access for the purpose of supplying retail broadband service, hence meets the three-criteria test and continues to be susceptible to ex ante regulation.

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.

The initial Recommendation identified two wholesale markets that were linked to the broadband retail market: wholesale unbundled access (including shared access) to metallic loops and sub-loops, and wholesale broadband access. As regards the first market, as set out above technological change implies including all relevant physical infrastructure necessary to reach the end consumer, as opposed to a strict limitation to the metallic loop or sub-loops. The reason for identifying a second separate wholesale market was based on the view that even regulated local loop access would be insufficient in most Member States to constrain potential market power at the retail level and a significant entry barrier would still exist. The fact that the two wholesale markets are linked in this way to the same broadband retail market implies that it is logical for national authorities to undertake a single overall analysis of the broadband market which examines in sequence the impact that (a) regulated infrastructure-based access and (b) regulated (non-physical) network-based access could be expected to have on any significant market power that is identified. Ten Member States have so far undertaken such a combined analysis.

During the application of the initial Recommendation it has also been relatively straightforward to separate these two wholesale markets, on the basis of their product characteristics and by virtue of demand and supply substitution. For example, the two services, access to unbundled loops and wholesale broadband access, can frequently be distinguished on the basis of the flexibility they give in supplying the retail service, or by means of the location at which access is obtained. Hence, unbundled loops typically give greater flexibility and control over the retail broadband service offered to the end-user and have typically been supplied at the main distribution frame (MDF). In contrast, wholesale broadband access in the form of a bit-stream service typically gives less flexibility over the retail service, and may be supplied at higher points in the network (such as regional interconnection points), as well as at the MDF.

Since the initial Recommendation, there have been significant developments concerning next generation networks, as described in section 3.3. In the context of supplying broadband (and

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<sup>34</sup> However, as will be noted below, the indirect constraint exercised by cable networks will need to be taken into account when assessing whether an operator enjoys SMP.

related services), many undertakings with established infrastructures envisage installing fibre closer to end-users, both to increase capacity and broadband speeds, and to reduce operational costs. Such changes, which are expected to vary between Member States in terms of the type of network investments and the speed at which they occur, are likely to modify the demand and supply characteristics described above.

For example, the replacement of copper access lines between the MDF and (more) localised concentration points by fibre, implies that an undertaking that currently exploits access to unbundled loops at the MDF would have to consider the appropriateness of any alternatives. Such alternatives could conceivably include building its own local access network, using access to sub-loops in combination with its own (extended) network, using sub-loops in combination with an appropriate backhaul service to the MDF location, or using a wholesale broadband service supplied at the MDF location or at a higher level in the network. In principle, on the basis of characteristics concerning the capability and the location of the service (as indicated above), and with respect to demand and supply substitution, it would be possible to determine whether these various potential services are in the same or separate relevant wholesale markets. However, at this stage, given that these network changes are still taking place, it is difficult to be absolutely precise about the boundaries of the relevant prospective wholesale markets that are linked to the retail broadband market, in terms of their various possible technical characteristics. This suggests a more generic and forward-looking approach to market identification in this area at EU level (based on the two currently defined wholesale markets), within which regulatory authorities can analyse markets, with the twin aim of facilitating as much infrastructure-based competition as is economically efficient and addressing market power via appropriate access regulation.

The question then arises whether, in addition to unbundled local access (or its equivalent), the market for wholesale broadband access constitutes a distinct market and, if so, whether it should be identified as being susceptible to ex ante regulation. An operator using unbundled local loops (or an equivalent infrastructure-based input) would not normally consider wholesale broadband access to be a substitute even if the service provided by the wholesale broadband access provider allowed the supply of the same retail services that were provided over the unbundled loops. However, the propensity to switch between the two inputs could be expected to depend on the relative price and other terms (such as contract length), and on factors such as the two noted above, i.e. the location of access, and the latitude that the input confers in supplying a range of different retail products. Once an operator has invested in local loop unbundling, its preparedness to switch to wholesale broadband access could also depend on the investments that it has already made and whether they can easily be adapted or reversed.

Likewise, it is questionable whether an entrant using wholesale broadband access to deliver retail broadband services to the final user market could easily switch to using unbundled local loops to provide an equivalent service. From a demand perspective, a retail provider using wholesale broadband access will only consider unbundled local loops a substitute if it has all the other network elements needed to self-provide an equivalent wholesale service. The supply substitution possibilities depend on the same condition. Therefore, unbundled local loops and wholesale broadband access constitute distinct markets.

The local loop market is situated upstream from the wholesale broadband access market and regulation on the local loop market may facilitate market entry on the wholesale broadband access market. However, in view of the investment required for local loop unbundling (LLU) and the absolute cost advantages of the incumbent resulting from economies of density and

scale, high barriers to entering the wholesale broadband access market remain even in the presence of regulated LLU. The wholesale broadband access market hence continues to meet the first criterion under the modified greenfield approach. Experience under the market analysis and Article 7 notification procedures so far indicates that the coverage of LLU in a given Member State, in combination with the existence of alternative broadband access networks such as cable, fibre and wireless, may imply that in a limited number of Member States the market for wholesale broadband access may tend towards effective competition behind the barriers to entry. This may be the case where both broadband penetration and unbundling rates are very high, and where alternative operators have started to provide wholesale broadband access services in large parts of the country in competition with the incumbent, thereby providing a direct constraint on the market power of the incumbent in supplying wholesale access services. In addition, the level of competition at the retail level from both vertically integrated undertakings and those exploiting unbundled local loop access may be such as to exert an indirect constraint on the market for wholesale access services<sup>35</sup>.

In general across the EU, however, this is not the case yet and is not foreseeable within the next few years. Therefore the wholesale broadband access market continues to meet the second criterion. In addition, where competition is not effective, competition law is not sufficient to redress the market failure as, under competition law, the provision of wholesale broadband access services could not in principle be mandated, and compliance requirements would in any case be high (including detailed monitoring of cost and technical conditions). Moreover, it is important to maintain co-ordination and consistency between regulation of wholesale broadband access and that of local loop unbundling. Since the third criterion is also met, the wholesale broadband access market continues to warrant inclusion in the revised draft Recommendation as a market susceptible to ex ante regulation.

In the initial Recommendation, the wholesale broadband access market was said to cover 'bitstream'<sup>36</sup> access that permits the transmission of broadband data in both directions and other wholesale access provided over other infrastructures, if and when they offer facilities equivalent to bitstream access. In this context, the question has arisen as to whether wholesale access to cable networks that provide a return path is part of the relevant market. Across the EU, cable represents 15.5% of broadband connections compared to 81.8% of DSL lines and its relative importance has been declining, although broadband delivered via cable has a high market share in Malta, Austria, Belgium, the Netherlands and Portugal<sup>37</sup>. Experience under the market analysis and Article 7 notification procedures so far has indicated that, where cable networks exist, their geographical coverage is often limited and wholesale access to such networks does not constitute a direct substitute for DSL-based wholesale access products from the demand or the supply side, so that inclusion in the same product market is not justified<sup>38</sup>. The presence of cable (or other broadband-capable networks) in a given Member State may, however, exercise an indirect constraint on the provider of DSL-based wholesale broadband access, through the substitutability between both products at retail level.

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<sup>35</sup> See case NL/2005/0281.

<sup>36</sup> For the purpose of this Recommendation bitstream is a service which depends in part on the Public Telephone Network and may include other networks such as the ATM network.

<sup>37</sup> Figures from 12<sup>th</sup> Implementation Report, March 2007.

<sup>38</sup> For existing wholesale customers, migrating from DSL-based access to cable-based access would give rise to substantial switching costs so that switching is unlikely to occur in reaction to a small but significant non-transitory price increase. Suppliers would also be in a position to price discriminate between existing wholesale customers and wholesale customers that have not yet committed to a particular technology so that existing customers would not benefit from any constraining effect of uncommitted customers.

Broadband subscribers may have a choice between the services provided by the integrated incumbent, by other vertically integrated companies (such as a cable operator), or by firms using inputs supplied by the incumbent. If alternative integrated undertakings have high market shares compared to firms exploiting inputs, (and the former choose not to offer wholesale inputs), it is likely that indirect constraints will be more important than direct ones. Such indirect pricing constraint, where it is found to exist, should be taken into account when assessing if the incumbent DSL operator has SMP on the relevant market.

Another similar question that has arisen is whether services using DSL technologies other than ADSL are part of the relevant market for wholesale broadband access. The speeds which DSL technologies are capable of providing are evolving continuously depending on network topology, and loop lengths or proximity to exchange points, etc. ADSL technologies are currently capable of supplying up to 28 Mbit/sec to end-users, providing the ancillary elements are suitable, and the future roll-out of VDSL allows for speeds of up to 100 Mbit/sec. The range of access speeds that are available at the retail level is typically evolving as a function of users' demands and willingness to pay, network capabilities, and retail competition from other infrastructures. To satisfy retail demand, wholesale broadband access services over any DSL technology appear to be substitutable, (subject to any constraints imposed by network capabilities or the speeds enabled by the prevailing technology), provided that any actual or perceived switching costs for end-users are not excessive. It remains open to individual NRAs to examine this issue in further detail on the basis of national circumstances.

Given the link between the retail broadband market and the two corresponding input markets identified in the initial Recommendation and also the varying ways in which supply and demand characteristics could evolve over the coming period, (and the speed at which they take place), it is proposed to identify two relevant markets as being susceptible to ex ante regulation as follows:

- wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location; and
- wholesale broadband access.
  - This market comprises non-physical or virtual network access including 'bit-stream' access at a fixed location. This market is situated downstream from the physical access covered by the first market listed above in that wholesale broadband access can be constructed using this input combined with other elements.

The point in the network at which the demand and supply of either of these separate markets is defined will depend on the market analysis and in particular on the network topology and the state of network competition. Depending on the way in which network upgrades occur or the particular demand and supply conditions evolve in Member States, these two wholesale markets may remain distinct, or conceivably merge into one. Consequently and for the reasons outlined above, it is recommended that the markets be analysed together.

### ***Wholesale inputs to dial-up Internet access and services - wholesale call origination***

Despite the growth of broadband access, narrowband dial-up access to the Internet remains an important end-user product.<sup>39</sup> An Internet service provider (ISP) supplying dial-up Internet access requires wholesale call origination and wholesale call termination as inputs as well as wholesale Internet connectivity. A wholesale product corresponding to the retail product for access to the public telephone network at a fixed location would be necessary for the provision of dial-up Internet services. Users encountering a hypothetical monopolist on the call origination market would be able to easily switch service provider through the use of Carrier Pre Selection (CPS) or Carrier Selection (CS). Switching call origination service providers is in general both easy and cheap. This may result in there being more separate bills to be paid as the access provider and the service provider(s) cease to be the same entity or entities. While there is undoubtedly a range of customers who value the ease of single billing, it is not clear that this population would be significantly large to mitigate the disciplining role of those not concerned with single billing. Whether service is supplied on a metered or un-metered basis (or a combination of the two), call origination frequently takes place using appropriate number ranges which route calls to the network used by an ISP for onward connectivity with the public Internet. Depending on the specific call origination arrangements used, ISPs may compensate the originating network operators on behalf of their end-users or call origination may be paid for directly by end-users.

In general, end-users accessing the Internet via dial-up means at a fixed location use the undertaking that provides access to the public telephone network. The relevant market includes call origination both for the purpose of speech communications and for other forms of communication such as fax or data. Therefore, the relevant market for wholesale call origination for dial-up Internet service is call origination on the public telephone network provided at a fixed location (the same market defined in section 4.2.1).

### ***Wholesale call termination (for dial-up Internet access)***

In order to provide dial-up end-users with Internet access and connectivity, ISPs need to ensure that dial-up calls are terminated, i.e. go through a terminating operator en route to the servers of ISPs.

Wholesale call termination as part of Internet service provision is different from call termination on fixed or mobile networks for the completion of calls between two end-users. In the case of call termination for Internet service provision, end-users have a contractual relationship (implicit or explicit) with an ISP but normally have no notion of the undertaking terminating dial-up calls. The ISP chooses the terminating operator (or operators) receiving the dial-in calls and may itself pay the terminating charge<sup>40</sup>. Since any terminating charge is incorporated into the overall amount that is charged by the ISP (and faced by the end-user), and end-users can switch between competing ISPs, ISPs have an incentive to minimise the termination charges that they pay.

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<sup>39</sup> 30% of the households in EU27 that use the Internet use narrowband access according to the Special Eurobarometer E-Communications survey of April 2007.

<sup>40</sup> A number of actual business models may exist. In the metered approach, a portion of the retail usage charge may be passed from the originating to the terminating operator and on to the ISP. In a subscription model, the terminating operator may compensate the originating operator and charge this to the ISP.

In general, ISPs will have a wide choice with respect to terminating operators since entry into this market is relatively easy and there is evidence of ISPs switching terminating operators. Switching terminating operators is easy provided that such alternatives exist. However, in certain Member States it may be that there is less choice of terminating operators or that one or more operators that have market power on originating access are in a position to more fully exert that market power with respect to call termination. The more limited choice may occur because operators may need to build out networks in order to terminate dial-up calls under un-metered arrangements. Therefore if NRAs consider it necessary to define an Internet termination market where network duplication proves necessary to enter the termination market, they can do so by following the Art. 7 procedure.

Whilst the relevant wholesale call origination market fulfils the criteria to warrant identification in the Recommendation, the relevant wholesale call termination market does not do so for the purpose of this Recommendation.

### ***Wholesale Internet connectivity***

Irrespective of whether end-users access Internet via dial-up or broadband means, ISPs still need to ensure connectivity with other ISPs and their end-users.

To ensure that data packets sent by end-users reach the intended destinations and also that incoming traffic is received, undertakings need to make the necessary arrangements to permit connectivity with all other Internet end-users or at least with the networks that they use. This global connectivity can be arranged in a number of ways. It can be purchased from a network that is in a position by its own arrangements to guarantee such connectivity. It can be obtained by interconnecting and exchanging traffic with a sufficiently large number of networks so that all possible destinations are covered. Alternatively it can be arranged by a combination of interconnecting with certain networks and purchasing the remaining connectivity that is needed.

Two questions arise for the purposes of the Recommendation. Is it necessary to identify a market for Internet connectivity or packet delivery for the purposes of ex ante market analysis, and if so, what is the relevant market? There are a number of differences between the typical arrangements for terminating calls on the public telephone network and delivering packets to destination addresses on the public Internet. In the latter case, end-users are implicitly paying to both send and receive packets. It is not automatically or typically the case that incoming traffic is charged for and that this charge is passed to the traffic sender via the sender's network. As indicated above, traffic connectivity can be arranged in a number of ways.

Entry barriers to this market are low and although there is evidence of economies of scale and that the ability to strike mutual traffic exchange (peering) agreements is helped by scale, this alone cannot be construed as inhibiting competition. Therefore, unlike the case of call termination in section 4.2.1, there is no a priori presumption that ex ante market analysis is required. Therefore, no market for wholesale Internet connectivity (or delivery of incoming packets) is identified for the purposes of the Recommendation.

### ***Conclusion***

It is considered that the following specific markets relating to access to data and related services at fixed locations should be included in the revised Recommendation:

### *Wholesale level*

- Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location; and
- Wholesale broadband access.
  - This market comprises non-physical or virtual network access including 'bit-stream' access at a fixed location. This market is situated downstream from the physical access covered by the first market listed above in that wholesale broadband access can be constructed using this input combined with other elements.
- Call origination on the public telephone network provided at a fixed location.

#### *4.2.3. Dedicated connections and capacity (leased lines)*

The markets related to dedicated connections and capacity have a link to some of the markets defined with respect to access at fixed locations and the provision of services at fixed locations. For example, dedicated connections may be an alternative to unbundled local loops and vice versa in certain circumstances. Also dedicated trunk or long-distance connections may be an alternative to long-distance (transit) call conveyance. Lower-speed leased lines may be replaced in certain instances by standard broadband connections based on DSL or cable modems depending on quality of service requirements.

Dedicated capacity or leased lines may be required by end-users to construct networks or link locations or be required by undertakings that in turn provide services to end-users. Therefore it is possible to define retail and wholesale markets that are broadly parallel.

The key elements in the demand for and supply of dedicated connections are service guarantees, bandwidth, distance and the location or locations to be served. There may also be qualitative characteristics because in some cases distinctions are still made between voice grade and data grade circuits.

At the wholesale level, it is possible to distinguish separate markets, in particular between the terminating segments of a leased circuit (sometimes called local tails or local segments) and the trunk segments. What constitutes a terminating segment will depend on the network topology specific to particular Member States and will be decided upon by the relevant NRA.

Regarding trunk segments of leased lines, in all Member States parallel network infrastructures are being constructed in particular on major routes. This suggests that entry barriers are low. There is also a tendency towards effective competition where alternative operators have made sufficient investments in alternative infrastructures and are in competition with the incumbent on the merchant market. In the majority of Member States, the NRA has found the market for trunk segments of leased lines to be effectively competitive as a number of parallel networks have been established. This trend is likely to continue. Therefore the market for wholesale trunk segments of leased lines is withdrawn from the recommended list on the basis that there are no longer high and non-transitory entry barriers and that there is a clear trend towards effective competition based on parallel infrastructures.

Nevertheless a significant number of routes may continue to be served only by a single operator in particular where the route is thin, i.e. where the volume and value of traffic is

lower. This will vary within and between Member States but often new entrants cannot be expected to compete with the established operator across the whole of the territory. Individual NRAs may be in a position to demonstrate that trunk segments of leased lines continue to fulfil the three criteria and are susceptible to ex ante regulation. Whilst it might be considered that competition law can address the failure on such thin routes, it is unrealistic to rely solely on competition law for as long as the number of unduplicated trunk routes in a country remains high, considering the general costing and pricing principles that would have to be applied throughout the network.

In relation to terminating segments, the existence of high and non-transitory entry barriers and the absence of a tendency towards effective competition across the EU are more obvious. Often the terminating segments of leased lines rely in one form or another on the former incumbent's ubiquitous access network. The control over that ubiquitous access network continues to provide the incumbent with a legacy advantage on the terminating segments of the leased line market that new entrants, across the EU, have not yet overcome. Even more than with trunk segments, there is little dynamic towards effective competition and competition law cannot alone address the failures on the terminating segments market.

With SMP regulation applied where it is warranted at the wholesale level, there is not likely to be consumer harm on the retail leased lines market. Wholesale regulation, where appropriate, should be sufficient to ensure that there is competitive supply at the retail level. The minimum set of leased lines was included in the initial Recommendation in line with Annex 1 of the Framework Directive. However, it is not clear that there is any significant residual market failure that would be required in order for this market to warrant ex ante regulation. Putting consideration of its inclusion in the text of the Directives to one side we can examine whether this market satisfies the three criteria.

With wholesale regulation in place there should be few barriers to market entry into the retail market. Firms can make tenders to provide a widely based leased line offer to the customer's premises. Having overcome the problem of making a ubiquitous offer, then entry barriers into this market are no longer high. Thus, the retail market for the minimum set of leased lines will not be identified in this draft revised Recommendation. Consequently the Commission will propose to reduce the Minimum Set of Leased Lines to zero.

### ***Conclusion***

It is considered that the following specific market related to the provision of dedicated connections and capacity (leased lines) should be included in the Recommendation:

#### ***Wholesale level***

- Wholesale terminating segments of leased lines, irrespective of the technology used to provide leased or dedicated capacity.

### **4.3. Services provided at non-fixed locations**

The aim of this section is to (i) describe and define relevant markets for mobile services at a retail level, (ii) define the linked wholesale markets and (iii) identify the relevant markets which are susceptible to ex ante regulation.

In the area of services provided at non-fixed locations (mobile services), the initial Recommendation identified the following markets as susceptible to ex ante regulation:



- Wholesale access and call origination on public mobile telephone networks;
- Wholesale voice call termination on individual mobile networks;
- Wholesale national market for international roaming on public mobile networks.

### ***Retail markets***

Customers use mobile phones for different purposes, such as making a voice call or sending an SMS. Rather than using different providers of these services, customers appreciate the ease and convenience of having only one handset and SIM card. Thus, consumers purchase a bundle or “cluster” of services from one mobile operator which usually includes local national and international (and roamed) calls and SMS. In this manner mobile firms benefit from economies of scope and consumers benefit from a reduction in transaction costs. Thus, the relevant market should include a “cluster” of products, where non-substitutable services are included in the same market.

With respect to the overall retail mobile market, it remains unclear whether residential and most business customers can be considered to be part of the same market as there does not appear to be a clear way to separate them, even if there may be significant differential pricing of services in order to attract certain types of customer or use<sup>41</sup>. With respect to demand substitution, end-users may be indifferent towards tariff packages designed for business or residential users provided the terms suit their usage profile. With respect to supply substitution, an undertaking serving the business market may easily switch to supplying residential users in response to a small but non-transitory price increase by a hypothetical monopolist.

However, it is clear that large business users are in a position to demand and get personalised offerings. These firms often tender to have their mobile communications needs fulfilled, and the contract terms are private information. Moreover, these users are closed user groups who care about both making and receiving calls. They internalise the externality caused by the Calling Party Pays (CPP) convention. For this reason, business users that have individually negotiated rates are explicitly excluded from the remainder of the analysis. The actual boundary between this group of business users and other business users may differ between Member States and it will be for NRAs to properly delineate where this lies.

Pre- and post-pay mobile services can also be considered to be part of the same market. Supply substitutability is relatively easy, as is demand substitutability (in particular from pre-pay to contractual terms).

Mobile telephone users have no apparent substitute for mobile access and there is no supply substitute unless new spectrum becomes available. Therefore it seems that access could be considered as a market that is separate from the supply of services over the network at a retail level. However, every end-user purchases access to a mobile network with the objective of making or receiving calls (and using SMS etc.) or both (nationally or whilst roaming internationally). Even if a user purchasing a service chose not to originate calls, their decision to have service must be based on a need for call termination (to receive calls) otherwise access would be meaningless. This has implications for the definition of corresponding wholesale market for termination.

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<sup>41</sup> One area where a specific business market might be identified is in the retail provision of national and international services (including international roaming) for large corporate customers. Such a market is not identified for the purpose of ex ante regulatory analysis.

Similar considerations exist for international roaming at a retail level. Retail international roaming services include the ability to make and to receive calls whilst in a country other than the one where the end-user has established his or her network subscription. From a demand perspective, the retail provision of international roaming services could be examined to see if it is a separate market. However, it is a standard part of the bundle of services offered by mobile operators. Moreover, roaming is likely to be even more marked by transactional complementarities than other services offered by mobile operators (where a consumer might like to sign contracts with different operators for different countries and for different times of the day etc.). Thus, retail roaming is part of the cluster of services purchased. Moreover, a domestic supplier of other mobile telephony services could respond to a price increase by a hypothetical monopolist by making agreements with foreign operators so as to supply retail roaming services.

Therefore it is possible to define a single cluster retail market that includes access, national, international and roaming calls and SMS. In addition, this retail cluster may also include calls to value-added services (in particular, directory enquiries). Against this background, account may have to be taken of any particular circumstances surrounding access to value-added services.

Since the adoption of the initial Recommendation, mobile services have continued to spread, with mobile penetration reaching 103% of the EU25 population in 2006. Mobile number portability has become compulsory since 2003. Despite a slow start, number porting increased dramatically in 2005, with 28 million mobile number ports. Most of these happened, however, in only a number of countries. In over half of the Member States, mobile network operators have concluded wholesale access agreements with service providers and mobile virtual network operators (MVNOs) and in countries where this has happened competition tends to be more intense. The sector shows a trend towards consolidation, with transactions integrating competing mobile networks within certain Member States (the Netherlands, Austria) as well as pan-European transactions such as Telefonica/O2. At the same time, 3G operators are entering the market.

### ***Related Wholesale Markets***

In order to provide retail mobile services, operators need various wholesale inputs<sup>42</sup>, including termination services, access and call origination services and international roaming services.

### ***Wholesale call and SMS termination on mobile networks***

As is the case for fixed telephony, termination services are the least replicable input for retail mobile services. Mobile call termination is an input both to the provision of mobile calls (that terminate on other mobile networks) but also to calls that are originated by callers on networks serving fixed locations that terminate on mobile networks. This also applies to SMS termination, although the majority of messages that are terminated originate from other mobile handsets<sup>43</sup>. Since the termination charge is set by the called network, which is chosen by the called subscriber, the calling party in general does not have the ability to affect or

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<sup>42</sup> Some NRAs have defined a distinct market for wholesale call origination to non-geographic numbers in order to address the conditions of competition for calls to value-added services (in particular, directory enquiries). Others have relied on Article 5 of the Access Directive or the Universal Service Directive, or indeed on specific national regulatory provisions concerning premium rate services to address the issue. In these instances the NRAs have sought to address concerns they had about mobile operators imposing high prices in relation to specific services within the retail offer, or about restricting the ability of service providers to control their retail prices.

<sup>43</sup> It should be noted that market constraints may work differently for SMS that are requested by the receiving party in that the receiver may be paying for part or all of the price of the service.

influence termination charges. This is the case under the calling party pays (CPP) principle which is currently common in Europe. As the market failure is potentially the same for both call and SMS termination and as both services are sold as part of the same mobile cluster at both retail and wholesale level, it seems appropriate for descriptive purposes to deal with them together, even though on the basis of demand and supply side characteristics they constitute separate markets.

The CPP convention allows the terminating operator to raise its prices without a constraint from either party to the call. The calling party pays a bundled fee and will not see a direct price signal. The receiving party makes no payment by convention so cannot constrain the ability of their terminating operator. To the extent that the increased price reduces the number of calls that a person receives they are worse off. However, this may not be really noticed and the person concerned will not be able to attribute this fall-off in calls to a higher termination rate. Thus, MNOs can readily raise the price of reaching any of their subscribers.

This externality, whereby the called party may independently and adversely affect the calling party, can potentially be internalised, so that the ability for a network to set excessive termination charges is constrained.

At a retail level, a call (or a SMS) to a given user or user's terminal is not a substitute for a call (or a SMS) to another user and this limitation on demand substitution follows through at the wholesale level. In respect of supply substitution, if the supplier of call termination raises its price, it is not easy for alternative suppliers to switch to supply that market because they would need the SIM card details of that user to do so. However, the market is wider than call termination on a given user terminal because it is not possible for an operator to readily price discriminate between termination charges to different users across their network. Therefore the relevant market is at least as wide as termination for each operator.

However, with such a starting point in market definition, the supplier and the product are perfectly linked. It is important therefore to consider the possibilities for demand and supply substitution that might constrain termination charges and also the behaviour of network operators in setting termination charges. A constraint would exist if, when a network operator tried to raise termination charges (or resisted lowering them), the overall impact were unprofitable. Such supply-side substitution is not currently possible but may become feasible at some point in the future.

This could become the case with software-enabled SIM cards, comparable to cases where operators establish preferred arrangements for their end-users when they are roaming internationally.

Nonetheless, it is clear that the first criterion of a high and non-transitory entry barrier is met for mobile termination of voice calls and SMS messages. The fact that a mobile operator has a collection of customers for which it has a monopoly for terminating traffic cannot be overcome by other operators regardless of their size.

In principle mobile termination charges might be constrained via demand substitution, but there is no potential for demand substitution at a wholesale level. Demand at the wholesale level is inextricably linked to supply. The operator (of the caller) is unable to purchase call or SMS termination on a given network from an alternative source (as indicated above).

However, there are various possibilities for demand substitution at the retail level. It may be that other forms of calls or communications are reasonably close substitutes for the calls considered above, such as call back and call forwarding, but in order for that potential substitution to broaden the market it would need to constrain the behaviour of the operator

setting termination charges by lowering its overall profitability. Similar considerations could apply for SMS messaging.

There may be substitutes for different classes of call, for instance a possible substitute for a fixed to mobile call is a mobile to mobile call<sup>44</sup>. The substitute call would need to be on-net to lower profitability and constrain behaviour. In conjunction with the possibility for closed groups of users to exert buyer power (as described below), the potential substitution has a stronger impact because it could lead not only to the loss of termination charges but also to the loss of subscribers from one network to another.

A possible substitute for an off-net mobile call could be a mobile to fixed call. This would result in the loss of the termination charges but it is likely that the alternative call is only a close substitute in specific circumstances (e.g. knowing that the called party is close to a given fixed phone).

To summarise, some of these potential substitutions could constrain termination charges but empirical evidence does not seem to indicate that they actually do so. In practice, none of the above demand substitutes seem to operate at a level that would constrain the mobile operator's behaviour.

Another specific way in which end-users and their operators can avoid excessive termination charges is by tromboning (traffic re-file) or re-routing. However, in the EU higher accounting rates are charged for the termination of calls to mobile than to fixed subscribers, making tromboning unattractive, taking also into account the cost of re-routing traffic through foreign operators.

It is also possible to re-originate traffic so that it appears that it is coming from the mobile network on which calls are due to terminate. The latter practice is only viable for end-users that originate a significant amount of traffic for termination on a mobile network. However, it is possible for mobile operators to design differentiated tariff services in order to separate such user groups.

Another possible constraint on the ability of operators to set excessive termination charges may come from buyer power at the retail level. Two main types of buyer power may arise.

The first is where users of mobile phones are sufficiently concerned about receiving incoming calls that the price of incoming calls affects their choice of supplier. For this to exert a constraint on the pricing of termination it is necessary that such a factor be as important to users as the pricing of other services such as outgoing calls, rental subscriptions etc. Under the calling party pays (CPP) principle, the calling party pays for the call, and the called party does not, therefore there is no direct relationship between the charges applied and demand for the service by the user of the mobile network who receives the call. Mobile users have shown little price sensitivity in regard to how much it costs others to call them.

A second type of buyer power can come from closed user groups where a particular group of users (whether or not they pay for part of the bill associated with incoming calls) make so many calls between them that intra-group calls constitute a significant proportion of their bill. If a given network raised termination charges and thereby increased the price of incoming calls, group members could switch networks to be on a given network and take advantage of lower on-net prices. However, mobile operators are able to price-discriminate among the various categories of users and (through the use of on-net tariffs) offer closed economic user

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<sup>44</sup> It is possible for these alternatives to be substitutes (as well as complements) even if broadly speaking the fixed market is defined separately from the mobile market.

groups discounts for calls to particular mobile users etc. Thus, for on-net calls there is no market failure as the mobile operator has an incentive to encourage intensive use of its network.

The increased penetration of 3G handsets may pave the way for the emergence of push e-mail services (instant messaging) in the retail market, which could compete with SMS.

In general therefore, whilst it is apparent that end-users who subscribe to mobile services have a choice about the network to which they subscribe and that it is relatively easy to switch between networks, there is limited evidence of widespread constraints on the pricing of wholesale call termination.

The conclusion at the current time (under a calling party pays system) is that call termination by third parties on individual networks is the appropriate relevant market.

A market definition for call termination on each mobile network would imply that currently each mobile network operator is a single supplier on each market. However, whether every operator then has market power still depends on whether there is any countervailing buyer power, which would render any non-transitory price increase un-profitable.

The market identified in this Recommendation is the same as the one identified in the initial Recommendation, i.e. voice call termination on individual mobile networks. To the extent that the exchange and termination of SMS are considered to result in similar market power problems, it is open to NRAs to consider defining and notifying an additional separate market for SMS.

The decisions of some national appeals bodies have highlighted the potential bargaining that may occur due to countervailing buyer power. Whilst not stating that the level of termination rates is the result of a bargaining process, these decisions point to the need to fully examine the issue of countervailing buyer power on a case-by-case basis when analysing the existence of SMP on this market.

### *Access and Call Origination*

Besides call termination, the key elements required to produce a retail service are network access and call origination. Network access and call origination are typically supplied together by a network operator so that both services can be considered as part of the same market at a wholesale level<sup>45</sup>.

The relevant wholesale market is access and call origination on mobile networks. This market is still subject to entry barriers since undertakings without spectrum assignments can only enter this market on the basis of future spectrum allocations or secondary trading of spectrum. These barriers could be overcome in the medium term if secondary trading of spectrum begins (and is effective). Already today, in a large number of Member States there is spectrum which could be allocated. However, the take-up of frequencies is often slow and could be subject to commercial uncertainties specifically regarding 3G services. An additional factor when considering entry barriers is that the number of mobile network operators that a national market can sustain from an economic perspective might be limited given minimum efficient

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<sup>45</sup> In fact it could be argued that access, call origination and call termination constitute one wholesale market and on the other hand that call termination is a separate stand-alone wholesale product. The former is sold to the retail arm of a network operator; the latter is sold to other networks.

economies of scale. As technology changes and the sharing of network elements becomes possible, such constraints could be removed in the medium to long term.

Hence, on a forward looking basis entry barriers could be substantially reduced. However, given the uncertainty regarding medium term events, there is no conclusion on this market failing the first criterion.

However, the degree of competition generally observed in this market at the retail level indicates that ex ante regulatory intervention at a wholesale level may not be warranted. Retail mobile markets are normally characterised by infrastructure competition between three or more mobile network operators (MNOs) which rely on their own networks. Retail customers can easily switch between networks which – despite the oligopolistic structure of this market – results in falling prices and rising consumption across the EU. Competition can be intense in oligopolistic markets where factors which facilitate competition are present. These factors such as ease of switching between firms, no barriers to expansion, rapid technological change are normally present in mobile telephony markets. In addition, in most Member States effective competition has developed in the wholesale mobile access and call origination market. Where there are multiple operators which hold excess capacity on their network this gives incentives (especially to smaller network operators) to sell on some of this capacity to mobile virtual network operators (MVNOs). This allows MNOs to acquire a higher market share and make more effective use of the network (lowering unit costs). National regulatory authorities have observed that many MNOs have concluded access agreements with MVNOs on commercial terms. In some Member States, however, there are no MVNOs or service providers on the market. In certain cases, NRAs concluded that the presence of multiple networks with excess capacity provided enough incentives to compete aggressively regardless of whether such competition came from vertically integrated MNOs or from MVNOs.

Nevertheless, if a Member State has assigned a small number of licenses for spectrum and there is no prospect of entry in the medium term, there may exist incentives and possibilities to tacitly collude. Collectively MNOs may be better off if none of them grants access to their network as this could enable them to protect rents which could harm consumers. Such actions would have to be considered in a national context against the performance of the retail market and the circumstances of operators at a wholesale level. In at least one Member State explicit collusion between MNOs has been detected (which amounted to a market sharing agreement) whilst tacit collusion has been conclusively demonstrated in two other Member States.

Nevertheless, looking at what national regulatory authorities have found when analysing this market, the tendency towards a competitive outcome is confirmed. By November 2007, market analyses have been concluded in 22 member states<sup>46</sup>. There have been 17 findings of effective competition, and 5 of SMP. Two of these SMP decisions on mobile access are single dominance (Cyprus and Slovenia) and three are of joint dominance (Spain, Malta, Ireland), one of which (Ireland) has been over-turned on appeal. Where no SMP was found in these markets, NRAs have observed intense competition at retail level which often coincided with the signing of voluntary access agreements between mobile network operators (MNOs) and mobile virtual network operators (MVNOs). Hence, the presumption must be that the market for access and call origination tends towards a competitive outcome. This presumption is confirmed by the market analysis of NRAs in the large majority of Member States and we

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<sup>46</sup> There have been two further notifications of SMP which have subsequently been withdrawn. France and Poland withdrew their initial findings of SMP (joint dominance) on market 15 after the Commission raised objections with regard to the joint dominance finding.

therefore conclude that the second criterion is not fulfilled. The market is therefore removed from the recommended list.

The assessment of the three criteria is conducted by looking across all 27 Member States and does not attempt to capture the specifics of a limited number of Member States where factors facilitating effective competition are inhibited. Notwithstanding the removal of this market from the recommended list, the Regulatory Framework gives sufficient flexibility to individual NRAs to justify interventions where they can demonstrate that the three criteria are met. Given the potential importance of this market for the development of cross-border services and the complex dynamics of the related retail market, National Regulatory Authorities are invited to monitor the development of this market closely. NRAs are in particular invited to consider the effects of future technological changes or changes to market demand and their effect on the dynamic of competition.

### ***Wholesale international roaming***

The wholesale international roaming market was included in the initial version of the Recommendation. Experience with market analysis has revealed that this market has exceptional characteristics which make it different from all the other markets discussed.

In this market very high consumer prices have persisted and the market has been characterised by rigidity in its structure and to a large extent in its pricing. The work undertaken by the national regulatory authorities (both individually and in the European Regulators Group) in analysing the wholesale national markets for international roaming in accordance with the 2002 framework has demonstrated that it has not been possible for a national regulator acting alone to effectively address the high level of wholesale international roaming charges on the basis of the normal market analysis procedures.

In order to address the excessively high level of wholesale international roaming charges and to respond to the difficulties faced by NRAs identified above, the European Parliament and Council have adopted a Regulation<sup>47</sup> to address and decrease international roaming rates at both wholesale and retail levels across the EU.

Following the entry into force of the EU Regulation in this area, this market is withdrawn from the recommended list.

### ***Other Mobile data services***

In addition to voice and SMS services mobile or wireless cellular networks can be used to access data and related services including Internet, mobile radio and TV services, etc.

Such retail services are currently less developed than their equivalent provision to fixed locations. Although new and many existing handsets or devices are capable of using mobile data services, market development in the EU is still in its early stages, and it remains to be seen how various services will be supplied and priced in the context of third generation networks.

It also still remains difficult to foresee how mobile data services and access to the Internet will develop generally. Many of the services that may be accessed through these networks are also available on a nomadic basis (i.e. access is possible at a number of locations or areas)

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<sup>47</sup> Regulation (EC) No 717/2007 of the European Parliament and of the Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC, OJ L171, 29.6.2007, p. 3.

using other technologies. The use of such alternative technologies may only offer limited mobility of access, but a significant use of mobile cellular networks also occurs in a nomadic context. At this stage these issues remain unresolved and there remains uncertainty as to whether the first criterion will apply. Moreover, it is not clear how competition will develop behind any entry barrier. For example, will 3G mobile firms attempt to create a walled garden or will they take an open approach to allowing their subscribers to use their networks to obtain or configure services?

Most of these issues can currently be dealt with only with a high degree of uncertainty. Thus, no retail or wholesale markets for data and related services are identified for the purposes of the revised draft Recommendation.

### ***Conclusion***

It is considered that the following specific market related to the provision of Voice Services provided at non-fixed locations should be included in the Recommendation:

#### ***Wholesale level***

- Voice call termination on individual mobile networks.

## **4.4. Markets related to Broadcasting Transmission**

Electronic communications services exclude services providing or exercising control over content transmitted using electronic communications networks and services. The provision of broadcasting content therefore lies outside the scope of this regulatory framework. On the other hand, the transmission of content constitutes an electronic communication service and networks used for such transmission likewise constitute electronic communications networks and therefore these services and networks are within the scope of the regulatory framework.

At the retail level, the market is characterised by the delivery of radio and television broadcasting and includes free-to-air broadcasting and pay broadcasting, as well as pay platforms and also the delivery or transmission of interactive services.

Radio and television broadcasting including free-to-air broadcasting is an example of a two-sided market where delivery platforms bring together users and providers of content, and in many cases, advertisers too. Households wish to see (or listen to) content. Free-to-air broadcasters produce content but use advertising income and/or state contribution to cover their costs. Advertisers, in turn, seek to reach households. For advertisers, a prerequisite in a free-to-air broadcaster, is that they reach the largest possible number of householders. Thus, free-to-air broadcasters are driven by the commercial need to satisfy the demands of advertisers to sign transmission agreements with any transmission platform that has been chosen by even a small (but significant) number of households. Failure to do this will result in an automatic fall in advertising revenue.

Pay broadcasters have a direct commercial relationship with the viewer (listener) as a subscriber. Similarly to free-to-air broadcasters, pay broadcasters are also interested in accessing as many transmission platforms as possible, as that maximises the number of potential subscribers.



Pay platforms aggregate free-to-air and pay channels into package offerings to the public for subscriptions and transmit this package of channels through their own platform (for example, in the case of a vertically integrated cable operator acting both as a pay platform and as a transmission service provider) or through a third party's transmission platform (for example, a satellite transmission service provider). Whereas the transmission services that a pay platform purchases (captively or on the merchant market) are electronic communications services and fall under the regulatory framework, the relationship between the individual broadcasters and the pay platform concerns a content aggregating service and does not fall under the regulatory framework.

Currently, end-users, depending on their particular circumstance, may receive radio and television broadcasting via (analogue or digital) terrestrial, (analogue or digital) cable, (analogue or digital) satellite or DSL networks. Whether services broadcast over these transmission systems potentially constitute separate retail markets or not depends on a number of factors, such as their price, the coverage or availability of the different transmission systems and the ability of end-users to switch between broadcasting or transmission platforms.

In particular, it is important to note that many households have free-to-air terrestrial broadcasts available, comprising the most popular channels or stations. In terms of TV, free-to-air terrestrial broadcasts are chosen by approximately 45% of EU households overall. Given the role of regulation – in particular ‘must-carry’, which is discussed in greater detail below – this allows households the possibility of receiving an adequate service without an on-going subscription. This may place a limit on the prices that subscription services provided over any platform can charge without losing a significant number of subscriptions.

A significant and increasing proportion of EU households are deciding to subscribe to either a satellite or cable pay platform. Across the EU 27 this amounts to about 60% of households in total. This proportion has risen from 41% in the EU-15 in the year 2000, and has increased markedly in recent years. There are individual Member States that do not exhibit such a pattern (Greece is one example). At the other extreme are Member States such as Austria, Belgium, the Netherlands and Germany, where the majority of households receive television via cable or satellite pay platform subscriptions. However, it is not clear if this trend will continue into the future as digital terrestrial platforms become more widespread and TV over DSL broadband develops or as more companies move their content “into the clear” on satellite.

Increasingly cable and satellite services carry radio broadcasts too. In addition, radio broadcasts are very often made available as live streams on the websites of radio stations.

Although satellite coverage extends to most of the area of the Member States there are often rules that inhibit the adoption of this reception technology. Local planning rules are one such example. The Commission has taken action against a number of Member States to enforce the individual's right to install a satellite dish. Indeed cable penetration is highest where such restrictions used to apply.

Satellite companies are now making arrangements to minimise inadvertent spill-over, which makes this technology a more and more attractive proposition for broadcasters as they are less likely to become embroiled in IPR disputes. This, in turn, may increase the degree of excess capacity in the satellite sector.

In all but a handful of Member States the majority of households have normally up to three potential means of receiving broadcast content. With technological developments in the area of digital terrestrial broadcasting and broadcasting over DSL networks, the number of alternative transmission channels from the point of view of households is expected to further increase. Consequently no retail market is identified for the purposes of the Recommendation. The remaining paragraphs deal with the related wholesale markets.

There are a number of reasons why it is considered appropriate to remove the existing wholesale market from the recommended list. Many of the comments received during the consultation indicated that significant market changes are underway. There is evidence of greater platform competition as the transition from analogue to digital delivery platforms occurs. One implication is that there are likely to be fewer capacity constraints on any given platform. A second is that many Member States are likely to have 3-4 competing platforms (terrestrial, satellite, cable and telecom-based) in contrast to 2-3 analogue platforms, one of which, satellite, developed much later. The transition from analogue to digital provides an impetus for platforms to compete and attract end-users, which in a two-sided market context, also means obtaining content. These changes indicate that despite the market entry barriers that may exist, the market dynamics are such that the second criterion is not satisfied.

In addition, it is necessary to consider whether potential market power problems can be addressed either by competition law (the third criterion) or indeed by other regulatory measures that are in place, in line with the principle of taking a modified greenfield approach.

Must-carry rules can be imposed under Article 31 of the Universal Service Directive (USD). Member States can impose must-carry obligations when a significant number of end users use a network as their principal means of receiving radio and television broadcasts. The approach to must-carry differs across the Community, and in some cases channels designated as must-carry have taken up a significant proportion of the available channels. However, the principle remains that perceived problems of access to transmission platforms for specified channels and services can be addressed via Article 31 USD where they meet a general interest objective.

Furthermore, according to Article 12 of the Framework Directive, where undertakings are deprived of access to viable alternatives because of the need to protect the environment, public health or public security or to meet town and country planning objectives, Member States may impose the sharing of facilities or property (including physical co-location) on an undertaking operating an electronic communications network. Such sharing or coordination arrangements may include rules for apportioning the costs of facility or property sharing.

In addition, national competition authorities have dealt with certain access problems under competition rules.

### ***Conclusion***

On the basis that the wholesale market for broadcasting transmission services to deliver broadcast content to end-users is not deemed to meet the second criterion in a majority of Member States, and on the basis that access problems related to public interest objectives can be addressed under must-carry provisions, the market is withdrawn from the recommended list.

## **5. TRANSITION TO THE NEW RECOMMENDATION**

The transition between editions of the Recommendation raises issues for all stakeholders. This is particularly the case where a market is being removed from the recommended list as this may occur during an on-going market review by an NRA, or shortly after an NRA has imposed remedies following a finding of SMP on such a market. The removal of a market from the initial Recommendation means that the Commission is of the opinion that in most circumstances this market no longer satisfies the three criteria. However, for these markets NRAs should have the power to apply the three-criteria test in order to assess whether on the basis of national circumstances a market would still be susceptible to ex ante regulation. In those cases, NRAs should append to their (new) analysis detailed reasoning outlining why, in their particular circumstances, the three criteria are satisfied.

NRAs do not have to demonstrate to the Commission that, in relation to the markets identified in this Recommendation, the three criteria are met.

An important transition aspect concerns the review of markets in this Recommendation and also of those markets which are no longer included but where remedies have already been imposed (under the initial Recommendation) commensurate with findings of SMP. Article 16(1) of the Framework Directive states that NRAs shall carry out an analysis of the relevant markets as soon as possible after the adoption of the Recommendation or any updating thereof. Allowing a regulatory measure or remedy to run its course, without risk of it being reversed mid-term, is an important element of regulatory commitment which reinforces the predictability of regulatory intervention.

The underlying principle therefore is that remedies that have been imposed should stay in place until a new market analysis is due and is undertaken. That implies that "as soon as possible" in Article 16(1) is interpreted as respecting regulatory measures that have already been notified and agreed. In addition, NRAs should undertake a new market analysis in order to maintain, amend or withdraw remedies imposed following an SMP finding, irrespective of whether the relevant market remains or has been removed from the Recommendation. For the avoidance of doubt, markets not identified in this Recommendation where remedies are in place must be reassessed in order to justify their withdrawal<sup>48</sup>. In accordance with Article 16(3) of the Framework Directive, when an NRA withdraws remedies imposed as a result of a market analysis, an appropriate period of notice shall be given to parties affected by the withdrawal of such obligations. Conversely, where no SMP has been found in a market which is no longer included in this Recommendation, NRAs have no obligation to review that market.

## **6. PUBLICATION OF THE RECOMMENDATION AND SUBSEQUENT REVISION**

The Recommendation will be periodically reviewed by the Commission depending on the speed of market developments, the period needed by NRAs to undertake market analysis, the principle set out in section 1 that the imposition of ex ante regulation to address lack of effective competition implies a degree of continuity, and the need for predictability and legal security for market players.

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<sup>48</sup> Art. 7(3) of the Access Directive.

National regulatory authorities will regularly review their market analysis on the basis of the market(s) identified in any updating of the Recommendation, as stated in Article 16 of the Framework Directive.

In reviewing this Recommendation, the Commission consulted Member States, NRAs and NCAs, and all interested parties via a public consultation.