Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework

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This document is an ERG Common Position, expressing the position of the members of the ERG. This document is a revised version of the Common Position which was approved at the ERG 8 Plenary on 1 April 2004. This revised version, which was approved at the ERG 17 Plenary on 18/19 May 2006, reflects comments received during the public consultation launched in November 2005.

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Executive summary

This document sets out the Common Position of the European Regulators Group of National Regulatory Authorities (NRAs) and the European Commission Services of DG Information Society and DG Competition on remedies under the new regulatory framework for electronic communications. It is a revised version of the Common Position (ERG (03) 30 Rev1) published in 2004 and reflects comments received during the public consultation on a revised text (ERG (05) 70 Rev1), launched in November 2005. It aims to ensure a consistent and harmonised approach to the application of remedies by NRAs in line with the Community law principle of proportionality, and with the new framework's key objectives of promoting competition, contributing to the development of the internal market and promoting the interests of EU citizens (Art 8 Framework Directive[1]). The document is organised in five chapters following the underlying logic of a remedy selection process: an introductory discussion of purpose and context is followed by (i) the identification and categorization of standard competition problems; (ii) a catalogue of the available standard remedies; (iii) the principles to guide NRAs in selecting appropriate remedies; (iv) a matching between the standard competition problems and the remedies available.

[1] Directive 2002/21/EC.

1. Purpose and context (Chapter 1)

Consistent with standard economic analysis, public policy increasingly intervenes in markets only to address clearly identified market failures or in the light of some over-riding public policy concern. In the context of the new regulatory framework, the most important market failure is that associated with market power. The underlying source of most of the competition problems related to market power in communications markets, in turn, are barriers to entry. Wherever high barriers to entry exist and where the cost and demand structure is such that it supports only a limited number of firms, incumbent undertakings may have significant market power.

The aim of the new regulatory framework is to provide a harmonised approach for the regulation of electronic communications that will result in sustainable competition, interoperability of services and provide consumer benefits.

The imposition of remedies represents the third stage of the process set out in the new regulatory framework with respect to regulatory obligations linked to significant market power.[2] The three steps are the following.

Market Definition: NRAs define markets susceptible to ex ante regulation, appropriate to national circumstances. In order to filter or select from the large number of markets, which could be defined at the first stage, the Commission has identified three criteria: [3]

- High and non-transitory entry barriers;
- The dynamic state of competitiveness behind entry barriers; and
- The sufficiency of competition law (absent ex ante regulation).

The three criteria, which are described in the Recommendation, were and will be used by the European Commission and the NRAs to identify those markets the characteristics of which may be such as to justify the imposition of regulatory obligations set out in the specific Directives.[4] Thus, there is a presumption that ex ante regulation is appropriate on the 18 markets in the Recommendation if a position of SMP is found. It is therefore not necessary for national authorities themselves to determine whether competition law by itself would be sufficient to deal with competition problems in the markets included in the Recommendation.

2. *Market analysis* represents the second stage. Once a market is defined (which implies a specific action by a NRA), it must be analysed to assess the degree of competition on that market in a manner consistent with the SMP Guidelines.[5] NRAs will intervene to impose obligations on undertakings only where the markets are considered not to be effectively competitive as a result of such undertakings being in a position equivalent to dominance within the meaning of Article 82 of the EC Treaty.[6]

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2 Directive 2002/21/EC, Arts 15 and 16.

3 Commission Recommendation on relevant markets, OJ 8.5.2003 L 114/45.

4 Directive 2002/21/EC, Article 15.

5 Commission Guidelines on market analysis and assessment of significant market power under the Community regulatory framework for electronic communications networks and services 2002/C 165/03

6 Treaty establishing the European Community OJ 2002 C325/33. Article 82 prohibits abuse of dominant position within a common market or in a substantial part of it.

Remedies: Where market analysis reveals that competition on the market is not effective, and the NRA designates one or more operators as having SMP on that market, at least one appropriate ex ante remedy must be applied;[7] this is the third and final stage.

The three stage process enables regulation to be re-focussed on areas where it is actually required. It also follows the logic of NRAs' decision making when selecting a remedy to address an identified competition problem. This has numerous benefits over the previous framework where markets were defined, SMP established and remedies imposed rather mechanistically while the new framework enables regulation to be re-focussed on areas where it is actually required. Throughout the document it is assumed that the markets under consideration have satisfied the first two stages of the process.

Policy objectives and regulatory principles for NRAs are set out in Art 8 of the Framework Directive. These objectives are to:

- Promote competition
- Contribute to the development of the internal market
- Promote the interests of the citizens of the European Union

These goals are reflected in the remedies from the Access Directive and the Universal Service Directive which together should allow NRAs to pursue these goals in a balanced manner.

2. Standard competition problems (Chapter 2)

In the field of sector-specific ex ante regulation, national regulatory authorities will have to deal with undertakings which have significant market power (SMP) on one or several communications markets. In such situations, the following problems may arise: The dominant undertaking may attempt to drive competitors out of the SMP market or a related market and the dominant undertaking may engage in practices which are otherwise to the detriment of end users, such as excessive pricing, the provision of low quality, and inefficient production. The four basic market constellations relevant to such competition problems are:

Vertical leveraging: This applies where a dominant firm seeks to extend its market power from a wholesale market to a vertically related wholesale or retail market. *Horizontal leveraging*: This applies where an SMP operator seeks to extend its market power to another market that is not vertically related.

- *Single market dominance:* The problems which may occur within the context of a single market are entry deterrence, exploitative pricing practices, and productive inefficiencies.
- *Termination (Two-way access):* This relates to the link between price setting in termination markets and in the related retail markets that may be competitive.

[7] Directive 2002/21/EC, Article 16.

Using this typology, 27 potential competition problems are described. Each of these competition problems may be identified in the course of the market analysis as a problem that has to be addressed by the NRA. Of course, not all problems will arise in every case in practice. This list of competition problems is a guide only and does not preclude NRAs from identifying other potential problems.

3. Standard remedies (Chapter 3)

The standard remedies provided by the new regulatory framework are set out in articles 9 to 13 of the Access Directive and 17 to 19 of the Universal Service Directive.

The following *wholesale* obligations are set out in the Access Directive:

- Transparency
- Non-discrimination
- Accounting separation
- Access
- Price control and cost accounting

In addition, the Access Directive enables NRAs to impose remedies other than the standard remedies enumerated in the Directive in exceptional circumstances. These exceptional remedies are not covered by the present document.

The list of possible *retail* obligations mentioned in the Universal Service Directive is not exhaustive. However, it includes specific mentioning of the prohibition of excessive or predatory pricing, undue price discrimination or unreasonable bundling of services, which may be implemented inter alia by means of price caps or individual price controls. Regulatory controls on retail services can only be imposed where relevant wholesale or related measures would fail to achieve the objective of ensuring effective competition.

4. Principles for imposing remedies (Chapter 4)

Article 8 of the Access Directive requires that remedies must be based on the underlying (competition) problem identified, proportionate and justified in light of the objectives set out for NRAs in Article 8 of the Framework Directive.[8] The purpose of this chapter is to put flesh on these concepts and to give guidance to NRAs on how to fulfil the aims of the framework while, at the same time, respecting these requirements.

The first principle is that the NRA must produce reasoned decisions in line with their obligations under the Directives. This incorporates the need that the remedy selected be based on the nature of the problem identified. The problem(s) in the market will have already been identified in the market analysis procedure. Decisions must include a discussion on the proportionality of the remedy. These decisions should include, for any given problem, consideration of alternative remedies where possible, so that the

[8] Directive 2002/19/EC. Article 8 of Directive 2002/21/EC (the Framework Directive) sets out the objectives of the NRA, which are to promote competition, to contribute to the development of the internal market and to promote the interests of EU citizens.

least burdensome effective remedy can be selected. The decisions should also take into account the potential effect of the proposed remedies on related markets.

A second principle is that where infrastructure competition is not likely to be feasible, due to the persistent presence of bottlenecks associated with significant economies of scale or scope or other entry restrictions, NRAs will need to ensure that there is sufficient access to wholesale inputs. Thus, consumers may enjoy the maximum benefits possible. In this instance, NRAs should also protect against the potential behavioural abuses that might occur.

A third principle is that, where as part of the market definition and analysis process, replication of the incumbent's infrastructure is viewed as feasible, the available remedies should assist in the transition process to a sustainable competitive market.[9] Where there is sufficient certainty that replication is feasible these markets should be treated in an analogous manner to those markets where replication is known to be feasible. In other cases with more marked uncertainty the NRA should keep an open mind and engage in on-going monitoring and discussion with the industry to continually re-assess their views.

A fourth principle is that remedies should be designed, where possible, to be incentive compatible. Thus, NRAs should, wherever possible, formulate remedies in such a way that the advantages to the regulated party of compliance outweigh the benefits of evasion. Incentive compatible remedies are likely to be both effective and require a minimum of on-going regulatory intervention. This may be difficult to achieve in practice, especially as the legal power to develop incentives for compliance is likely to vary greatly across Member States.

5. Matching remedies to competition problems (Chapter 5)

This final chapter attempts to match the remedies available to NRAs as set out in Chapter 3 to the standard competition problems identified in Chapter 2. Underlying this match are the general principles as discussed in Chapter 4. The analysis of the chapter is made on a general level, abstracting from conditions which NRAs usually will face and will have to take into account when taking decisions about remedies. Therefore, the conclusions drawn should not be seen as advocating a mechanistic approach or preclude NRAs from coming to different conclusions based on their market analysis. This summary does not intend to give an overview of this exercise for all the 27 problems which have been identified, but will only highlight the most important issues.

When imposing *ex ante* remedies NRAs frequently cannot actually observe a certain type of anti-competitive behaviour but will have to anticipate the appearance of a particular competition problem based on the incentives of an SMP undertaking to engage in such behaviour which in turn will be investigated in the market analysis. However as the imposition of remedies will follow the market definition and market analysis stage, regulators will have detailed market knowledge, and, where a market is not effectively competitive, will have determined SMP and identified the source of market power as well as actual and potential competition problems.

9 When referring to replication in this document, what is really being referred to is other infrastructure that is capable of delivering the same services. Thus, the replication needs not be on the basis of the same technology and, even if it is, there is no assumption that it will be configured in the same manner.

If markets have the characteristics of natural monopolies (significant economies of scale and/or scope at the relevant level of output) and significant barriers to entry exist (e.g. because of large sunk costs), effective competition is unlikely to emerge on its own, and regulators will have to deal directly with the adverse effects of market power, such as excessive pricing, price discrimination, lack of investment, inefficiencies, and low quality. In other markets, where no significant economies of scale or scope, and only limited structural (and thus exogenous) barriers to entry exist, concerns about the market power are reduced, however, SMP positions may result from endogenous barriers to entry, i.e., barriers to entry following from the behaviour of the dominant undertaking (foreclosure). In such cases, the NRA is called upon to prevent such behaviour in order to promote market entry and enable competition to develop.

In order to promote sustainable, infrastructure-based competition, NRAs have to set investment incentives such that the dominant undertaking's infrastructure is replicated wherever this is technically feasible and economically efficient within a reasonable period of time. Investment incentives are particularly relevant in the context of access regulation. By the decision as to if and on which level of the infrastructure access has to be provided by the SMP undertaking and by setting the access price, NRAs will influence investment incentives of both the SMP undertaking and alternative operators. Given that the cost structure and investment incentives of alternative operators are likely to change over time as they develop their trademark and a customer base, NRAs may consider to give them the possibility to take their investments in a step-by-step manner. This approach, where two or more access products at different levels of the network hierarchy are simultaneously available to alternative operators has been called the 'ladder of investment'.

If there is sufficient certainty that efficient replication is possible, NRAs may signal in their reviews that they view some remedies as bridging a gap and/or consider adopting dynamic access pricing rules in order to promote investments. By changing the incentive properties of regulation over time, NRAs can induce operators to 'climb the ladder', which will in the long run allow them to phase out regulation in those markets where replication has occurred.

Where uncertainty about replicability exists, NRAs will have to weigh the benefits of infrastructure competition against the risk of inefficient duplication and the risk of having neither infrastructure nor service competition in the end, if replication does not occur. Wherever the latter is likely to prevail, NRAs should adopt a more 'neutral' approach, set the prices for the relevant access products at some measure of costs, monitor the market outcome and keep up discussion with the industry. Investment incentives may also change over time due to market dynamics, leading to replication without additional regulatory incentives. In segments where infrastructure competition is unlikely to develop, NRAs should set the access price such that the incumbent has incentives to maintain and upgrade its network while at the same time ensuring efficient entry at the retail level.

With regard to emerging markets, which as such will usually not be subject to ex ante regulation, there may be the need for regulatory action if a failure to act will lead to the complete foreclosure of the emerging market. This can occur where the emerging market depends upon inputs that cannot be replicated or substituted within a reasonable period of time. In these circumstances, there may be grounds for early regulatory intervention in the market from which the market power could be leveraged to guarantee access to this input in the normal manner, in order to allow competition to develop in the emerging market. In this way, the distinct nature of the emerging market is maintained whilst at the same time preventing foreclosure by applying regulation only on the necessary input market.

Another important issue which is dealt with is the question of the regulatory approach to termination rates. Where there is a danger that an SMP operator on a termination market exploits its market power to set above cost termination rates resulting into distorted pricing structures, NRAs may consider the obligation of transparency, non-discrimination or price control to address the problem. Although transparency may in some cases lead to increased customer awareness, and non-discrimination would make the costs of terminating on-net calls visible, both remedies do not address the problem directly, and therefore in most cases are likely to be inappropriate.

An obligation by which the termination charge can be targeted directly is by setting a cost-oriented price based on a price control and cost accounting obligation. This may have to be backed by an obligation of accounting separation. With a cost-oriented access price, excessive pricing is made impossible and distortions are reduced. In cases where an immediate implementation of charge control that sets charges at the competitive level could cause disproportionate problems for operators on the relevant market, NRAs may apply a price cap system or a glide path to achieve a competitive level over a reasonable period of years.

In cases where different remedies are considered appropriate in order to allow for cost differences due to different economies of scale and the ability to reach economies of scale, this may lead to using glide path schemes or delayed reciprocity. While in principle the same considerations apply in the case of both fixed and mobile termination, the nature of the market dynamic and the ability to reach minimum efficient scale may in practice lead to different outcomes with regard to the appropriate period of any possible glide path. Nevertheless, where glide paths are to be used, NRAs should construct glide paths which encourage greater efficiency over time.

6. Conclusion

While NRAs have to protect consumers against exploitative behaviour and inefficiencies where significant market power exists, the ultimate goal is to promote self-sustaining competition and to focus regulation on those parts of the market where the replication of the incumbent's assets is infeasible or economically undesirable. NRAs can pursue this goal by preventing the SMP undertaking from leveraging its market power into potentially competitive markets and by designing access products and access prices such that incumbents and alternative operators face – over time – the right incentives to invest.

1. Purpose and Context

This document sets out the common position of the European Regulators Group (ERG), which has been prepared in close cooperation with the European Commission Services in Directorate General Information Society and Media, and Directorate General Competition, on remedies imposed on firms that have been designated to have significant market power (SMP) in specific markets under the new regulatory framework. The document only deals with obligations for which an SMP designation is a necessary precondition and situations where ex ante regulation is needed, given that the sufficiency of ex post intervention has already been considered.

The aim of this document is to set out the views of national regulatory authorities (NRAs) on imposing remedies in a manner that contributes to the development of the internal market and ensures a consistent application of the new regulatory framework. Under the new regulatory framework NRAs have been set the objective of contributing to the development of the internal market. This document is one of the concrete steps that they are taking to fulfil this obligation.

This document is part of a process of seeking to agree on the instruments and remedies that are best suited to address particular types of situations on the market place. In this, NRAs are required to co-operate with each other and with the Commission in a transparent manner to ensure consistent application, in all Member States, of the new regulatory framework.[10]

It is a living document that will be updated regularly in the light of developments in the marketplace and the experience that NRAs accumulate in applying remedies.

1.1 Background

Before delving into the detail of the new regulatory framework and how remedies are applied to firms with SMP in specific markets, it is worthwhile to re-state the reasons why (and how) policymakers intervene in markets.

Consistent with standard economic analysis, public policy increasingly intervenes in markets only to address clearly identified market failures or in the light of some over-riding public policy concern. In the context of the new framework the most important market failure is that associated with market power. Policymakers are concerned with market power as it allows firms to act independently of other players on the market, its suppliers and its customers. Narrowly defined, market power is the ability to raise prices above the competitive level.

Under EC competition law market power is addressed in a number of ways. Firstly, there is *ex post* control via the abuse of a dominant position provisions under Article 82 of the Treaty. This involves a three stage process of defining the relevant market, determining that a position of dominance is held on this market and finally an assessment of whether an actual abuse has occurred. Thus, Article 82 EC is about placing controls on market

10 Directive 2002/21/EC, Arts 7.2 and 8.3(d).

power that currently exists.[11] Competition cases, including those involving dominance, must always be seen as case specific. Competition policy also serves to act prospectively through merger regulation to stop a dominant position on a market emerging (or a position of dominance being extended) that would likely lead to a serious detriment to consumers.[12] This intervention, which is a once-off intervention, can be in the form of allowing the merger through with conditions or in exceptional cases outright prohibition. Generally the provisions of EC competition law apply across all sectors of the economy.

In key sectors of the economy, such as telecommunications and energy, the entrenched privileged position of the previously state owned vertically integrated monopolies presents a particular challenge. These companies started out with a monopoly on certain key infrastructures that are necessary in order to deliver services to consumers. Given the complexity of these networks, and given that under the liberalisation policy there exists the need to mandate access, to set and regulate tariffs, policymakers have from the outset of liberalisation of electronic communications networks and services decided that until effective competition emerges, the competition issues in these markets are best tackled through a combination of *ex ante* sector specific regulation and *ex post* application of the competition rules.

Economic theory and technological development have challenged the former assumption that these services could only be delivered by a vertically integrated monopoly. It is now recognised that not only is competition feasible in many of the layers of the value chain but that this competition delivers static and dynamic benefits to consumers.

Under the previous EU framework, the legislation itself directly defined the markets, set a strict and mechanistic rule for defining an operator as having SMP (i.e. 25% market share), and identified the remedies to be imposed. The main innovation of the new framework is to intrinsically link regulation to the concepts and principles of competition law in the EU. This means that the remedies have to be determined by the NRAs, taking into account the principle of proportionality, depending on the specific circumstances at hand. This reflects the importance of the role of economic analysis in being capable to identify the types of competition problems and the remedies to these problems in an effective and self-sustaining manner. Hence, regulation under the new framework is imposed on relevant markets that are defined consistent with economic theory and competition law practice when a firm (or a set of firms) have a position equivalent to dominance on this market (SMP). Thus, the absence of dominance is the trigger for removing obligations. The trigger is the same as for assessing dominance under Article 82 of the Treaty but the analysis is prospective. Unlike the regulation of mergers, ex ante regulation involves on-going reviews so that remedies can be tailored in the light of experience.

The underlying source of most of the competition problems related to market power in communications markets are barriers to entry. Where such barriers do not exist or are sufficiently low, actual or potential market entry will lead to a situation of overall allocative and productive efficiency with prices following costs at a socially desired level of output. However, these circumstances rarely exist in communications markets, as barriers to entry, which may be either structural or legal/regulatory, exist in many areas. These

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[11] Article 81 of the Treaty controls agreements or other practices (e.g. a cartel), which have the object or the effect of preventing, restricting or distorting competition.

[12] The proposed standard that will apply from the 1st of May 2004 is that a merger must not significantly impede effective competition on the market.

barriers have been identified in the Commission Recommendation[13] as the first (of three cumulatively applied) criteria when deciding whether a market could be considered relevant for ex ante regulation.

Structural barriers - according to the Recommendation – '... exist when the state of the technology, and its associated cost structure, as well as the level of the 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 substantial economies of scale, scope and density and high sunk cost.'[14]

Legal or regulatory barriers to entry, on the other hand, '... are not based on economic conditions, but may 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. One example is the case of a legal limit on the number of undertakings that have access to spectrum. Such a 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 licences given to undertakings seeking to enter a market. 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.'[15]

NRAs can, by means of the remedies of the new regulatory framework, address certain aspects of market structure, such as barriers to entry. The structural barriers which are mentioned in the Commission Recommendation (economies of scale, scope and density; sunk costs), however, are factors which cannot be influenced by regulatory intervention, and in any case necessitate of long periods of time to be influenced. The new regulatory framework and other obligations on Member States (which were already part of the previous ONP-framework) also aim to limit legal and/or regulatory barriers (e.g. through general authorisation, frequency trading or a stronger requirement to harmonise).

Wherever high barriers to entry exist and where the cost and demand structure is such that it supports only a limited number of firms,[16] incumbent undertakings may have significant market power. Under such circumstances, three issues arise for the regulator: First, the dominant undertaking may attempt to transfer (leverage) its market power to an adjacent vertically or horizontally related market; second, the undertaking may engage in practices to defend its SMP market; and finally it might engage in what might be called 'textbook monopoly behaviour', such as excessive pricing, the provision of low quality, and inefficient production.

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13 Commission Recommendation of 11 February 2003 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, OJ 8.5.2003 L 114/45. Henceforth referred to as Commission Recommendation on relevant markets.

14 Commission Recommendation on relevant markets, p. 10.

15 Commission Recommendation on relevant markets, p. 11.

16 In the extreme case, the cost and demand structure supports only a single undertaking, which is referred to as the case of natural monopoly (or a sub-additive cost structure).

1.2 The new regulatory framework

The aim of the Directives is to achieve a harmonised framework for the regulation of electronic communications that will result in sustainable competition, interoperability of services and provide consumer benefits.

The new framework operates on the basis of technological neutrality and draws upon competition law principles. It is a major step in the transition path between the vertically integrated monopolies of the past and the normal competition process (governed exclusively, where appropriate, by competition law). Member States can proceed at a speed determined by conditions in their own market, whilst at the same time applying the uniform framework that is necessary for the functioning of the internal market.

The scope of the new framework is all electronic communications products and services.

1.2.1 Remedies in the context of the new regulatory framework

The imposition of remedies represents the third stage of the process set out in the new regulatory framework (with respect to regulatory obligations linked to significant market power – SMP).[17] The three steps are summarised below. Remedies can be imposed on firms with SMP in specified markets under both the Access Directive and (in specific circumstances) under the Universal Service Directive.

1. Market Definition: NRAs define markets susceptible to *ex ante* regulation, appropriate to national circumstances. In so doing, they must take the utmost account of the markets identified in the Commission Recommendation on relevant markets.[18]

In order to filter or select from the large number of markets, which could be defined at the first stage, the Commission has identified three criteria. The three criteria which are described in the Recommendation to identify the markets the characteristics of which may be such as to justify the imposition of regulatory obligations set out in the Specific Directives[19] are:

- High and non-transitory entry barriers;
- The dynamic state of competitiveness behind entry barriers; and
- The sufficiency of competition law (absent *ex ante* regulation).

These three criteria were used by the Commission in identifying markets in the current Recommendation and will be used in future versions of the Recommendation. Thus, there is a presumption that *ex ante* regulation is appropriate on the 18 markets in the Recommendation if a position of SMP is found. It is therefore not necessary for national authorities themselves to determine whether competition law by itself would be sufficient to deal with competition issues in the markets included in the Recommendation. NRAs must however apply all three criteria when determining whether a market not included in the Recommendation, or otherwise defined with respect to those included in the Recommendation, should be considered eligible for *ex ante* regulation. Accordingly, the

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17 Directive 2002/21/EC, Arts 15 and 16.

18 Commission Recommendation on relevant markets, OJ 8.5.2003 L 114/45

19 Directive 2002/21/EC, Article 15.

Commission will also use these criteria when NRAs notify markets that differ from those in the Recommendation.

Textbox 1: Emerging markets

The concept of an emerging market is introduced in the Framework Directive, where it says that although the "*de facto* the market leader is likely to have a substantial market share" it "should not be subject to inappropriate obligations[20]". In the SMP Guidelines it is made clear that in the case of emerging markets a more flexible approach is warranted as the premature imposition of *ex ante* regulation may unduly influence the competitive conditions taking shape within a new and emerging market[21]. Furthermore, the Guidelines note that Article 14 (3) of the Framework Directive (leveraging of an undertaking with significant market power) is not intended to apply in relation to market power leveraged from a "regulated" market into an emerging, "non regulated" market. Any abusive conduct in an emerging market will normally be dealt with under the dominance provisions of Article 82 of the Treaty[22]. At the same time, to the extent that there is a real threat of market power being leveraged, foreclosure of such emerging markets by the leading undertaking should be prevented through effective regulation of the market(s) from which market power may be leveraged.

In the Recommendation on relevant markets the Commission outlines the markets that are susceptible to *ex ante* regulation[23]. If a market is to be subject to regulation it must be a properly defined market in accordance with the principles of competition law, as explained in the Commission's Notice on Market Definition[24]. This also applies to an emerging market. An emerging market must also be distinct from a market that is already susceptible to *ex ante* regulation from both a demand and a supply perspective. This means that consumers of the new service should not move their custom to currently available services, in response to a small but significant non-transitory increase in the price of the new service. In a similar manner, firms currently providing existing services should not be in a position to quickly enter the new service market in response to such a price increase[25]. For example, the mere bundling of distinct retail products does not in itself give rise to the existence of a new retail product belonging to a separate market.

Correct application of the regulatory framework does not require NRAs to assess whether or not a particular market which is being considered for ex-ante regulation is "emerging". This is because, in the Commission's view, its three criteria provide the definitive test of the susceptibility of a market to ex-ante regulation. These criteria, that must be satisfied cumulatively, are that there are high and non-transitory entry barriers, that there is no dynamic behind the entry barriers towards effective competition and that competition law on its own is not sufficient to remedy

[20] Directive 2002/21/EC, Recital 27.

[21] This paragraph draws heavily from the Commission Guidelines on market analysis and the assessment of significant market power, 2002/C 165/03, paragraphs 83-85.

[22] Commission Guidelines on market analysis and the assessment of SMP, footnote 92.

[23] 2003/311/EC.

[24] OJ C 372, 9.12.1997.

[25] In such a case, it would not be possible to sustain a definition different from a currently regulated market.

the problem. There is no generally accepted definition of an “emerging market”. But in the view of ERG, the distinguishing feature of such a market is that it is immature which implies that there is high degree of demand uncertainty and entrants to the market bear higher risk. Where these characteristics are present, it will not be possible to make definitive findings on whether or not the three criteria are met in relation to the emerging market.. Even if a firm makes non-trivial investments to be able to provide a new service, there is no guarantee that, in an innovative and fast moving sector, a cheaper alternative mechanism for delivering the service will not be found. It is also difficult to assess the dynamic of competition behind any entry barrier, as many potential entrants will not make firm plans to enter a new service area until the market is seen to be a commercial proposition. Many new initiatives on the marketplace fail but successful ones create incentives for other firms to enter the market. In discussing the second criteria, in the Explanatory Memorandum to the Recommendation, it is stated that “entry barriers may also become less relevant with regard to innovation-driven markets characterised by ongoing technological progress. In such markets, competitive constraints often come from innovative threats from potential competitors that are not currently in the market. In such innovation-driven markets, dynamic or longer term competition can take place among firms that are not necessarily competitors in an existing “static” market.” It is only with the elapse of a sufficient amount of time that these questions can be answered.

There are however two other important points to be made concerning emerging markets. While robust assessment of the three criteria may not be possible early on, close monitoring of the situation by NRAs is appropriate. This is particularly important in situations where emerging markets are in some way linked to established markets on which there is SMP, for instance where entry into an emerging market depends upon inputs of the SMP market that cannot be replicated or substituted within a reasonable period of time (see section 5.2.2.3).

Second, it is by no means the case that every new service offer or every large investment constitutes an emerging market. For example, a technological upgrade to an existing network which will be used mainly to provide equivalent or incrementally improved services to the situation before the upgrade, is unlikely to affect the application of the three criteria. Moreover, a mere upgrade of an existing service is not considered in itself to constitute a new market[26]. If the relevant markets were susceptible to ex-ante regulation before the upgrade, that is likely to remain the case.

An example of an emerging market could be the future provision of next generation mobile broadband data services. In such markets operators would provide end users with access to the Internet through a fast connection and with the added feature of mobility. As is said in the Explanatory Memorandum to the Commission’s Recommendation on relevant markets, many important issues in these markets “can currently be dealt with only with a high degree of uncertainty”. On this basis no retail or wholesale markets in this area were identified in the Recommendation.

[26] See Commission’s comments in case DE/2005/0262.

2. Market analysis represents the second stage. Once a market is defined (which implies a specific action by a NRA), it must be analysed to assess the degree of competition on that market in a manner consistent with the SMP Guidelines.[27] NRAs will intervene to impose obligations on undertakings only where the markets are considered not to be effectively competitive as a result of such undertakings being in a position equivalent to dominance within the meaning of Article 82 of the EC Treaty.[28] The notion of dominance has been defined in the case-law of the Court of Justice as a position of economic strength affording an undertaking the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.

3. Remedies: Where market analysis reveals that competition on the market is not effective, and the NRA designates one or more operators as having SMP on that market, at least one appropriate ex ante remedy must be applied;[29] this is the third and final stage.

Throughout the remainder of this document it is assumed that the markets under consideration have satisfied the first two stages of the process. This is without prejudice to the analysis that individual NRAs will undertake. Nor does this necessarily mean that a market identified in the Recommendation will be always characterised by the existence of SMP. However, satisfying the tests set out at step 1 and 2 does establish the presumption that some form of *ex ante* regulation is warranted, and that therefore at least one remedy will have to be applied to the undertaking(s) identified as having SMP.

The definition of markets susceptible to *ex ante* regulation (stage 1) is distinct from the assessment of effective competition in individual markets (stage 2). It is also distinct from the application of remedies in particular markets (stage 3). This document is intended to assist NRAs in stage 3 and complements guidance already provided by the Commission on stages 1 and 2.[30] There will nevertheless be a strong relationship between each of the three stages. For example, the effects of remedies will be monitored and evaluated in future market reviews, and when assessing whether a market is effectively competitive the effects of existing remedies should be taken into account.

This document analyses remedies issues on a general level, abstracting from conditions which NRAs usually will face and will have to take into account when taking their decisions. Therefore the conclusions drawn should be viewed as guidelines and in no way aim at advocating a mechanistic approach or preclude NRAs from coming to different conclusions based on a thorough market analysis and taking into account the particular circumstances at hand.

The three stage process enables regulation to be re-focussed on areas where it is actually required. It also follows the logic of NRAs' decision making when selecting a remedy to address an identified competition problem. This has numerous benefits over the previous framework where markets were defined, SMP established and remedies imposed mechanistically. The old framework was designed for opening communications markets for competition, but, as competition develops in many areas, would run the risk of both regulating where it was not necessary and of not regulating where it was necessary.

27 Commission Guidelines on market analysis and the assessment of significant market power, 2002/C 165/03

28 Treaty establishing the European Community OJ 2002 C325/33. Article 82 prohibits abuse of dominant position within a common market or in a substantial part of it.

29 Directive 2002/21/EC, Art 16.

30 Directive 2002/21/EC, Arts 15 & 16.

Both of these errors are harmful to welfare, both from the point of view of producers and from that of consumers. Under the new framework, the goal is to first re-focus regulation on where it is truly required and then to regulate so as to deliver sustainable effective competition over the medium term, where this possible.

A consequence of the approach taken by the new framework is that it is consistent with competition law, the economic principles of which are of universal validity. Thus the new framework, when applied properly, ensures that regulation will target only those markets and those situations where it is strictly needed. In particular, any perceived proliferation of markets to be subject to ex ante regulation is readily apparent. While under the old framework entire areas of the economy were subject to the same level of regulation, under the new framework each market will be subject to an appropriate regulatory response to specific, clearly identified problems. The result is that the overall level of regulation will be, with time, lower, more targeted at the competition problems, and conducive to a situation in which regulation will be needed increasingly less.

The new framework comes with a not insignificant set-up cost, but this cost will ultimately result in greater benefits from the re-focussing of regulation at a finer level of granularity. The new framework will continue to pay off into the future as effective competition becomes established and more and more markets are freed from ex ante regulation. As such it facilitates the transition to ex post controls based on general competition law, as markets where sustainable effective competition has taken hold are identified in periodic reviews and removed from the scope *of ex ante* regulation.

1.2.2 The objectives of NRAs

As set out in Article 8 of the Access Directive, obligations must be based on the nature of the problem identified, proportionate and justified in light of the objectives of NRAs as outlined in the Framework Directive. The same applies to those particular circumstances under Article 17(2) of the Universal Service Directive where obligations can be placed on a retail market. These objectives are to:

- *Promote competition* in the provision of electronic communications networks, electronic communications services and associated facilities and services facilities. This can be achieved *inter alia* by ensuring the best price, choice and quality for consumers through effective competition, efficient investment in infrastructure and resource management;

- *Contribute to the development of the internal market*. This can be achieved *inter alia* by removing obstacles to pan European networks and services and ensuring a consistent regulatory practice across the community; and to

- *Promote the interests of the citizens of the European Union.* This can be achieved *inter alia* by ensuring universal access and protecting the rights of consumers and in particular those with special needs. The Universal Service Directive sets out the powers that NRAs have to ensure that these objectives are met.

These goals are reflected in the remedies from the Access Directive and the Universal Service Directive to different degrees. Whereas the Access Directive primarily focuses on promoting competition (from a static as well as from a dynamic point of view by encouraging efficient investment and innovation), consumer interests and the internal market are at the heart of the Universal Service Directive. However, the borders between the two are blurred to the extent that promoting competition will, in general, lead to lower prices, better quality, more innovation and more variety, which is in the consumer's best interest, whereas the instruments of the Universal Service Directive also have the effect of promoting competition.

The whole process of consistent application of the framework and harmonisation is how NRAs ensure that they are meeting the objective to contribute to the development of the internal market. Ensuring the consistency of regulatory practice across the EU is the responsibility of each NRA, subject to particular conditions in national markets. NRAs should co-operate with each other and with the Commission in a transparent manner to ensure consistent application of the framework in all Member States.[31]

In particular, as outlined in Articles 7(2) and 8(3)d of the Framework Directive, NRAs shall seek to agree on the types of instruments and remedies best suited to address particular types of situations in the market place, and shall cooperate in a transparent manner to ensure the development of consistent regulatory practice and application of the Directives. This Common Position is an effort to ensure such consistency of approaches in relation to remedies. Thus, the production of the Common Position is part of the process of NRAs contributing to the development of the internal market. However, specific national circumstances may arise which could justify a different approach to the application of remedies in individual cases. In such cases NRAs shall set out the reasons for their approach. As with all proposed remedies, any such approach will be subject to the notification and consultation procedures of Article 7.[32]

The earlier stages of market definition and market analysis are already harmonised. This has been achieved through the Commission Guidelines on market analysis and SMP and the Commission Recommendation on relevant markets. All market reviews are subject to the Article 7 procedure.[33]

In some instances the impact of a particular measure may be felt in other Member States. In these instances, NRAs should be mindful of the potential to cause a distortion of trade, given their duty to contribute to the development of the internal market.[34] The European Regulators Group (ERG) was specifically set up in order to deal with this and other issues.[35] Thus, in addition to the processes outlined in Article 7 of the Framework Directive, NRAs (through the ERG) should remain in close contact with each other (and with the Commission) when they are considering regulatory measures that have the potential to influence the pattern of trade between Member States in a manner that might create a barrier to the single market.

31 Directive 2002/21/EC, Article 7.
32 Although remedies are not subject to the veto power of the European Commission.
33 Under the terms of Article 7, national regulation authorities are required to notify the Commission when they seek to define a new market and for each designation of an operator who occupies a dominant position when this would affect trade between Member States. All other NRAs are also consulted.
34 Article 8(3) of the Framework Directive [Directive 2002/21/EC].
35 Article 3, Commission Decision 2002/627/EC.

1.3 The structure of the document

This document is not based on abstract economic analysis alone, but also on reports and studies informed by market data and by the combined practical experience of the NRAs with competition problems in their respective markets, and with the means best suited to resolving these problems. This is only the first version of what must be regarded as a living document. This document will be revised continually in the light of the experience that NRAs gain in applying remedies and on the basis of developments in the market place. The ERG's work programme for 2004 envisages that this process of review of this document will start as early as the last quarter of 2004.

The rest of the document is structured along four Chapters, which follow the logic of an NRA's approach with regard to remedies: Chapter 2 reviews the areas where, through experience and from reviewing the economic literature, issues of market power arise in relations to communications networks and services markets. This chapter abstracts from the Recommendation on relevant markets and highlights what problems are likely to be raised on these markets. Chapter 3 summarises briefly for reference purposes the available remedies. Chapter 4 expounds a set of over-arching principles that NRAs will use in applying remedies. This chapter sets out how NRAs can best achieve their objectives under the new framework in selecting remedies to tackle SMP. The final chapter integrates the work of the previous chapters of the document and gives a detailed overview of the likely reasoning that an NRA may undertake in a particular circumstance. This guidance is provided at a very high level as the examples considered lack the rich context that normal market analyses in Member States throw up. Thus, the final chapter should be used as a guide to analysis rather than any definitive statement.

2 Generalization of competition problems

2.1 Introduction

This chapter aims to provide an analytical framework within which competition problems of the communications sector can be described and classified. The term ‘competition problem’ here refers to any practice of an SMP[36] undertaking which is aimed either at driving competitors out of the market (or prevent them from entering the market) or at exploiting consumers. As the imposition of remedies in the new regulatory framework does not presuppose that an abuse of market power has actually occurred, the problems identified should be regarded as potential or possible competition problems which can be assumed to emerge under particular circumstances.

The remedy-discussion in the following chapters, however, does not assume that each of the problems automatically occurs in a particular situation. Rather, Chapter 5 includes an incentive-discussion on a general level, where the incentives of an SMP operator to engage in a certain type of exclusionary or exploitative behaviour are elaborated. Of course, regulatory intervention will always have to be based on the particular (national) circumstances at hand, which are identified in the course of a detailed market analysis but are beyond the scope of this document.

Within the framework, 27 standard competition problems are identified. Such a classification should allow – in a second step, dealt with in Chapter 5 – to match these standard competition problems to standard remedies of the new regulatory framework. The framework focuses on the behavioural dimension of competition problems, as it is above all the behaviour of a dominant undertaking which can be addressed by the remedies of the new regulatory framework. However, this does not mean that structural or legal/regulatory barriers to entry as described in Chapter 1 will not be taken into account in the following consideration nor does it mean that they are not relevant when NRAs make their decisions on regulatory intervention. In order to impose the least burdensome and most effective remedy based on the principles set out in Chapter 4, it is essential to identify the source of market power, giving rise to the existence of a particular competition problem. This is only possible if the NRA is aware of structural and/or regulatory barriers to entry in a particular market.

This chapter is structured as follows: First, the framework within which the standard competition problems are classified will be explained. Second, the identified competition problems as well as the effects they may entail will be described in detail.

The framework is quite general and might not only be suited to deal with the ‘old, well-known’ competition problems with all their peculiarities, but might also prove helpful when approaching new unforeseen ones. It is an analytical approach and does not only aim at providing a classification scheme but also at unravelling relations and causalities between certain types of behaviour and phenomena commonly referred to as ‘competition problems’.

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36 The notion of SMP in the context of this document must not be confused with the notion of SMP in the ONP framework, where an SMP position automatically triggered a series of remedies. As argued in Chapter 3 of this document, remedies under the new framework will always have to be based on the nature of the problem identified, proportionate and justified. Also SMP is now defined as dominance in line with the European Jurisprudence.

2.2 The classification framework

In the field of sector-specific ex ante regulation, national regulatory authorities will have to deal with undertakings which have significant market power (SMP) on one or several communications markets. Three kinds of problems may arise in such situations: First, the dominant undertaking may attempt to transfer (leverage) its market power to an adjacent vertically or horizontally related market; second, the undertaking may engage in practices to defend its SMP position by building up barriers to entry (e.g. increasing consumers switching costs) and finally it might engage in what might be called ‘textbook monopoly behaviour’, such as excessive pricing, the provision of low quality, and inefficient production.

A competition problem in this context can usually best be described in terms of the behaviour of one or more undertaking(s) with market power. The behaviour in turn rests on one or more strategic variables the undertaking has at its disposal.

To prevent anti-competitive or exploitative behaviour by *ex ante* regulation, a remedy usually will prescribe the behaviour an undertaking is supposed and not supposed to engage in.[37] By preventing the SMP undertaking from leveraging its market power into adjacent markets or from erecting barriers to entry on the SMP market, NRAs can promote market entry and competition in those markets. Where entry is unlikely to occur or where market power persists due to first mover advantages, NRAs have to protect consumers against exploitative behaviour and inefficiencies. Thus, to be able to choose a suitable remedy and to recognize the root causes of a competition problem, knowledge about the global market constellation and the source of market power is vital. This knowledge will be gained in the market definition and analysis stage of the process.

Against this background, competition problems are fitted into two dimensions: One of them is the market-dimension. Here, four cases are distinguished:

- *Case 1 - Vertical Leveraging:* An undertaking is operating on both a wholesale and a vertically related retail market[38] (i.e., is vertically integrated) and has SMP on the upstream (i.e., wholesale) market. This is by far the most prevalent case in communications markets, at least as far as fixed networks are concerned. The SMP operator owns some essential upstream input and may attempt to transfer its market power onto the potentially competitive retail market. If leveraging is successful, the undertaking will then have market power on both, the wholesale and the retail market.

- *Case 2 - Horizontal Leveraging (retail or wholesale):* An undertaking is operating on two not vertically related markets, and has SMP in one of them. Under certain circumstances (no perfect competition on the linked market and/or high barriers to entry) it may then try to transfer its market power from the market where it has SMP

37 This prescription might be more or less precise. In some cases, a specific price is set or a detailed access obligation is imposed. In other cases an obligation not to unduly discriminate might suffice (see also the discussion in section 3.2.1.).

38 In the following, the upstream market is referred to as the wholesale market and the downstream market as the retail market. The same considerations apply, however, for any two vertically related markets, i.e., also two wholesale markets.

to the related market. Horizontal leveraging may occur between retail markets as well as between wholesale markets or between a wholesale and a (not vertically related) retail market.

- *Case 3 - Single market dominance (retail or wholesale):* Competition problems may also pertain to only one market (although the undertaking might be operating on two or more markets). Here, the company having SMP in the market may engage in the erection of entry barriers in order to protect its dominant position, or, if its position is sufficiently safe, may engage in 'textbook monopoly behaviour', i.e., excessive pricing, price discrimination, productive inefficiencies, etc., leading to losses in overall welfare. Such behaviour may pertain to a wholesale as well as to a retail market.

- *Case 4 - Termination:* This refers to a situation of two-way access (as opposed to one-way access dealt with in case 1) in which two or several networks in a first step negotiate interconnection agreements at the wholesale level and in a second step set their prices on the retail market where they may or may not be in competition with one another. The problems discussed in this case may arise in particular if undertakings have SMP on their individual call termination markets. Although the problems described in this context may also be subsumed under the other three constellations, due to its particularities and its particular practical importance it is considered as an own case here.

The other dimension attributed to the competition problems is a 'cause-and-effect' type dimension. Thereby, each competition problem is depicted in the following way: In order to leverage or exploit its market power, an undertaking will engage in a certain type of behaviour. The behaviour, on the one hand, rests on one or more strategic variables the undertaking can dispose of and, on the other hand, will lead to certain effects, affecting either the dominant undertaking's competitors (or potential competitors) or directly the dominant firm's consumers. The 'cause-effect' dimension is therefore made up of the following parts:

Strategic variables: price, quality, time, information, etc.
Behaviour: price discrimination, quality discrimination, delaying tactics, withholding of information, etc.
Effects: raising rivals' costs, restriction of competitors' sales, margin squeeze, foreclosure, etc.
In practice, there is – beside the market constellation and the (possible) behaviour of the dominant undertaking – a range of other circumstances like national particularities, links to other markets, or transnational effects, which have to be taken into account by NRAs when designing remedies as well, but as this chapter aims at developing a general framework, they are not further considered in this context.

Of course, the framework adopted is only one of many possibilities to approach competition problems. Frequently it will be difficult to distinguish between causes and effects, and sometimes even the distinction between behaviour and effect might be ambiguous (e.g. in the case of margin squeeze, which can be either regarded as a behaviour in itself or as a result of – primarily – price discrimination on the wholesale market and/or predatory pricing on the retail market). This does not mean that the approach adopted is arbitrary, however. Rather, it has been attempted to depict standard competition problems in a way which allows them to be addressed with the remedies of the new regulatory framework.

2.3 Standard competition problems

In the framework described above, and based on experiences of NRAs, 27 standard competition problems have been identified and outlined in Table 1. They are based on a stock-taking exercise performed by the IRG working groups, on the inputs received in course of the ERG consultation in June/July 2003,[39] and on several documents dealing with competition problems and/or regulation.[40] Most of the problems identified therefore are based on NRA's experience and reflect communications markets reality. In addition, some problems are considered which are frequently discussed in the literature related to telecommunications markets and competition policy. The list is guide only and does not preclude NRAs from identifying other (potential) problems which may be addressed by remedies of the new regulatory framework. The 27 competition problems rest on the behaviour-dimension of the framework, as a competition problem usually can best be described in terms of the behaviour of one or more undertaking(s) with market power. Furthermore, the remedies of the new regulatory framework (Art 9-13 of the Access Directive and Art 17-19 of the Universal Service Directive) are primarily designed to address the behaviour of SMP undertakings.

The standard competition problems are such that each of them can potentially be identified as a competition problem which has to be addressed by the NRA in course of the market analysis. Whereas most competition problems are dealing with endogenous entry barriers, i.e., behaviour leading to market foreclosure, some problems are dealing with exploitative behaviour or inefficiencies, which do not aim at lessening competition but nevertheless result into welfare losses due to allocative and/or productive inefficiencies.

Table 1: Standard competition problems

Market constellation	**Competition problems**
Case 1: vertical leveraging	1.1. refusal to deal/denial of access 1.2. discriminatory use or withholding of information 1.3. delaying tactics 1.4. bundling/tying 1.5. undue requirements 1.6. quality discrimination 1.7. strategic design of product 1.8. undue use of information about competitors 1.9. price discrimination 1.10. cross-subsidisation 1.11. predatory pricing
Case 2: horizontal leveraging	2.1. bundling/tying 2.2. cross-subsidisation
Case 3: single market dominance	3.1. strategic design of product to raise consumers' switching costs 3.2. contract terms to raise consumers' switching costs 3.3. exclusive dealing 3.4. over-investment 3.5. predatory pricing 3.6. excessive pricing

39 Public call for input on regulatory remedies, see http://www.erg.eu.int/documents/index_en.htm.

40 See, e.g., European Commission (1998), Oxera (2002), Cave (2002) or OFT (1999a).

	3.7. price discrimination 3.8. lack of investment 3.9. excessive costs/inefficiency 3.10. low quality
Case 4: termination	4.1. tacit collusion 4.2. excessive pricing 4.3. price discrimination 4.4. refusal to deal/denial to interconnect

2.3.1 Case 1: Vertical leveraging

Case 1 deals with competition problems arising in the context of vertical leveraging. Leveraging, in general, can be described as any behaviour by which an undertaking with SMP on one market transfers its market power to another, potentially competitive market. As leveraging is an attempt to drive rivals out of the potentially competitive market, to limit their sales or profits, or to prevent them from entering the market, it can also be regarded as a form of foreclosure.

Vertical leveraging can be defined as '... any dominant firm's practice that denies proper access to an essential input it produces to some users of this input, with the intent of extending monopoly power from one segment of the market (the bottleneck segment) to the other (the potentially competitive segment)'.[41] Leveraging is not explicitly depicted in the framework set out above, but can be thought of as a 'heading' for all competition problems in case 1 and 2. As leveraging creates market power in a potentially competitive market, it is usually detrimental to overall welfare.

With regard to remedies, it is helpful to distinguish three types of vertical leveraging strategies:

- An outright refusal to deal/denial of access
- Leveraging by means of non-price variables
- Leveraging by means of pricing

2.3.1.1 Refusal to deal/denial of access

An undertaking with SMP on the wholesale market may attempt to leverage its market power by denying access to or refusing to deal with undertakings operating downstream and competing with the incumbent's retail affiliate. 'Refusal to deal can create competitive harm when a firm with SMP controls an input or inputs which are essential for other players to be able to operate/compete in (downstream) markets. In particular, a firm which operates in two vertically related markets and which has SMP in the upstream market may (unfairly) strengthen its position in the downstream market if it refuses to supply downstream competitors.'[42]

41 Rey/Tirole (1997, p. 1).
42 Oxera (2003, p. 7).

In European case law refusal to deal covers not only situations where a dominant undertaking absolutely refuses to supply a customer, but also those circumstances in which the supplier is only prepared to supply a good or a service on unreasonable terms. The approach chosen in this document will deal separately with plain refusal to deal and 'unreasonable terms' on information, quality, price, etc.

Under standard economic analysis, 'for refusal to deal to constitute an abuse of a dominant position, it must not only harm a consumer or a competitor, but must also substantially weaken competition in the relevant downstream market.'[43] Taking into account the effects on retail markets is not only standard in merger analysis but is also emphasized in Art 12 (1) of the Access Directive.

Refusal to deal/denial of access can lead directly to foreclosure if the wholesale product is a necessary input, but may alternatively lead to raising rivals' costs if bypass (e.g. in-house production) is possible but associated with higher production costs.

2.3.1.2 Non-price issues

Discriminatory use or withholding of information refers to a discriminatory practice where the SMP operator on the wholesale market provides its retail arm with information it does not provide to other downstream-undertakings or refuses to supply other information which is necessary to take up the wholesale offer and/or to supply the retail service. An example here would be a fixed network operator refusing to provide its retail competitors information about future changes in the network topology. In the worst case, the independent retail-undertakings are not able to provide the retail service, which then amounts to the case of refusal to deal. In other cases the lack of information will 'only' increase rivals' costs.

Delaying tactics, sometimes also referred to as 'provisioning squeeze', denominates a behaviour where the SMP undertaking does not refuse to supply a certain input to its downstream competitors but the independent undertakings are supplied at a later point in time compared to the retail affiliate of the SMP undertaking. Delaying tactics may come in various forms, such as lengthy negotiations or pretended technical problems. The motivation for such a behaviour can be twofold: First, if an established retail market is opened up to competition which would erode the dominant undertaking's margins on that market, the dominant undertaking may attempt to delay entry as long as possible in order to protect its monopoly rents. Second, if a *new* retail product or service is introduced by the incumbent, delaying tactics will, in addition to the first point, result into a first mover advantage, which is not achieved if the required wholesale product is provided to all retail undertakings at the same point in time. A first mover advantage may increase rivals' costs relative to the first mover and may also restrict competitors' sales.

Bundling/Tying: Tying refers to the practice of conditioning the sale of one product on the sale of another product. Bundling is usually referred to as a special case of tying, where the products are sold in fixed proportions. In the case of two vertically related markets, an SMP undertaking on the wholesale market can condition the sale of a necessary input on the sale of other, not necessary products or services and in this way can raise the costs of its downstream rivals. If the price of the wholesale bundle is

[43] Oxera (2003, p. 8).

larger than the retail price minus the retail costs of an efficient operator, tying amounts to a margin squeeze.

Undue requirements are any contract terms, which require a particular behaviour of the downstream competitor, which is unnecessary for the provision of the upstream product but raises rivals' costs or restricts rivals' sales. Examples for such undue requirements are the stipulation of a particular (more expensive) technology, bank guarantees, security payments, or information requirements, for example data about the competitors' customers beyond the extent which might be economically or technically justified in certain cases. Customer data may be used by the incumbent to target competitors' customers with tailor-made retail offers and induce them to switch (see also 'undue use of information about competitors' below).

By quality discrimination, the dominant firm can either raise rivals' costs or restrict its rivals' sales. The costs are raised if additional efforts or investments are required to offset the quality-disadvantage, whereas demand is reduced if the difference in quality cannot be offset and is perceived by retail consumers. An example for the second instance would be an incumbent who gives priority to its own traffic at network bottlenecks or, in case of network breakdowns, gives priority to its own customers when fixing the problem.

The *strategic design of product characteristics* is another possibility for the upstream SMP undertaking to put its downstream competitors on a disadvantage. Strategic design can embrace all types of product characteristics like design, compatibility, norms and standards, etc. and can either raise rivals' costs or restrict competitors' sales. The SMP undertaking may, for example, use standards which are easy to meet for their own retail arm but not for alternative operators, which may have to make additional investments to ensure compatibility or make access/ interconnection technically possible.

Issues of *undue use of information* about competitors may arise when a dominant undertaking on the wholesale market provides access to a competitor on the retail market and obtains certain information about the customers of the retail undertaking. Based on this information, the retail arm of the dominant undertaking can target its competitors' customers with tailor-made offers and so can restrict its competitors' sales and/or raise its rivals' costs (as competitors might have to increase their marketing efforts). If the dominant undertaking receives planning information from a potential downstream competitor it might even be able to build 'Chinese walls' around the customer and so prevent its rival from entry.

2.3.1.3 Pricing issues

Price discrimination can be used by a vertically integrated undertaking with SMP on the wholesale market to raise its rivals' costs downstream and induce a margin squeeze. This is achieved by charging a higher price (which usually is above costs) to downstream competitors than implicitly charged to the own retail affiliate, i.e. discrimination between internal and external provision.

Cross-subsidisation involves two prices in two markets. Whereas in one market (the SMP market) a price above costs is charged, in the other market (the market where the SMP-position is leveraged to) a price below costs (predatory pricing) is charged. Cross-subsidisation is not anti-competitive in itself. However, if one price is excessive and the other price is predatory, it can be used to leverage market power and foreclose a related, potentially competitive market. If the market where the high price is charged is a wholesale market and the market where the predatory price is charged is a retail market and the dominant undertaking is vertically integrated (case 1), cross-subsidisation will result in a margin squeeze.

'Predatory pricing' occurs, *inter alia,* where a dominant firm sells a good or service below costs of production for a sustained period of time, with the intention of deterring entry, or putting a rival out of business, enabling the dominant firm to further increase its market power and later its accumulated profits.'[44] According to economic analysis, predatory pricing has the following characteristics: (i) the price charged is below costs, (ii) competitors are either driven out of the market or excluded, and (iii) the undertaking is able to recoup its losses. Predation thus involves a trade-off for the predator between the short-run and the long-run. Consumers will benefit in the short run from low prices but will suffer in the long rung from the elimination of competitors. In practice, predation is hard to prove, especially in dynamic markets with high fixed costs, multi-product firms and long-run business cases.

A vertically integrated undertaking with SMP upstream supplying a necessary input to its retail competitors might engage in predatory pricing on the retail level to expose its downstream rivals to a margin squeeze, restrict their sales, and drive them out of the market.

2.3.2 Case 2: Horizontal leveraging

Bundling/Tying: In the case of two horizontally related markets, bundling/tying of an SMP product with a potentially competitive product may reduce rivals' demand or increase the costs of entry in the potentially competitive market and thus may lead to foreclosure. Bundling/Tying can also be used by a dominant undertaking to defend its dominant position in the SMP market.[45] In particular, bundling/tying can have anti-competitive effects if the implicit price of the tied good is below cost and/or if the bundle cannot be replicated by competitors and the bundled goods are positively correlated in demand.

An example for anti-competitive bundling might be an operator with SMP on the retail market for access to the public (fixed) telephone network, bundling the access product with a package of call minutes. As this is a bundle between an SMP product (access) and a potentially competitive product (call services), the two products are positively correlated in demand, and as the bundle cannot be replicated by (most) alternative operators, competitive concerns may arise.

Cross-subsidization: Leveraging by cross-subsidisation as discussed above (Section 2.3.1.3.) may also occur between two non vertically related markets. Here, the SMP undertaking may attempt to drive its competitors out of the market by setting a price below costs in the potentially competitive market, while the losses are covered by

44 See Notice on the application of the competition rules to access agreements in the telecommunications sector (98/C 265/02) p. 16.

45 A number of economic models exist which explore if and under which conditions bundling/tying is profitable. For a summary see Nalebuff (2003) or Inderst (2003).

profits from the SMP market. Thus, cross-subsidisation may – in the same way as a predation strategy – lead to a restriction of competitors' sales in the potentially competitive market.

2.3.3 Case 3: Single market dominance

Besides the leveraging issues as discussed above, three different types of behaviour are of concern to regulators in the case of an SMP position on a particular market:

- Entry deterrence: The SMP undertaking might engage in practices to erect barriers to entry in order to protect its SMP position against potential entrants.
- Exploitative behaviour: The SMP undertaking may exploit customers by setting an excessive price and/or by engaging in price discrimination.
- Productive inefficiencies: The SMP undertaking might fail to produce efficiently.

2.3.3.1 Entry deterrence

Strategic design of product to raise consumers' switching costs: If only one market is involved, strategic design of a product by an SMP undertaking can target raising consumers' switching costs, for example by compatibility with complementary products produced by the SMP undertaking (lock-in effect).

Contract terms to raise consumers' switching costs can be used by a dominant undertaking to raise the costs of competitors and new entrants, which have to increase their efforts to persuade customers to switch. Examples for such contract designs are lengthy contract duration and excessive penalties in case of premature termination, loyalty programs, or special rates for closed user groups. The SMP undertaking may also attempt to raise high charges on number portability and to impose administrative barriers on customers willing to switch. Such practices will also restrict competitors' sales.

Exclusive dealing refers to an exclusive vertical relation between the SMP undertaking and another undertaking. It can be of two forms: (i) The SMP undertaking on the wholesale market has an exclusive contract with a retailer, stating that the retailer is allowed to buy only from the SMP undertaking; (ii) the SMP undertaking on the retail market has an exclusive contract with a wholesale company stating that this company is only allowed to sell its products to the SMP undertaking. Although exclusive vertical relations can increase efficiency (e.g. by the internalisation of negative external effects or by the resolution of hold-up problems, i.e., in general, by synergistic effects) they also can be used as an instrument of foreclosing the SMP market: Exclusive contracts of the form (i), for example, '... can make it more difficult for existing competitors at the upstream level to expand their sales, or for potential competitors at the upstream level to obtain access to retail service customers'.[46] Exclusive dealing can thus lead to a restriction of competitors' sales or can increase rival's costs and in this way can foreclose the SMP market.

46 Oxera (2003, p. 13).

Over-investment: In the presence of economies of scale, the incumbent may – under certain circumstances – deter entry by investing in excess capacity. If the investments are sunk it can commit itself to an aggressive entry response, i.e., to increase output. With the increased output, prices fall and entry will be unprofitable. The circumstances under which such a strategy is viable are rather specific, however.[47]

Predatory pricing: As discussed in Section 2.3.1.3., predatory pricing may lead – under certain circumstances – to a restriction of competitors' sales and thus to foreclosure.

2.3.3.2 Exploitative behaviour

Excessive pricing: According to economic analysis, prices can be considered excessive if they allow the undertaking to sustain profits higher than it could expect to earn in a competitive market (super-normal profits). Undertakings with market power will usually set their prices above costs, at a level which maximizes their profits given consumers' demand. As quantity, consumer surplus, and total surplus (total welfare) fall short of their values under competitive conditions in such a case, there is potential for regulatory intervention.

Price discrimination: Economic analysis[48] suggests that price discrimination occurs when two or more similar goods are sold at prices, which are in different ratios to costs of production. This includes cases where similar goods produced at the same costs are sold at different prices as well as cases where products are sold at the same price although the costs of production differ. In order to be able to discriminate on price, three conditions have to be fulfilled: (i) the undertaking has to have (at least some) market power, (ii) it has to be able to sort customers, and (iii) it has to be able to prevent resale.

If only one SMP market is involved (as in case 3), the effects of price discrimination are ambiguous. In some cases, price discrimination may increase welfare compared to situations without price discrimination, especially when total output rises. In the presence of large fixed costs, for example, where marginal cost pricing is not viable, price discrimination can be desirable.[49] Nevertheless, as long as market power exists, one or all prices are likely to be above costs, and welfare will usually fall short of its maximum value under competition. Regulatory intervention might then be justified.

2.3.3.3 Productive inefficiencies

Lack of investment, excessive costs/inefficiency, and low quality: As J. R. Hicks already noted in 1935, 'the best of all monopoly profits is a quiet life'. Whereas undertakings exposed to the pressure of competition constantly have to strive to reduce costs and improve quality (and make the necessary investments to achieve these goals), a dominant undertaking with no or insignificant actual and potential competition may fail to do so. This may result in inefficiencies, inferior quality and lack of investment, results which have negative welfare effects (productive inefficiencies) compared to a hypothetical competitive situation.

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[47] See, for example Gilbert (1989).
[48] See Varian (1989, pp. 599, 600).
[49] See Laffont/Tirole (2000, p. xv).

Lack of investment might also occur in situations where the dominant undertaking is operating two potentially competing platforms, as for example in the case of broadband internet access via cable networks and xDSL. This problem in particular has been addressed by Art 8 of the Directive 2002/77/EC.[50]

2.3.4 Case 4: Termination

With regard to termination, two cases have to be distinguished: (i) the case of interconnection between networks which are competing for customers at the retail market, such as fixed-to-fixed (F2F) and mobile-to-mobile (M2M) telephony, and (ii) the case of two networks which are *not* (yet) competing for customers at the retail market, e.g. fixed-to-mobile (F2M) or mobile-to-fixed (M2F) telephony.[51]

Excessive pricing: The main source of this competition problem is that network operators may have significant market power over the termination of calls on their networks. This is likely to be the case whenever a calling-party-pays principle is in force, recipients of the call do not sufficiently care about the costs other parties have when calling them, and there is no significant countervailing buyer power. Operators then have incentives to charge an excessive price on their termination services. This is likely to lead to allocative inefficiencies and a distorted pricing structure. This holds even true if the profits made on incoming calls are competed away on the retail market.

This problem may particularly arise in the F2M and F2F situation. In the case of F2M termination with regulated fixed networks and unregulated mobile networks, mobile operators with SMP on the market for call termination may exploit their market power and charge an excessive price to fixed network operators while, at the same time, they may cross-subsidize their retail business, e.g. in the form of free handsets. Economic theory suggests that, if retail tariffs are cross-subsidized with profits from the termination business, welfare might be increased to the extent that fixed network customers are able to reach more mobile customers than without cross-subsidisation and mobile customers benefit from lower prices. Without regulation, however, mobile termination charges may nevertheless be too high from an overall-welfare point of view. The negative effect from the increased prices particularly to fixed network customers is likely to outweigh the positive effects mentioned above.[52] The problem is likely to be exacerbated if fixed network customers cannot distinguish between different mobile networks and thus are unaware of the actual costs of the call. In such situations, mobile operators may raise the price of termination even above the monopoly level.[53] The case of M2F is under the prevailing (regulatory) circumstances less crucial, although potentially similar distortions as in the F2M case may arise. Regulatory decisions in one sector will, of course, always have an impact on the other sector, which has to be taken into account by NRAs when evaluating the effects of regulatory action.

The excessive pricing problem is less likely to occur in an M2M situation. As long as traffic between networks is reasonably balanced and cost structures are symmetric,

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50 Commission Directive 2002/77/EC of 16 September 2002 on competition in the markets for electronic communications networks and services, OJ 17.9.2003 L 249/21.

51 Whether fixed and mobile networks are in competition on the retail market or not has to be determined in course of the market definition/market analysis.

52 See Armstrong (2002) and Wright (2000).

53 See Gans/King (1999).

termination charges are likely to be reciprocal and therefore termination payments may cancel out. Even if networks are asymmetric, the fact that they are competing at the retail market leads to other considerations when negotiating interconnection agreements compared to a F2M situation. This is reflected in the other competition problems of section 2.3.4.

Tacit collusion: Economic theory suggests that – under certain circumstances – the setting of reciprocal high or low termination charges can be used as an instrument of tacit collusion between networks which are in competition on the retail market.[54] This problem thus may occur in situations of M2M or F2F interconnection. Tacit collusion leads to prices above costs and thus to allocative inefficiencies. The conditions under which this result emerges are rather specific, however, and therefore this type of tacit collusion may not often be observed in practice, in particular if networks are of different size and have different cost structures.

Price discrimination: The problem of price discrimination to foreclose the market pertains mainly to the M2M situation. The incumbent operator(s) may seek to foreclose the retail market by charging a high (above-cost) termination charge to other networks whereas implicitly charging a lower price internally. This leads to high costs for off-net calls for other operators at the wholesale level and thus to high prices for off-net calls at the retail level. On-net calls, on the other hand, are associated with lower costs and thus with lower retail prices. Such a price structure creates network externalities ('tariff-mediated network externalities'[55]) and thus puts small networks with few participants at a disadvantage. The disadvantage is larger the higher the termination charge and thus the higher the difference between the price of an on-net and an off-net call is.

Refusal to deal/Denial to interconnect: As with the previous competition problem, a refusal to deal / denial to interconnect is targeted at foreclosing the market to new entrants. This problem could be observed in the M2M as well as in the F2F or F2M situation. Whereas it is vital for the entrant to be connected to established networks, the incumbent(s) can manage easily without interconnecting to the entrant as long as the number of the entrant's subscribers is low enough. A refusal to deal restricts competitors' sales and thus is likely to lead to foreclosure. As foreclosure may substantially lessen competition, it is likely to be detrimental to overall welfare. For example, the F2F situation is usually characterized by an incumbent operator who holds most of the access lines and a number of smaller firms most of whom only hold a few access lines each. The primary concern in this case is a denial to interconnect by the incumbent operator leading to foreclosure of the retail market, which is dealt with in the competition problem 'refusal to deal/denial to interconnect'. Once the dominant operator is subject to an obligation to interconnect and a regulated termination charge, however, alternative operators may have incentives to exploit their market power on the termination markets and set prices above costs.

[54] See Laffont/Tirole (2000), Armstrong (2002) or Gans/King (2000).
[55] See Laffont/Tirole (2000).

2.3.5 Possible effects

The 'effects' described in this section result from one or more standard competition problems as discussed in the previous section. The causal relations between effects and competition problems are depicted in figure 1 at the end of this section.

First mover advantage: The term first mover advantage refers to the economic advantage the company which is first in a market has over other companies which enter this market at a later point in time. First mover advantages can pertain to the supply side (the cost function) as well as to the demand side. Supply side first mover advantages include network externalities and learning by making cost reductions, whereas demand side advantages primarily result from customer lock-in effects. A first mover advantage thus can be said to raise rivals' costs (relative to the first mover) or restrict competitors' sales. A first mover advantage only is a problem if it is artificially achieved, e.g. by delaying tactics on the wholesale market. If first mover advantages are strong, they can lead to foreclosure of the retail market.

Margin squeeze: A margin squeeze, sometimes also referred to as price squeeze, occurs when:

- a dominant provider supplies an 'upstream' product A which is itself (or is closely related to) a component of a 'downstream' product A+B (product B is supplied by the dominant provider only to itself: those who compete against A+B will supply their own alternative to B).
- the implicit charge by the dominant provider to itself for B (i.e. the difference between the prices at which it supplies A+B and A only) is so low that a reasonably efficient competitor cannot profitably compete against A+B.[56]

A margin squeeze can be effected in three ways:[57] (i) The SMP undertaking can charge a price above costs for the wholesale product to its competitors but (implicitly) a lower price to its own retail arm; (ii) it can charge a cost-based price to all retail undertakings but may set a predatory price on the retail market; finally (iii) it might charge a price above costs on the wholesale market, and at the same time charge a predatory price on the retail market. This behaviour may also result in cross-subsidisation.

Although the dominant undertaking may set a margin between its downstream retail price and upstream wholesale charge (paid by downstream competitors) that is insufficient to cover its downstream costs, on an 'end-to-end' basis, i.e. aggregating across the firm's upstream and downstream activities, the firm may be profitable (in contrast to the case of predatory pricing where the firm suffers short-term losses). An equally (or more efficient) downstream competitor could be unable to compete, because, in effect, it is being charged a higher price for the upstream input than its competitor, the vertically integrated firm's own downstream arm.

56 In the event that the price paid for A is not transparent, accounting separation might be needed to establish the price paid by the incumbent's retail arm.

57 See Canoy, et al (2002, pp. 26-31).

Exposed to a margin squeeze, a retail competitor in general will not be able to cover its costs and will be driven out of the market. If the competitor has some market power on the retail market (for example because of product differentiation) or if it is sufficiently more efficient than the dominant undertaking, a margin squeeze might result in partial foreclosure (losses of market share and/or profits) only.

Although margin squeeze also has a behavioural aspect it is classified as an effect here, as it can be the result of different behaviours of the dominant undertaking. When designing remedies it might be important to be aware of the particular behaviour leading to a margin squeeze (i.e., in particular, price discrimination upstream and/or predatory pricing downstream).

Raising rivals' costs is a quite general expression for all practices, which – in one form or another – negatively influence competitors' and potential competitors' cost functions. As can be seen from figure 1, most anti-competitive behaviour will increase rivals' costs.

Restriction of competitors' sales is defined here as the result of any behaviour of the dominant undertaking, which does not (or not only) negatively impact the cost function of its rivals, but their demand function. As depicted in figure 1, there are several ways in which an SMP undertaking can restrict its competitors' sales.

Foreclosure is any behaviour of a dominant firm, which aims at excluding competitors from the market. Foreclosure can be 'complete', in which case competitors are driven out of the market or do not enter the market, or 'partial', whereby competitors do survive, but suffer losses of market share or profits. An undertaking will exert foreclosure only if it can – in the short or in the long run – increase its profits by doing so. As foreclosure reduces or eliminates competition and creates market power in potentially competitive markets, it is usually also detrimental to overall welfare. Behaviour leading to foreclosure is frequently referred to as 'anti-competitive behaviour' throughout this document.

Negative welfare effects here denotes the result of a certain behaviour which does not lead to foreclosure and/or leveraging, i.e., is not targeted towards competitors, but still has a negative impact on total welfare. Two cases can be distinguished here: allocative inefficiency, which leads to deadweight welfare losses (i.e. consumer and total welfare could be increased by increasing total output), and productive inefficiency, where the dominant undertaking falls short of producing a given output with the minimum of inputs. Allocative inefficiency results from excessive pricing and may also result from price discrimination; productive inefficiency may become manifest in excessive costs, low quality or lack of investment. As discussed above, price discrimination may not always be detrimental to welfare and thus should be subject to analysis on a case-by-case basis.

Figure 1 finally depicts each of the identified competition problems together with the strategic variable(s) it is based on, as well as with the anti-competitive and welfare effects it may entail. Therefore, the effects-side has been divided into two stages: The 'immediate effects' (first mover advantage, margin squeeze, raising rivals' costs, and restriction of competitors' sales) and the 'ultimate effect', which is 'foreclosure' in many cases.

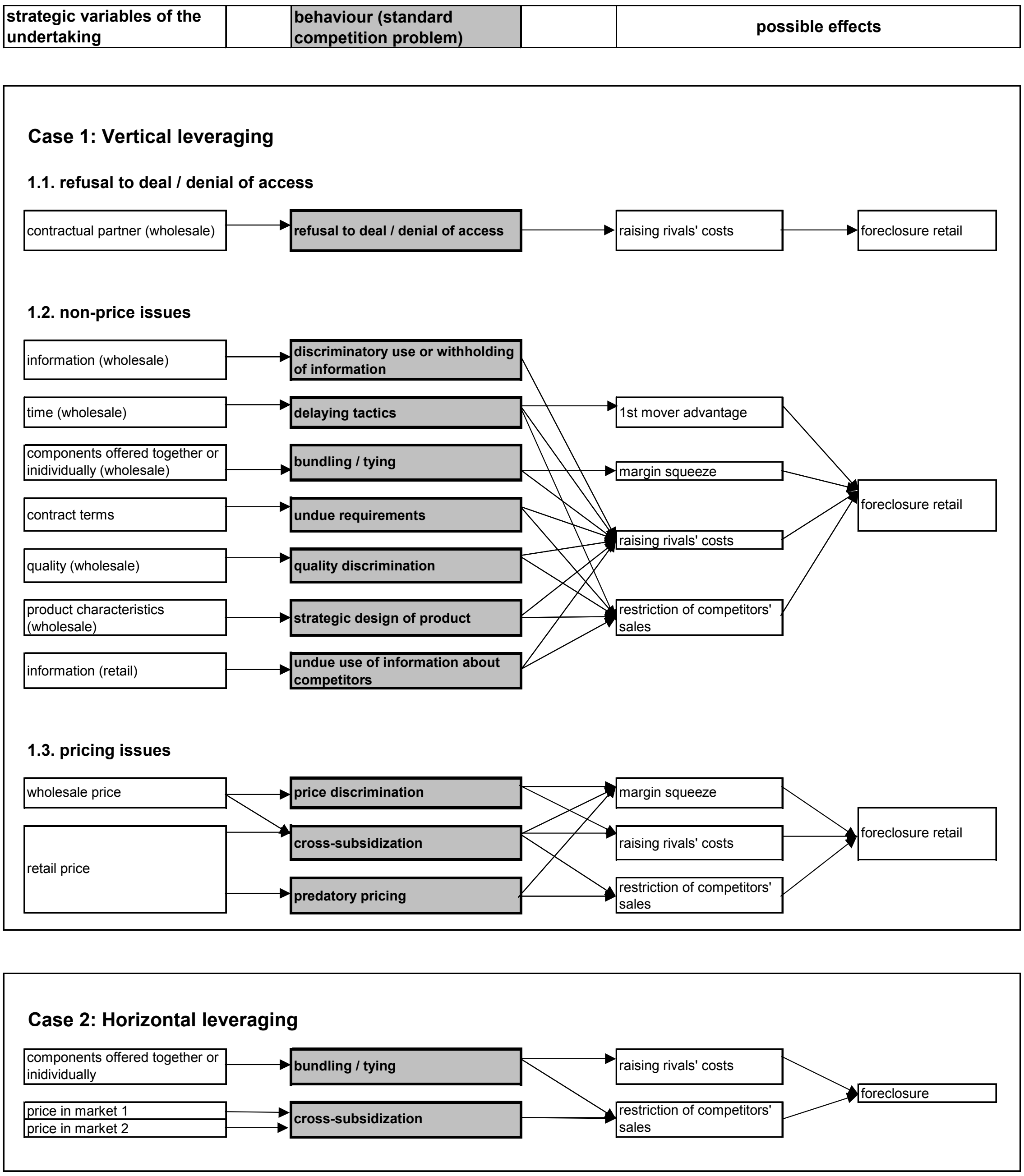

Figure 1a: Overview of standard competition problems, cases 1 and 2

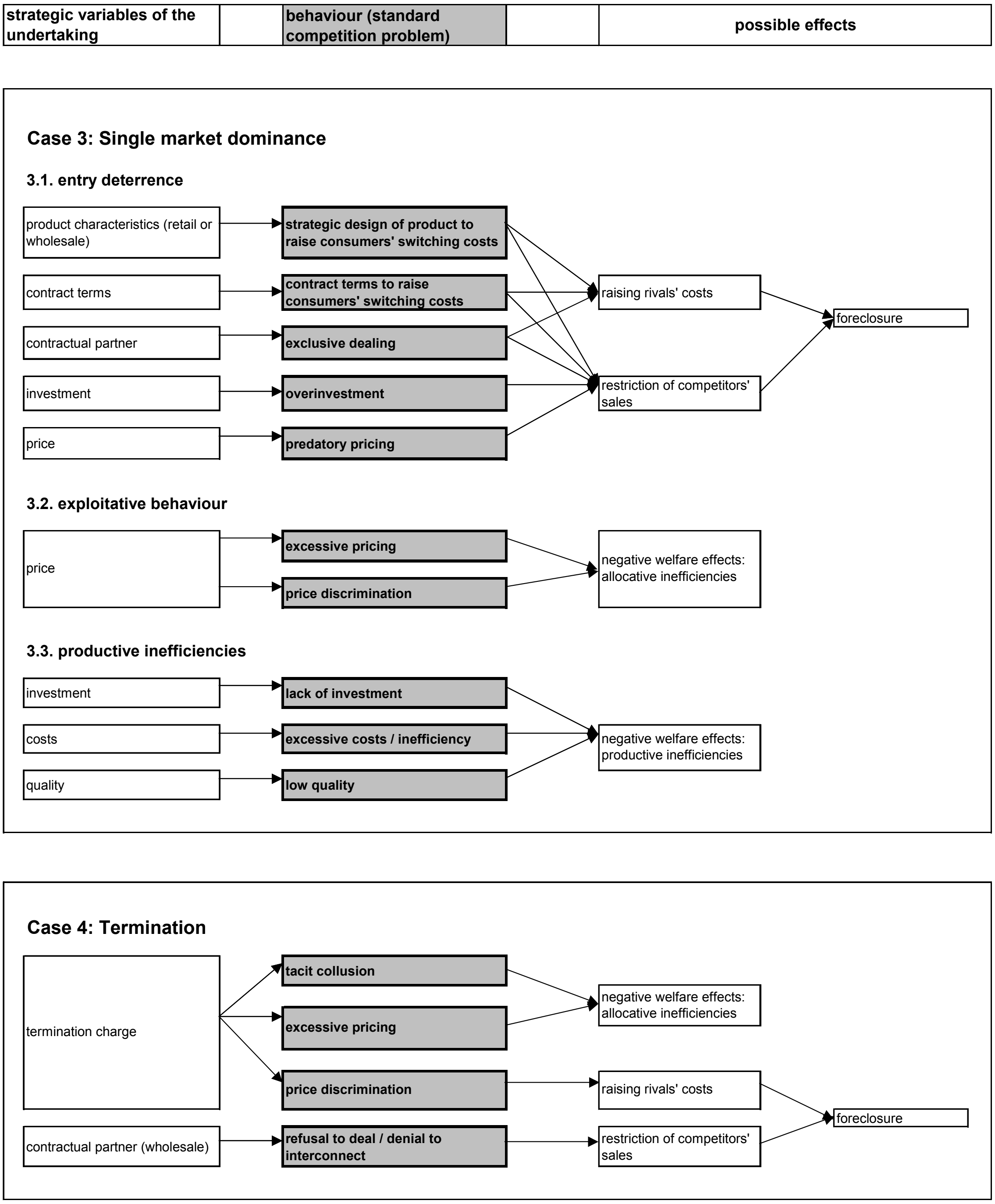

Figure 1b: Overview of standard competition problems, cases 3 and 4

3 Remedies Available

3.1 Introduction

The aim of the Access Directive is establish a regulatory framework, in accordance with internal market principles, for the relationships between suppliers of networks and services that will result in sustainable competition, interoperability of electronic communications services and consumer benefits.

As outlined in the introduction, when we are considering remedies, there is a presumption that SMP has been identified on a market that is susceptible to ex ante regulation. Throughout this document remedies are synonymous with the concept of obligations under the Directives.

The Access Directive and the Universal Services Directive contain a list of obligations that may be imposed on operators with SMP in wholesale and retail markets respectively, but also provide for NRAs to impose access obligations not explicitly listed, subject to the prior agreement with the Commission.[58] Due to the exceptional nature of these remedies, the specific circumstances in which they may be considered and the veto power of the Commission it is not possible to provide any guidance on this issue in this document.

Obligations listed in the Access Directive include:

- a *transparency* obligation (Art 9) making public specified information (accounting information, technical specification, network characteristics, prices etc.);
- a *non-discrimination* obligation (Art 10), that is to apply equivalent conditions in equivalent circumstances, and not to discriminate in favour of the regulated firm's own subsidiaries or partners;
- an *accounting separation* obligation (Art 11) to make transparent the internal transfer prices to the regulated firm's own downstream operation in order to ensure compliance with a non-discrimination obligation or to prevent unfair cross-subsidies;
- an *access obligation* (Art 12) that consists of obligations to meet reasonable requests for access or interconnection or use specific network elements. These may include a range of obligations, including an obligation to negotiate in good faith over terms and conditions of providing access; and
- a *price control and cost accounting* obligation (Art 13), which can require operators to set cost-oriented access charges or the imposition of a price control on the regulated firm. This is restricted to cases where the market analysis suggests that otherwise access charges might be sustained at an excessively high level, or where the firm might engage in a margin squeeze to the detriment of consumers.[59]

The Universal Service Directive provides for *inter alia* the imposition of obligations on undertakings with SMP in specific markets. The aim of the Universal Service Directive is to ensure the availability throughout the Community of good quality publicly available

[58] See Article 8, Access Directive [Directive 2002/19/EC].

[59] Article 13(1) of the Access Directive also notes that NRAs shall take into account the investment made by the operator and allow him a reasonable rate of return, taking into account the risks involved.

services through effective competition and choice and to deal with circumstances in which the needs of end users are not satisfactorily met by the market.

Obligations mentioned in the Universal Service Directive as being capable under certain circumstances of being placed on undertakings with SMP in specific markets include the prohibition of excessive or predatory pricing, undue price discrimination and the unreasonable bundling of services. NRAs may apply retail price caps, individual price controls or measures to orient prices towards costs in order to protect end users whilst promoting effective competition.

All of the above remedies must be based on the nature of the problem identified, proportionate and justified in the light of the basic regulatory objectives of promoting competition, contributing to the development of the internal market, and promoting the interest of citizens.

The remainder of this chapter seeks to examine the predetermined remedies that are available for use by NRAs, how remedies interact and may be mutually dependant, and finally some practical issues surrounding implementation. There is no automatic remedy solution for any given situation and certainly no automatic linking of obligations to construct a particular remedy. The appropriate remedy will at all times be dictated by the specific problems identified by the NRA in any given market.

3.2 Remedies available

The Access and Universal Service Directives give a considerable amount of guidance regarding the use and linkages between the different remedies.

3.2.1 Transparency

Looking first at the transparency obligation[60] it is stated that transparency may be used in relation to 'interconnection and/or access, requiring operators to make public specified information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, and prices.'

This implies that there is a natural linkage between any access or interconnection obligation and a transparency requirement making publicly available any critical technical and/or financial information to make such access or interconnection obligations feasible. Similarly there is a logical linking between the transparency requirements and accounting separation and to non-discrimination.[61]

To achieve transparency NRAs may require that operators publish a reference offer for services giving the terms and conditions available at a level of detail dictated by the NRA. In addition there are specific provisions for information regarding unbundled local loop information.[62]

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60 Directive 2002/19/EC, Article 9.
61 Directive 2002/19/EC, Articles 9(1) and 9(2).
62 Directive 2002/19/EC, Article 9(4).

It is difficult to see many situations relating to access and interconnection where transparency by itself is likely to be an effective remedy, although it might help identify anti-competitive behaviour that could be dealt with by competition law or deter such behaviour by supporting an implicit threat of regulation. Potentially, NRAs will want to make some of the internal transactions of the SMP firm and the conditions relation to access and interconnections as transparent as possible.

Notwithstanding this, it is logical to assume and indeed the presentation of the transparency obligation seems to suggest that it is really an accompanying obligation with and to other obligations in order to make the overall remedy more effective. For instance, the requirement to behave in a non-discriminatory manner towards competitors requires that parties can observe and compare easily the factors over which discrimination could take place. Additionally, accounting separation as an obligation is a natural complement to transparency in pricing and costing matters. Transparency is a very important obligation as it is a significant counterweight to possible SMP undertakings' strategies in reaction to regulatory obligations. Economic literature[63] observes that where access is given at particular prices, access requirements can be rendered significantly less effective through the use of selected standards, quality degradation, late delivery etc. Transparency, which allows NRAs to specify the precise information to be made available, can render such actions less likely to succeed by at least making such behaviour observable.

3.2.2 Non-discrimination

In general non-discrimination[64] requires that the SMP undertaking 'applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and provides services and information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners.' This shows that the scope of the non-discrimination obligation clearly covers a firm's internal processes. The general non-discrimination obligation requires that third party access seekers are treated no less favourably than the operators internal divisions.

Non-discrimination is again an obligation that could be imposed by itself as remedy but in order to be an effective remedy it is likely to need to be combined with a number of other obligations. Transparency is a natural complement to this obligation as the ability to identify behaviour, which could be detrimental through the use of discriminatory practices, depends on the ability to detect such behaviour.

Non-discrimination could be used to get a SMP undertaking to justify self-supplying inputs at greatly reduced prices because of scale where significant scale economies are exhausted much earlier in the production process. Thus, differences in terms and conditions, even where transactions are not necessarily exactly the same, should be justified so that anti-competitive discrimination can be prohibited.

Another problem with non-discrimination is that together with the transparency obligation it can also facilitate and indeed encourage tacit collusion among operators.

[63] See, e.g., Laffont/Tirole (2000).
[64] Directive 2002/19/EC, Article 10.

In markets which meet many or all of the criteria[65] which would indicate the presence of possible joint dominance, consideration should be given to the extent that such obligations may have adverse consequences, possibly to the extent that alternative or modified obligations might be considered.

3.2.3 Accounting separation

The obligation of accounting separation may impose obligations in relation to specified activities related to interconnection and/or access. This obligation is specifically put in place to support the obligations of transparency and non-discrimination. It may also act to support the NRA in implementing price control and cost accounting obligations. Accounting separation should ensure that a vertically integrated company makes transparent its wholesale prices and its internal transfer prices especially where there is a requirement for non-discrimination. Where necessary, accounting separation may identify cases in which a vertically integrated company engages in unfair cross-subsidy. Unfair cross subsidy would occur where an unjustifiably low price in one product market was facilitated by (excessive) charges in another product market. In addition, in order to obtain a complete overview, accounting separation may, in certain circumstances, cover one or more markets, including markets where the operator does not have SMP[66].

NRAs have discretion to specify the format and accounting methodology to be used. While such accounting information could also be required of any firm through the use of the more general Article 5 of the Framework Directive, such information may not always be available in the normal course of business operations and may need to be specifically required. Information provision under this obligation can provide information which facilitates ongoing monitoring of market situations rather than for the specific purpose of market analysis.

Problems similar to that identified in relation to transparency and non-discrimination also apply in this area regarding co-ordinating effects and the possible promotion or facilitation of tacit collusion. The revelation of business processes, efficiencies and indeed strategies to competitors can be mitigated by appropriate control of the information. Therefore the publication of information by NRAs is conditioned in the sense that it has to contribute to an open and competitive market, while national and Community rules on commercial confidentiality are respected.[67]

The identification of cross subsidy through the use of accounting separation will often require finely balanced decisions regarding the allocation of joint and common costs in electronic communication markets. Detailed guidance can be found in the Commission Recommendation on accounting separation and cost accounting under the regulatory framework for electronic communications[68] and the ERG Common Position on cost accounting and accounting separation[69]

65 See SMP Guidelines, OJ C 165, 11.7.2002, p.6.
66 See EC Recommendation C(2005)3480 Recital 5
67 Art. 11 (2) Access Directive.
68 EC Recommendation C(2005)3480
69 ERG Common Position ERG(05) 29

3.2.4 Access to, and use of, specific network facilities

In an open and competitive market, there should be no restrictions that prevent undertakings from negotiating access and interconnection arrangements between themselves, subject to competition rules. Undertakings which receive requests for access or interconnection should in principle conclude such agreements on a commercial basis, and negotiate in good faith. That this should be the case is envisaged in Article 3 of the Access Directive.

However, the experience of NRAs shows that commercial negotiation is the exception rather than the rule. The Access Directive thus provides that in markets where there continue to be large differences in negotiating power between undertakings, and where some undertakings rely on infrastructure provided by others for delivery of their services, it is appropriate to establish a framework to ensure that the market functions effectively. National regulatory authorities should have the power to secure, where commercial negotiation fails, adequate access and interconnection and interoperability of services in the interest of end-users.

Mandating reasonable requests for access to network infrastructure can be justified as a means of increasing competition, but NRAs need to balance the rights of an infrastructure owner to exploit its infrastructure for its own benefit, and the rights of other service providers to access facilities that are necessary for the provision of competing services. However an important principle is that the imposition of mandated access that increases competition in the short-term should not reduce incentives for competitors to invest in alternative facilities that will secure more competition in the long-term.[70]

Obligations can be imposed on operators ‘to meet reasonable requests for access to, and use of, specific network elements and associated facilities, inter alia in situations where the national regulatory authority considers that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user's interest.[71]

Significant detail is given regarding a non-exhaustive set of requirements that may be imposed. There is a broad requirement to give access to specific network elements or facilities including unbundled access to the local loop, to negotiate in good faith, to maintain supply, to provide wholesale services for resale. In addition there are technical, collocation, interoperability, operational support and general interconnection requirements which operators may be required to provide or adhere to.

NRAs may attach conditions covering fairness, reasonableness and timeliness, conditions which are set out in the access requirement and which, as always, are bound by consideration of Article 8 Framework Directive and Article 8(4) of the Access Directive. Such requirements may be particularly useful to protect against strategies aimed at covert rather than overt attempts to deny access. Terms which amount to a refusal to grant access can be generalised as being terms which by their monetary level mean that no efficient competitor can be reasonably expected to enter the market

70 Directive 2002/19/EC, Recital 19.
71 Directive 2002/19/EC, Article 12 (1).

bearing in mind that alternative tactics such as delaying access or degrading quality of supply simply raises the effective cost of access for the entrant. Quality of service obligations can be useful to protect against the unreasonable raising of rival's costs through such mechanisms.

Given the scope of this obligation there are a number of considerations that an NRA is explicitly required to take into account when imposing an access requirement.[72] It is worth noting here the general considerations. The obligation imposed must of course be consistent with the provisions of Article 8 and must take into account the feasibility of the action, the viability of using or installing competing infrastructures and the maintenance of the initial investment decision so that long term competition is safeguarded to the greatest extent possible. There is also a requirement on NRAs to take intellectual property rights into consideration as well as the development of any pan-European services.

In terms of the Directives this is by far the most extensively described of any of the obligations reflecting the importance of this obligation and its central role in effecting competitive markets. This obligation can be a stand alone remedy with a general provision to provide access and to negotiate in good faith being the only requirement or it may be accompanied by the full suite of predefined remedies in Articles 9 to 13 of the Access Directive where cost control and non-discrimination obligations are required. In general it will rarely operate as a stand alone remedy; instead it is likely to be accompanied by a transparency obligation, perhaps in the form of a Reference offer or some other mechanism which sets out availability, the technical and financial terms and conditions for such access. Non-discrimination is also likely to accompany such an obligation as often where access is required vertically integrated entities are capable of acting in ways so as to leverage market power from the upstream to the downstream firm's advantage. Imposition of a non-discrimination obligation would protect against such behaviour. NRAs would then have to consider whether sufficient information is available to ensure efficient monitoring of the non-discrimination requirement or whether additional obligations in terms of accounting separation are necessary to ensure effective compliance. Finally, it may often be the case that the actual level of charges for access must be set by the NRA and so a cost control may be imposed. There is a logical sequencing to the remedies that might be required but there is no way to say beforehand which combination or combinations would be appropriate. Such a decision depends on the specific problems identified by the NRA for correction in a specific market.

The access requirements are both broad and extensive; ranging from the provision of services on a wholesale basis for resale by third parties to the provision of access to specific network components and various technical and interoperability requirements. Due to the extensive nature and serious effects attached to this obligation there is explicit reference within the obligation that the NRAs give careful consideration to the investment decisions of both entrants and incumbents to ensure, where possible, that self sustaining competition is encouraged.

72 Directive 2002/19/EC, Article 12 (2).

3.2.5 Price Control and Cost accounting Obligations

Price control may be necessary when market analysis in a particular market reveals inefficient competition. The regulatory intervention may be relatively light, such as an obligation that prices are reasonable, or much heavier such as an obligation that prices are cost oriented to provide full justification for those prices where competition is not sufficiently strong to prevent excessive pricing. In particular, operators with significant market power should avoid a price squeeze whereby the difference between their retail prices and the access/interconnection prices charged to competitors who provide similar retail services is not adequate to ensure sustainable competition. When a NRA calculates costs the method used should be appropriate to the circumstances taking account of the need to promote efficiency and sustainable competition and maximise consumer benefits.[73]

The obligation concerning price control and cost accounting allows that an NRA may impose obligations relating to cost recovery and price controls (including cost orientation of prices and details of the cost accounting methodology to allow their calculation). This obligation is qualified to apply where a lack of effective competition means that the operator concerned might apply either excessive prices or implement a price squeeze with anti-competitive intent (i.e. to the detriment of end-users). In particular, operators with significant market power must avoid a price squeeze whereby the difference between their retail prices and the interconnection/access prices charged to competitors who provide similar retail services is not adequate to ensure sustainable competition.

The burden of proof to demonstrate that charges are derived from costs including a reasonable rate of return on investment rests with the operator. Furthermore, the NRA may require a full justification of the operator's prices and may require their adjustment if appropriate. The freedom of the NRA to use a methodology or a particular cost model to calculate an appropriate charge is unrestricted except to comply with Article 8, general competition law and the requirement that it serves to promote efficiency, sustainable competition and maximise consumer benefits.

NRAs should specify the costing methodology underpinning a price control obligation. Leaving it up to each operator to decide the cost-accounting procedures it wishes to use would limit the measure's contribution to consumer benefit, the enhancement of competition and the development of the internal market.[74] Furthermore, by specifying the costing methodology, NRAs provide adequate transparency and legal certainty for market players.[75]

NRAs must ensure that where a cost accounting system is mandated in order to support price controls a description of the cost accounting system is made publicly available, showing at least the main categories under which costs are grouped and the rules used for the allocation of costs.

[73] Directive 2002/19/EC, Recital 20.
[74] See Commission's comments in cases FI/2003/0028-0029, FI/2003/0030, FI/2003/0031.
[75] SK/2004/0107, SK/2005/0136.

Compliance with the cost accounting system shall be verified by a qualified independent body, which can be the NRA provided that it has the necessary qualified staff. A statement concerning compliance shall be published annually.

Just as with the access obligation there are implicit references to Article 8 obligations and the need to promote efficiency. It is necessary to take into account all relevant factors when setting the rate of return to ensure investment is maintained, to ensure long term competition and ensuring maximum consumer benefits. It is suggested that guidance can be derived from observing what happens in comparable competitive markets. Such cross-country comparisons require careful analysis as many key cost factors may vary from Member State to Member State (e.g. physical topology). It may also be useful for comparisons within a geographic market to compare related markets within the ICT sector.[76]

The key problem with this obligation would appear to be identifying a price control level which facilitates services competition without reinforcing network market power and the distortions which can result from setting charges too low or too high. This is discussed at more length in Chapters 4 and 5.

3.2.6 Retail Obligations

The Universal Service Directive's aim is to ensure the availability of good quality publicly available services through effective competition and choice and to deal with circumstances in which the needs of end-users are not satisfactorily met by the market.[77]

Under the Universal Service Directive regard is given to interventions specifically concerning retail markets that are characterised by the existence of SMP. As a general rule, regulatory controls on retail services should only be imposed where NRAs consider that relevant wholesale measures under the Access Directive or measures regarding carrier selection or pre-selection would fail to achieve the objectives that have been set for NRAs in the Framework Directive.[78] This is a common theme in the new regulatory framework and the Recommendation on relevant markets states, that interventions on the wholesale market are preferable to interventions on the retail market.

'Regulatory controls on retail services can only be imposed where relevant wholesale or related measures would fail to achieve the objective of ensuring effective competition.'[79]

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76 Cost benchmarks are widely used in the identification of a problem that might require regulatory intervention: a difference between prices and some notion of underlying costs is taken as an indication of market power. This procedure is based on the assumption that, in a competitive market, prices correspond to costs. However the assumption that market prices correspond to costs does not necessarily hold where competition takes place over a bundle of services which are provided subject to economies of scale and scope. In the presence of fixed and common costs, competing firms will structure their relative mark-ups in response to demand conditions.

77 Directive 2002/22/EC, Article 1.

78 Directive 2002/22/EC, Recital 26, Article 17. These objectives are to promote competition, to contribute to the development of the internal market and to protect the interests of EU citizens.

79 Page 15 Recommendation on Relevant Markets.

Article 17(1)(b) suggests that if measures at the wholesale level taken under the Access Directive or the use of a carrier selection or pre-selection obligation on these markets are not capable of resolving the problems on the market that other obligations on the retail level can be applied. It is clear that the obligations available in the Access Directive may, if appropriate, be available to tackle problems at the retail level.[80] Since the wording of Article 17(2) is deliberately non-exhaustive, the specific retail obligations are not limited to but may include requirements that the identified undertakings do not charge excessive prices, inhibit market entry or restrict competition by setting predatory prices, show undue preference to specific end-users or unreasonably bundle services.

NRAs may apply to such undertakings appropriate retail price cap measures, measures to control individual tariffs, or measures to orient tariffs towards costs or prices on comparable markets, in order to protect end-user interests whilst promoting effective competition.

Where price controls are being put in place at a retail level the necessary and appropriate cost accounting systems must be implemented and the format and accounting methodology used to be specified by the NRA to ensure compliance. A qualified independent body must verify compliance with the cost accounting system, which as mentioned earlier can be the NRA so long as it has the necessary qualified staff. Finally a statement concerning compliance must be published each year.

The problem with imposing obligations at the retail level is that given it is only appropriate to impose such obligations where obligations at the wholesale level are not effective, there is a danger that, even where wholesale controls may be ultimately effective, such controls may take a prolonged period of time to take effect. In the meantime and in the interest of consumers' welfare it may be necessary to impose some retail price controls. In assessing the need for retail measures, NRAs therefore have to take into account the effects of wholesale measures on competition in the related retail market and vice versa. NRAs need to take particular attention to the possibility of price or margin squeezes and appropriate measuring and monitoring mechanisms may need to be put in place.

Under the Universal Service Directive transparency obligations in relation to tariffs etc, are applied at the retail level. However, transparency measures at a retail level can create a situation where parties to the market could be facilitated in engaging in anti-competitive practices. NRAs must ensure that any transparency measures imposed do not lead inadvertently to anti-competitive behaviour.

3.2.7 Leased Lines and Carrier Selection/Pre-selection

There are two other articles in the Universal Service Directive that are addressed at firms with SMP. These relate to controls on the minimum set of leased lines and carrier selection and carrier pre-selection. These obligations, whilst using the trigger of SMP to be imposed, are not designed exclusively to address market power and, where applicable, they must be imposed by the NRA. For this reason, the principles outlined in the next chapter do not apply directly. The obligation on leased lines is to ensure that a harmonised offering is available throughout the Community, and as such, relates to

[80] This would allow for instance, if appropriate, for wholesale line rental (Article 12(1d) of the Access Directive) to be imposed in relation to an identified problem on the retail access market.

the imperative of the internal market. While promoting competition on retail markets, the provision of carrier selection and carrier pre-selection is also motivated on the basis of benefiting subscribers.

There are specific provisions in the Universal Service Directive concerning regulatory controls on the minimum set of leased lines and these are set out in some detail in Annex VII of the Universal Service Directive. Those obligations mean SMP undertakings must provide leased lines in the minimum set in a non-discriminatory manner, at cost orientated price (with associated cost accounting) where appropriate, a transparency requirement and according to certain quality parameters.

In addition, undertakings with SMP for connection to and use of the public fixed network at a fixed location must provide carrier selection by means of a carrier selection code and carrier pre-selection combined with carrier selection at cost orientated prices. In addition, their direct charges to subscribers, e.g. line rentals, should not act as a disincentive to the use of such facilities.

4 Principles to guide Regulators in choosing appropriate remedies

4.1 Introduction

This chapter outlines the high level principles that should guide NRAs in the decisions on remedies. The chapter takes as given what the framework is designed to achieve. In particular the aim of the Access Directive is to establish a regulatory framework, in accordance with internal market principles, for the relationships between suppliers of networks and services that will result in sustainable competition, interoperability of electronic communications services and consumer benefits.

At the heart of framework is the welfare of consumers. Competition is the process that guarantees that markets work to deliver enhanced consumer benefits. Competition delivers greater choice, quality and lower prices to consumers, which in turn make consumers better off. It is recognised in the Access Directive that in an open and competitive market there should be no restrictions, other than normal competition rules, on normal commercial negotiations for access and interconnection.

However, it is also made clear that in markets where there continue to be large differences in negotiating power between undertakings, and where some undertakings rely on infrastructure provided by others for delivery of their services, it is appropriate to establish a framework to ensure that the market functions effectively. National regulatory authorities should have the power to secure, where commercial negotiation fails, adequate access and interconnection and interoperability of services in the interest of end-users.[81] Within the confines of these circumstances, policymakers have given NRAs a presumption that regulatory intervention is warranted in order to enhance the welfare of consumers.

In imposing remedies to tackle SMP, NRAs have to ensure that the remedies are based on the nature of the problem identified, proportionate and justified in light of the objectives of NRAs as outlined in the Framework Directive. NRAs have been set the following objectives to guide them as they carry out the task specified for them in the Directives:

- Promote competition;
- Contribute to the development of the internal market; and to
- Promote the interests of the citizens of the European Union.

As argued in Chapter 1, not of all of these objectives arise when considering remedies that are designed to tackle SMP. Clearly the objective of promoting competition is of critical importance given the nature of the problem identified. The Directives make clear that this is a dynamic view of competition as NRAs have to ensure that competition is promoted by encouraging efficient investment and innovation. This is made concrete in relation to mandating access where it is stated that the imposition of mandated access that increases competition in the short-term should not reduce incentives for competitors to invest in alternative facilities that will secure more competition in the

[81] Directive 2002/19/EC, Recitals 5 and 6.

long-term.[82] Of course, when imposing obligations on SMP firms under the Universal Service Directive, NRAs must also keep in mind the objective of protecting the interests of EU citizens.

The remainder of Chapter 4 goes on to outline principles that should guide NRAs when they are at the remedies stage of the process. The first principle looks at what elements should be included in the decisions of NRAs in order that they meet their objectives and respect their obligations under the Directives. The next two principles tackle the approach the NRA should take when competition over infrastructure is and is not likely. The final principle deals with ensuring that, where possible, SMP undertakings are given incentives to comply.

4.2 The Principles

Article 8 of the Access Directive requires that remedies must be based on the underlying (competition) problem identified, proportionate and justified in light of the objectives set out for NRAs in Article 8 of the Framework Directive.[83] The purpose of this chapter is to put flesh on these concepts and to give guidance to NRAs on how, at the same time as respecting these requirements, to fulfil the aims of the framework.

The first principle is that the NRA must produce reasoned decisions in line with their obligations under the Directives. This incorporates the need that the remedy selected be based on the nature of the problem identified. The problem(s) in the market will have already been identified in the market analysis procedure. Decisions must include a discussion on the proportionality of the remedy. These decisions should include, for any given problem, consideration of alternative remedies where possible, so that the least burdensome effective remedy can be selected. The decisions should also take into account the potential effect of the proposed remedies on related markets.

A second principle is that where infrastructure competition is not likely to be feasible, due to the persistent presence of bottlenecks associated with significant economies of scale or scope or other entry restrictions, NRAs will need to ensure that there is sufficient access to wholesale inputs. Thus, consumers may enjoy the maximum benefits possible. In this instance, NRAs should also protect against the potential behavioural abuses that might occur.

A third principle is that, where as part of the market definition and analysis process, replication of the incumbent's infrastructure is viewed as feasible, the available remedies should assist in the transition process to a sustainable competitive market.[84] Where there is sufficient certainty that replication is feasible these markets should be treated in an analogous manner to those markets where replication is known to be feasible. In other cases with more marked uncertainty the NRA should keep an open mind and engage in on-going monitoring to continually re-assess their views. In these

[82] Directive 2002/29/EC, Recital 19.

[83] Directive 2002/19/EC. Article 8 of Directive 2002/21/EC (the Framework Directive) sets out the objectives of the NRA, which are to promote competition, to contribute to the development of the internal market and to promote the interests of EU citizens.

[84] When referring to replication in this chapter, what is really being referred to is other infrastructure that is capable of delivering the same services. Thus, the replication need not be on the basis of the same technology and, even if it is, there is no assumption that it will be configured in the same manner.

circumstances, no action should be taken that might delay or otherwise stop investment in competing infrastructure where this is efficient. In coming to these views on the feasibility of replication the NRA will need to be mindful of the possibility of inefficient investment.

A fourth principle is that remedies should be designed, where possible, to be incentive compatible. Thus, NRAs should, wherever possible, formulate remedies in such a way that the advantages to the regulated party of compliance outweigh the benefits of evasion. Incentive compatible remedies are likely to be both effective and require a minimum of on-going regulatory intervention. This may be difficult to achieve in practice, especially as the legal power to develop incentives for compliance is likely to vary greatly across Member States.

4.2.1 NRAs should produce reasoned decisions in line with their obligations under the Directives

As outlined in Article 8(4) of the Access Directive, remedies "shall be based on the nature of the problem identified, proportionate and justified in light of the objectives laid down" for NRAs in the Framework Directive. This is an obligation that NRAs face when they impose remedies on SMP undertakings under the Access Directive.[85] NRAs have experience of engaging in transparent public consultations and producing reasoned decisions. This is a proper discipline that all NRAs must work under.

It is an important principle that NRAs should clearly demonstrate their compliance with these obligations in their decisions.

The decisions of NRAs should also be transparent and well argued. This is important to improve the consistency of regulation both over time and across jurisdictions and to assist in providing clear signals to market players. Decisions should include, for any given problem, a consideration of alternative remedies wherever possible, so that the least burdensome effective remedy that best meets the objectives can be selected.[86]

Ensuring the consistency of regulatory practice across the EU is the responsibility of each NRA, subject to particular conditions in national markets. NRAs should co-operate with each other and with the Commission in a transparent manner to ensure consistent application of the framework in all Member States.[87] It is also important, in order to promote the consistent application of the framework, that NRAs start from a common understanding of what each element of this obligation entails.

Harmonisation will be required in the process of analysis across all Member States. This will produce significant benefits to market players in terms of regulatory certainty and predictability but will not automatically result in harmonised outcomes across the EU as the outcomes in each Member State will depend on national circumstances (which will be mainly captured at the market definition and SMP assessment stages of the process).

[85] An identical obligation applies to remedies applied to retail markets under Article 17 of the Universal Service Directive [2002/22/EC].

[86] The SMP firm primarily feels the burden of any given remedy. These include such issues as the administrative burden associated with compliance etc. However, the burdens also include the need for on-going monitoring on the part of the NRA.

[87] Directive 2002/21/EC, Article 7.

NRAs must seek to agree between themselves and the Commission on the types of instruments and remedies best suited to address particular types of situations in the marketplace.[88] As the new framework envisages on-going interactions between the NRA and the National Competition Authority, the NRA may wish to keep the NCA informed as to the remedies that it proposes to implement. This would be of assistance to the National Competition Authority if they were ever to become involved in a complementary manner in relation to the same issue.

The first issue that will be tackled in the NRA's decision will be an identification of the issue to be addressed. NRAs will have considered and identified the nature of the market problem(s) to be addressed in the course of the market definition and market analysis stages of the process.[89] This gives the NRA a clear insight to the nature of the market failure that they are considering. NRAs can then apply the available remedy (or the series of remedies) that most clearly addresses the core of the problem – the competitive effects.[90] As outlined earlier these problems arise due to the factors that enable the SMP firm to possess market power. When choosing the most effective remedy and in order to avoid over-regulation, NRAs should focus their attention on the anti-competitive behaviour that is most likely to occur in the specific market situation, otherwise the situation might be dealt with inadequately.

By tackling the underlying cause of the problem the NRA will attempt to do two things. Firstly, to best reign in the market power of the SMP firm with a view to obtaining the best deal for consumers. Secondly, in those areas where the NRA believes that effective competition may be generated, it will attempt also to encourage new entrants in progressively rolling out competing infrastructure. Of course, if self-sustaining effective competition is not feasible, then NRAs must attempt to control the effects of the market power in the most efficient manner possible. Both of these cases are discussed in the principles below.

It is appropriate at this stage to discuss what the remedies are hoping to achieve. This is in line with the requirement that NRAs justify the remedies in light of the objectives laid down for them.

These objectives as laid out in Article 8 of the Framework Directive are to:

- *Promote competition* in the provision of electronic communications networks, electronic communications services and associated facilities and services facilities. This can be achieved *inter-alia* by ensuring the best price, choice and quality for consumers through fair competition, efficient investment in infrastructure and resource management;
- *Contribute to the development of the internal market.* This can be achieved *inter-alia* by removing obstacles to pan European networks and services and ensuring a consistent regulatory practice across the community; and to
- *Promote the interests of the citizens of the European Union.* This can be achieved inter-alia by ensuring universal access and protecting the rights of consumers and in

88 Directive 2002/21/EC Article 7(2) Framework Directive.

89 Directive 2002/21/EC, Articles 14, 15 and 16.

90 See Directive 2002/19/EC, Article 8(4) for obligations under the Access Directive and Directive 2002/22/EC, Article 17(2) for obligations under the Universal Service Directive.

particular those with special needs. The Universal Service Directive sets out the powers that NRAs have to ensure that these objectives are met.

In carrying out their regulatory tasks specified in the Directives NRAs shall take all reasonable measures that are aimed at achieving these objectives.[91] These are global objectives and in dealing with specific issues, one or more of these objectives comes to the fore.

In terms of selecting remedies in the Access Directive to address the competitive effects associated with market power (which is the problem that has been identified) it is clear that the main objective that the NRA has to bear in mind is that of the promotion of competition. This includes (when considering access remedies) that NRAs seek to ensure the following:

- ensuring that users, including disabled users, derive maximum benefit in terms of choice, price, and quality;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector;
- encouraging efficient investment in infrastructure, and promoting innovation.[92]

It is also clear from Article 8(2) of the Framework Directive that this is not just a static view of competition as the NRA has to ensure that competition is promoted by encouraging efficient investment and innovation. The differences in remedies in situations where a NRA is attempting to promote competition in a static and dynamic sense is dealt with later in the document when principles 2 and 3 are discussed. Imposing obligations on SMP firms under the Universal Service Directive requires that NRAs also keep in mind the objective of protecting citizen's interests. In applying remedies, NRAs will need to bear in mind how effective these remedies are in achieving their objectives. This will be important when NRAs come to consider the issue of proportionality as the negative impacts of a remedy need to be balanced against how effective it is.

The whole process of consistent application of the framework and harmonisation is how NRAs ensure that they are meeting the objective to contribute to the development of the internal market. As outlined in Article 7(2) of the Framework Directive, NRAs shall seek to agree on the types of instruments and remedies best suited to address particular types of situations in the market place, and shall cooperate in a transparent manner to ensure the development of consistent regulatory practice and application of the Directives. This paper and the process of seeking to agree on remedies is a concrete step in meeting this objective of NRAs.

Proportionality is one of the over-arching general principles of European law. It is described as the minimum intervention required, to achieve the objective set out. Guidance from case law tells us that:[93]

'In accordance with the principle of proportionality, which is one of the general principles of Community law, the lawfulness of the prohibition of an economic activity is subject to the condition that the prohibitory measures are appropriate and necessary in order to

91 Directive 2002/21/EC, Article 8(1).
92 Directive 2002/21/EC, Article 8(2).
93 Case C-331/88, 13 November 1990, FEDESA.

achieve the objectives legitimately pursued by the legislation in question, it being understood that when there is a choice between several appropriate measures recourse must be had to the least onerous, and the disadvantages caused must not be disproportionate to the aims pursued.’

In considering proportionality it is important to bear in mind that when SMP is found on a properly identified market some form of regulatory action is warranted. This is provided for in the Directives and is in line with the view that remedies, in these circumstances, lead to welfare improvements. Thus, there is a presumption that remedies increase welfare. This implies that there is no requirement to demonstrate that remedies are globally welfare improving. The issue is to select amongst those remedies that achieve the NRA’s intention that which are the most proportionate. The impact on market players might also have to be considered if there is strong evidence to believe that the immediate introduction of a remedy might cause excessive adjustment costs. In these cases, a short time-limited glide path could be followed.

Decisions should include, for any given problem, a consideration of alternative remedies wherever relevant, so that the least burdensome effective remedy that best meets the objectives can be selected. Each remedy may also achieve the objective of the NRA to a varying degree. This also needs to be considered. Second, in order to assess whether a remedy is proportionate and justified in the light of the objectives set out in the Framework Directive, NRAs should balance the burden of the remedy imposed on the undertaking with SMP and other costs which the imposition of a remedy may entail against its prospective benefits. Both assessments are already required by some national systems of administrative law and form part of the proportionality assessment under Community law. However, in order to make the choices involved more transparent, NRAs may carry out an assessment of the regulatory options available, including a qualitative assessment of the anticipated benefits and potential costs of the option selected ("regulatory options assessment").

When carrying out a regulatory options assessment, the justification of regulatory measures will generally be based on a qualitative analysis taking into account economic theory and market experience. Further to this, NRAs can where reliable data is readily available also use quantitative methods to support the assessment. However, predictions of future market developments are difficult to quantify due to uncertainty about the behaviour of market parties, limited availability of data and statistically significant estimates, second-order effects of intervention, and the impact of exogenous factors. This means any prospective quantification will necessarily be of a partial character and can in the best case only provide estimates of limited value e.g. indicating general trends such as the direction and in some cases the order of magnitude of expected effects. Hence, quantitative analysis where at all feasible will at best play a supportive role.

Even the best-designed remedies may take a period of time to take effect. At the same time the incumbent is likely to have a strong incentive to ensure that the new entrant does not reach the critical mass in terms of market presence to roll out competing infrastructure. In those circumstances it will be necessary to ensure that the short term exercise of market power is controlled by a series of remedies that ensure that the objectives of regulation are not frustrated.

In considering the imposition of several remedies the NRA will also have to consider the potential interaction of the series of remedies to ensure that there are no unintended consequences that would frustrate the regulatory goals or lead to a disproportionate burden being placed on the market players.

It is very important to maintain consistency between remedies, so that the introduction of further remedies does not unintentionally undermine the effectiveness of others. For example, the NRA might have to consider how the availability of wholesale line rental might affect the attractiveness of taking unbundled local loops. This may be important if the business case for using unbundled loops rests on the provision of both narrowband and broadband services, and the availability of a wholesale line rental product puts pressure on narrowband pricing, thus affecting this revenue stream available to the user of unbundled loops. As a general point NRAs should ensure that, where markets are closely related and interdependent, there are consistent price structures for the different access products so as to promote infrastructure and service competition in a balanced way.

Sometimes, within the set of available remedies there will be remedies that require on-going monitoring to ensure compliance (and perhaps a series of supporting remedies) and others that may bring forward the day that regulation (for a particular issue) may no longer be required. To the extent that both potential remedies would be effective the principle of proportionality would require that the second remedy be preferred to the first.

Remedies will need to be designed to strike the correct balance between generality and specificity. Highly specific remedies provide a greater degree of legal certainty but tend to be inflexible and not well future-proofed. Moreover, careful specification can consume large quantities of time and regulatory resources. If the remedies are not properly designed, they may turn out to be ineffective.

On the other hand, a remedy expressed in general terms may give rise to uncertainty about what it actually means. This may work to the advantage of the SMP player who has incentives to exploit such uncertainty. To resolve this uncertainty will take time but such delays are likely to be contrary to the objectives of the NRA.

4.2.2 Protecting consumers where replication is not considered feasible

As part of the process of arriving at a point where remedies must be selected, the NRA will have undertaken a detailed review of the market. In some areas the NRA will have taken the view that new entry/replication is very unlikely (and there is very little uncertainty surrounding this assessment for the foreseeable future).

In applying remedies under the Access Directive, NRAs are attempting to promote competition.[94] This includes ensuring that users derive the maximum benefit in terms of choice, price and quality and that there is no restriction or distortion of competition. In this regard the promotion of service competition, where replication is not feasible, is an important goal. Service competition increases consumer choice, which is an important end in itself. NRAs will also have to be mindful that they encourage efficient investment in infrastructure and that they promote innovation. However, in the instance of non-

94 Directive 2002/19/EC, Article 8 and Directive 2002/ 21/EC, Article 8(2).

replicable infrastructure these concerns are mainly related to ensuring that the network is maintained and necessary upgrades are made.

In general, where entry barriers are structural and competition is (at least in the short run) unlikely to emerge, regulation needs to ensure that the resulting market power is not exploited, focusing in particular on behaviour that distorts or prevents competition in related markets or the SMP market and behaviour that is otherwise to the detriment of end users.

In this situation (non-replicability) the NRA has two concerns. Firstly, to ensure that as much services competition is encouraged as is feasible. Secondly, that there is a sufficient return on the existing infrastructure to encourage further investment and to maintain and upgrade existing facilities.[95]

The NRA will have to ensure that there is sufficient access to wholesale inputs so that service competition can flourish. Competition at the service level must be undistorted by activities of the upstream infrastructure provider.[96] In those instances where replication is not considered feasible, promoting service competition is an important goal for the NRA as it is only through vigorous competition in services that consumers can enjoy the maximum benefits possible.

However, the incumbent may engage in activities designed to dampen competition. At the retail level, these include familiar practices, when practised by a dominant firm, such as predatory pricing and bundling. At wholesale level, market power can be exercised in a number of different ways by a dominant infrastructure operator. Examples are refusal to supply, discriminatory access prices and quality degradation. These market failures are familiar in the economics and competition law literatures and from regulatory practice.[97]

A further type of harmful exercise of market power (when practised by a SMP firm) is a margin squeeze. A vertically integrated firm may choose a combination of upstream and downstream prices, which enable it to foreclose entry into the potentially competitive activity, by denying its competitor an adequate margin to survive. This may be (but need not be) accompanied by charging a price above cost for the product under the firm's dominant control.[98] The Framework Directive explicitly identifies leveraged dominance as a third form of dominance (in addition to single and joint dominance).

The Access Directive contains remedies designed to mandate access, control prices and counter deliberate quality degradation. NRAs will be mindful that tight regulation of interconnection and access charges etc. (e.g. origination and termination charges) may result in attempts to increase the cost of interconnection faced by new entrants through delaying interconnection or degrading the quality of interconnection links or the use of incompatible standards. These incentives are explored in greater detail in Chapter 5.

[95] Directive 2002/21/EC, Article 8(2) in relation to the promotion of competition in electronic communications services.

[96] Similar considerations apply in markets where infrastructure competition can emerge while the historic supplier retains significant market power.

[97] See in particular Notice on the application of the competition rules to access agreements in the telecommunications sector (98/C 265/02).

[98] See the Annex.

When replication is not feasible, this fact is likely to affect the upstream supplier's incentive when faced with equally efficient downstream competitors. If competition can only occur at the services layer, a supplier of access to that layer ought to be indifferent between serving equally efficient services competitors and discrimination becomes theoretically less likely. However, for historical reasons and in particular if faced with common ownership between the infrastructure supplier and the services operator, strong incentives to behave in a discriminatory manner may still exist. There is also the consideration that a firm that is operating in both the upstream and downstream market may be concerned that an efficient downstream competitor may try to enter the upstream market once its downstream market position is established. This will reinforce any incentive to discriminate. The regulated firm may also attempt to undermine effective regulation at the wholesale level by extending its market power into the retail level of the value chain. These issues are discussed in greater detail in Chapter 5.

When there is a very limited potential for infrastructure competition, the setting of access prices is critical (as there will be no competitive dynamic to drive upgrades and innovation) and the NRA must ensure that the SMP firm has the incentive (and resources) to maintain and upgrade its infrastructure. This issue is normally dealt with when considering the cost models that NRAs use in setting access prices and in calculating a reasonable rate of return.

4.2.3 Supporting feasible infrastructure investment

One of the core assessments that the NRA has to make is the degree to which the rolling out of competing infrastructure is feasible in their Member State over the timeframe of the review and over the projectable future.[99] This assessment will depend on national circumstances and on the general sentiment of the market place. The factors that lead to high and non-transitory entry barriers will have been identified at the stage of market definition. There will also have been an examination of the dynamic state of competition behind those barriers. In the circumstances that relate to the subject matter of this chapter, conclusions will also have been made as to the dynamic towards effective competition over the current review period.

However, in forming a view on replicability the NRA must also project beyond the period of the review and make an assessment of how the dynamics of the market will play out over a number of review periods. It could be that, whilst there is no prospect of new investment in the immediate future (and hence SMP exists), this situation may be expected to change in the future.

In a dynamic innovation driven market with the constant potential for disruptive technologies emerging, it is often impossible to predict with any degree of confidence the likely direction the market may take. The possibility that infrastructure may be replicated may have implications for how NRAs design remedies and on access prices for the current review period.

However, this uncertainty itself is an important indicator to consider. In the face of uncertainty the NRA has to consider the risks of not promoting replication where it is, in fact, feasible as opposed to promoting replication where it is not, in fact, feasible.

[99] Directive 2002/21/EC, Article 8(2) in relation to promoting competition in electronic communications networks.

Consultation amongst NRAs and with industry participants will also help to come to a clearer view as to whether replication is likely.

In coming to a view on feasibility, the NRA will also have to carefully consider the potential of inefficient investment. This concern with inefficient investment will loom larger as new entrants take each additional step on the ladder to infrastructure based competition.

As made clear earlier the NRA has the objective of promoting competition in order to deliver the maximum benefits to end users. However, in the setting where replication is feasible the NRA also has to bear in mind the impact that their actions have on the incentives to invest in alternative infrastructure. This is made explicit in the recitals to the Access Directive where it is stated that "the imposition by national regulatory authorities of mandated access that increases competition in the short-term should not reduce incentives for competitors to invest in alternative facilities that will secure more competition in the long-term[100]." As new entrants roll out more and more investment further down the network hierarchy, both the size of investment and the likely proportion of this that is potentially sunk increases. As a counter-balance to this, however, the benefits that the new entrant obtains from further investment rise as it increases its control of the service offerings. In planning their investment strategy new entrants will, of course, benefit if the NRA has a consistent regulatory access philosophy that gives new entrants the confidence to make the incremental investments.

Competition over competing infrastructure has many advantages. The pressure to minimise costs is exerted over the whole value chain. This will induce greater scope for innovation, process innovation etc. which creates a downward dynamic for costs. Consumers also benefit from more diversified offerings, which correspond more closely to their individual needs. There is general agreement that a great potential harm to welfare occurs when replication is feasible but not promoted. This will delay the roll out of new and innovative services and, particularly in relation to broadband, may have large negative consequences on the general economy.

Thus, if the NRA is uncertain as to whether replication is feasible it should maintain a neutral stance and continue to monitor the market (both domestically and internationally) to firm up its view as to the likelihood of replication. Of course, the degree of uncertainty would impact on how vigorously any such policy would be followed. If the level of uncertainty as to replicability is low (i.e. replication that appears efficient has happened elsewhere), then there may be a case for believing replication is feasible in the particular context under consideration. On the other hand, if replication has not occurred elsewhere, then a more cautious approach is warranted. In all of this, the NRA will need to be careful not to second-guess the market place but rather should provide a coherent background against which market developments take place.

If there is no potential for replication (or indeed very little or no uncertainty as to how the market will develop), this will also have implications for the types of remedies selected and on the structure of access prices. Remedies are, thus, the link between reviews. Remedies attempt to overcome the problems identified in the market analysis but may take numerous reviews for their ultimate effect to be fully realised.

[100] Directive 2002/19/EC, Recital 19.

Remedies will be designed to deal directly with the basis of the problems identified in the market analysis and to allow competition to emerge. Service competition based on regulated access at cost-oriented prices can be (and in general is) the vehicle for long term infrastructure competition. With this new entrants can decide on their investment in a step-by-step way and can establish a customer base[101] (critical mass) before they go to the next step of deploying their own infrastructure. In those areas where infrastructure based competition is feasible, such interventions have as their long-term objective the emergence of self-sustaining effective competition and the ultimate withdrawal of regulatory obligations which implies a built-in “sunset clause” for the removal of “rungs”, i.e. access obligations.

However, if new entrants are to flourish and eventually invest in their own infrastructure, they will need to be supported in this by a dynamic series of supporting remedies that attempt to deal with the SMP firm’s on-going efforts to frustrate the process. Without on-going vigilance in this regard, new entrants may never be able to develop a sufficient market presence to justify making investments and the long-term vision of infrastructure-based competition will never emerge. Of course, the incumbent’s incentive to maintain and upgrade their network during the transition process also needs to be considered.

As infrastructure competition will not necessarily develop automatically, it will also be necessary to impose remedies that enable the new entrant to reach a point of the investment ladder which makes commercial sense and which tends to maximize the extent of economically efficient competing infrastructure. This will require a coherent regulatory policy (and in particular a consistent price structure) along the relevant ladder. This is important for three reasons:

- Commercial considerations may mean that the best business plan is to enter the market at a point on the investment ladder lower than the point to which the entrant ultimately aspires

- It may be completely unclear at the outset what would be the economically efficient level of investment. Entrants may make different rational decisions on this point. Such decisions are best taken by the entrants and not by either regulator or SMP player

- Entrants may need access to more than one rung at the same time, for example because of considerations of economies of scale and density.

In the first case in particular, remedies which facilitate climbing of the investment ladder act as a bridge that should enable new entrants to consolidate their market position so that they will undertake the necessary investments. In all three cases, lack of coherence in the set of remedies chosen risks incentivising the new entrants to make investment decisions on the basis of regulatory arbitrage opportunities, rather than economic efficiency. In particular, if rungs are missing, there is a risk that entrants are forced to choose between investment options which are either commercially or economically relatively unattractive. The consequence is that the economically efficient level of investment may not take place.

[101] This assumes a certain degree of customer loyalty or inertia.

For broadband services, the following standardized and fit-for-purpose access products are considered to form the "rungs" of the ladder (which may relate to different relevant markets):

- resale;
- bitstream;
- shared / fully unbundled access,

the ultimate rung being own infrastructure.
Due to the time scales involved, which will differ according to market conditions within each Member State, other remedies may need to be imposed to provide a sufficient number of intermediate steps for new entrants. For example, certain backhaul services (ATM backhaul, ATM broadband conveyance, other backbone transport) may be required, according to national circumstances.[102] [103] Over time, access products may change. More generally, when implementing the ladder NRAs need to adjust ("customise") it in terms of timing, pricing and product design to national circumstances and take into account structural/exogenous factors such as disparity of population density or the existence/non-existence of alternative network infrastructures as well as the development of the market.

For example, in terms of access to the local loop, the fundamental problem is that there are extensive economies of scale and density, from which the incumbent benefits. The availability of a bitstream product on reasonable terms gives entrants access to the incumbent's economies of scale in the local access network, which is the root cause of their market power. Together with appropriate access remedies it allows entrants to build a customer base for their services which in turn may give the critical mass that allows those competitors the chance to invest in their own infrastructure so that competition would become self sustaining. Whilst this addresses the problem directly, it may well be that new entrants will have to be facilitated in progressively rolling out their own infrastructure by a series of other remedies that enable firms to make 'a bridge' between each successive step. Of course, bitstream is a step up from pure re-selling in that some investment has to be made. There is a range of bitstream products available throughout the Community with some Member States having more than one type of bitstream. Each type of bitstream product available will require a different level of investment on the part of the new entrant.

More generically (and not limited to broadband), the following access products could be distinguished as rungs of a ladder of investment:

- resale;
- intermediate wholesale products (typically capacity);
- access to infrastructure elements,

again the ultimate step rung being own infrastructure.

For example, for corporate multi-site services one could establish the following ladder: leased lines → PPC/core → PPC;[104] for interconnection services it could be: double transit → single transit → local.[105]

[102] Not forgetting the highest rung: own infrastructure.
[103] See Commission comments on case HU/2004/0186.
[104] Cf. Cave, "Managing the ladder of investment", presentation BNetzA/WIK, NGN Workshop, 5 Dec. 2005.
[105] For the application of the ladder to interconnection cf. e.g. RTR, notification market 10 (case AT-2004/0090), and Cave et al. (2001).

The setting of access prices is a complex task[106]. If access prices are set too low then there is a risk that the new entrants will not have an incentive to roll out their own infrastructure (nor will the incumbent have sufficient incentives to upgrade and maintain their network). There is also the danger of inefficient firms entering the industry. This factor is especially important where new technologies or networks are being deployed as the NRA tries to encourage efficient investment in infrastructure and promote innovation. On the other hand, if access prices are set too high, otherwise efficient new entrants may be dissuaded from entry and there is also the danger of inefficient investment. Thus, NRAs will have to keep in mind the impact of their decisions on the incentive to build, in instances where replicability is feasible. This will require, for instance, a consistent pricing structure when more than one type of access is offered.

NRAs must still deal with the issue of how to give new entrants the incentive to roll out their own infrastructure. NRAs may have to signal in their reviews that they view some remedies as bridging a gap so that new entrants can more easily make incremental investment but that market players cannot base their long-term business models on the basis of these remedies alone. Thus, the NRA has the ability to change the incentive properties of the regulatory framework over time but must do so in a predictable and transparent manner so that business decisions can be planned accordingly. The principle that regulators must produce reasoned decisions, in a transparent manner, gives the additional benefit that the underlying reasons for imposing a given remedy (series of remedies) will have been made clear. The NRA will also have to show that the remedies are based on the problem identified, proportionate and justified in light of the objectives set them in Article 8 of the Framework Directive.

Consistent relative prices reflect the difference in cost between the products. In other words: the price difference or margin must satisfy the margin squeeze test of covering the incremental costs of providing the “wider” product.[107], Due to incorrect pricing, the new entrant remains sitting on “his” rung without moving up the ladder. Additionally, when rungs are too far away, the move to the next rung becomes too risky, when rungs are too close, it would not pay to move to the next rung. Therefore pricing and distance between rungs should incentivise new entrants to reach the highest point of the ladder at the maximum speed consistent with efficient investment by both incumbent and new entrants.

Complementarity of access products

Regarding the use of access products, the ERG Report[108] recently found that while migration from resale to bitstream and on to shared and full[109] unbundled access is taking place[110], it also pointed out that in some countries, bitstream access and unbundling are used complementarily (“sitting on 2 rungs”). Depending mainly on population density[111], new entrants use bitstream access in less densely populated areas while turning to unbundling (both shared and full) in big cities in order to get national coverage and to make a complete nationwide offer which is an important

106 See paragraph 5.2.2.2
107 Cf. Cave, op. cit., p. 22;
108 ERG Broadband market competition report (ERG (05) 23), pp. 3, 5, 18, 23.
109 This is among other things a result of VoB services replacing traditional voice telephony services.
110 Especially in those countries where migration processes are running smoothly and at moderate costs.
111 Number of customers/lines per MDF.

marketing aspect. Especially in countries with large differences in population density between the various areas of the national territory, it may be that new entrants would need to serve either the whole country or none of it; they may be limited in their ability to just serve the high density areas. In such cases, it is not a serious option for them to use LLU (say) in urban areas unless bitstream is available in less densely populated (rural/remote) areas. Nevertheless, this does not imply that geographical limitation of the bitstream remedy would be appropriate as different players may be relying on national availability. Regulators in those countries should also bear in mind that in order to get competition across the national territory new entrants will also have to be able to serve low density areas economically, which may necessitate the availability of multiple access products[112].

In the case of services to corporate customers, the removal of one rung may mean that a new entrant may no longer be able to make a multi-site offer based on different access products and would lose the customer seeking a single source supplier. This may have a significant detrimental effect on competition for the supply of services to such customers. For example, while city suburbs are generally thought to be fertile territory for market players which seek to offer broadband services to residential consumers via unbundled local loops, the same may not be the case for providers which address only the corporate market. There may be insufficient density of corporate customers to justify the overheads of using unbundled loops in such areas. In these cases, the competitor would need to rely on bitstream services.

Migration

The other crucial condition besides consistent pricing to maximise efficiency of investment and effectiveness of competition is the availability of well-functioning and cost-effective network migration processes (see below point 5.2.2.3). These will be needed either to allow the entrant to serve its existing customers via its own additional infrastructure (corresponding to a climb of the ladder) or to serve customers who have been attracted from another provider using a different infrastructure configuration. SMP players have commercial incentives to delay and degrade such processes, in order to make it more difficult for entrants to justify infrastructure investments and to win customers from other providers.

For business customers, who are generally extremely sensitive to quality of service, the functioning of migration processes is crucial for the choice of an operator.

4.2.4 Incentive compatible remedies

Remedies are much more likely to be effective if they are designed in such a manner as to give strong incentives for compliance.

At a basic level, incentive compatible regulation is about empowering both parties to engage in commercial negotiation. There should be no restrictions which prevent undertakings negotiating between themselves agreements on access and/or

112 Cf. ARCEP decisions 05-0278 and 05-0280 of 19 May 2005 and 05-0281 of 28 July 2005.

interconnection (other that those restrictions that arise generally from competition law).[113] Regulation is, however, justified in circumstances where commercial negotiation fails and where there is a large difference in negotiating power and the access seeker relies on infrastructure provided by the other party.[114]

However, experience thus far in most circumstances has shown that commercial negotiation is the exception rather than the rule. This is to be regretted but it is nonetheless a fact. In these cases, incentive compatible regulation involves attempting to change the pay-offs to non-compliance. Measures to enforce compliance with a SMP firm's obligations are outlined in the Authorisation Directive.[115] These include the power to obtain information to monitor compliance and the potential to impose penalties.

As was argued earlier, SMP firms are likely to have incentives (and a myriad of means) to attempt to frustrate emerging competition. The NRA can then become locked into a cycle of compliance monitoring and intervention. It would be preferable if the original remedy could be designed in such a way that the advantages to the regulated party of compliance outweigh the benefits of evasion. To be able to achieve this, the NRA must be able to make the penalty from non-compliance (and the probability of action) such that the regulated firm will comply voluntarily. Incentive compatible remedies are likely to be effective and to require a minimum of on-going regulatory intervention.

To achieve incentive compatibility, the NRA needs to be able to adjust the pay-off from non-compliance. This will normally involve giving the SMP firm strong financial incentives to comply. The degree to which this can be achieved in practice will depend largely on the legal powers that NRAs have to apply such administrative measures (against the background of their own legal system). The ability to impose a financial penalty is envisaged (in Article 10 of the Authorisation Directive) if an SMP undertaking fails to comply with an obligation (after such failure has been pointed out to it).[116] However, such a power has to be given by Member States in accordance with national law. In addition, when there are repeated serious breaches there is the power to prevent an undertaking from supplying communications networks or services or suspend or withdraw rights of use. From an economic perspective, if the NRA has evidence of a breach of an obligation that is so serious so as to create inter alia serious economic or operational problems for other providers or users, the NRA may take immediate interim measures.

In order to illustrate this principle some examples are developed:

4.2.4.1 Private information and the inflation of costs

In circumstances where a cost-orientation obligation is appropriate, the NRA may often choose to specify the appropriate charge or to control it via a price cap. But this is particularly resource-intensive work. For reasons of expediency therefore, the NRA may choose instead simply to specify that the charge should be 'cost-oriented' or 'based on costs which are reasonably and efficiently incurred' or some similar formulation.

113 Directive 2002/19/EC, Article 3(1).
114 Directive 2002/19/EC, Recital 6.
115 Directive 2002/20/EC, Articles 10 and 11.
116 Directive 2002/20/EC.

One problem with the latter approach is that the SMP player may have an incentive to inflate its estimate of its costs. However, such an incentive can be significantly reduced – if not removed altogether - if the NRA orders that the appropriate charge (once it has been identified) should be levied from the date on which the cost orientation obligation became applicable. The SMP player would therefore be required to repay (preferably with an appropriate commercial rate of interest and at its own expense) any over-payment, which had been made while non-compliant charges were in effect. A provision of 'retrospection' should not, of course prevent an aggrieved party from seeking further redress in Court.

4.2.4.2 Delays in supply

Sometimes the NRA may decide to specify the characteristics of products that an SMP player must supply. On other occasions it may be inappropriate to specify the detail; the NRA could then specify that the SMP player should supply any product within a defined class (for example, interconnection of bitstream access services) which was reasonably requested. That leaves the problem of how to give incentives to the SMP player to deal reasonably with all reasonable requests. The NRA may be able to reduce the size of this problem by issuing guidance on what it would regard as reasonable if it were called upon to resolve a dispute. Although such guidance is not binding, SMP players may prefer to follow it, as a general rule, to avoid adverse publicity from being 'named and shamed'.

Financial incentives can also be created in this area. Where applicable, the NRA may consider imposing a requirement that where a reasonable request is initially refused but subsequently enforced by the NRA, the SMP player is required to pay a set amount per day to the aggrieved party for every day between the date the product should (reasonably) have been delivered and the date it was actually delivered.

Another issue may arise where the SMP player is already selling a retail service but no wholesale equivalent. Where the wholesale equivalent is covered by a general obligation to supply (or where the NRA determines that the SMP player should supply a defined wholesale service) the SMP player needs to be given incentives to supply the wholesale service quickly, once it has been requested. In such circumstances, the NRA may consider imposing a deadline for supply. If the SMP player misses the deadline, it would be liable not only for compensation (as described in the previous paragraph) but also to a prohibition on providing any relevant wholesale input to itself until such time as the requested wholesale service had been made available to others. This would mean that it would not be able to obtain a 'first mover advantage' by supplying its retail product while denying others the ability to compete by withholding the necessary network inputs.

4.2.4.3 Service Level Agreements and Service Level Guarantees

Even where there is an established reference offer for a product, SMP players often prefer not to be committed to supplying that product according to a particular time-scale or quality or to be committed to repairing faults within an agreed time-scale. Commitments of this kind would be normal commercial practice and it is entirely legitimate – and may be necessary for proper functioning of the market – for the NRA to require the SMP player to make reasonable commitments of that nature. What is ‘reasonable’ will depend on the individual characteristics of the product.

Again, financial incentives can be considered to ensure that the SMP player meets those commitments in practice. The NRA may decide to require the SMP player to compensate an aggrieved party for failing to fulfil an order, at a specified rate. Further discussion is at paragraph 5.2.5.3.

4.3 Conclusions

Under the new regulatory framework regulation will only be imposed where appropriate and will be rolled back once competition becomes effective. In the detailed discussion it is sometimes easy to lose sight of the main goals that remedies are being designed to achieve, which is to promote competition and protect the interests of EU citizens (where this is appropriate). These goals can be simultaneously achieved by structuring remedies (using a harmonised method of analysis, which is able to take account of national circumstances) in such a way as to promote efficient competition and investment in competing infrastructure where appropriate.

The principles outlined above give guidance to NRAs in the consideration of remedies in the new framework. The task of selecting appropriate yet proportionate remedies to achieve the objectives as outlined for NRAs is a complex task. Some Member States have already embarked on this process and we can all expect to learn valuable lessons as the process proceeds.

5 Application of remedies to competition problems

5.1 Introduction

This final chapter will attempt to match the remedies available to NRAs according to Art 9-13 of the Access Directive and Art 17-19 of the Universal Service Directive[117] (see Chapter 3 of this document) to the standard competition problems identified in Chapter 2. Underlying this match are the ‘principles to be applied by regulators in choosing appropriate remedies’ as discussed in Chapter 4.

In practice, the imposition of remedies will follow the market definition and market analysis stage. The first stage involves a check of the 3 criteria for defining relevant markets as outlined above. After the second stage regulators will have gained detailed knowledge about the market, and will – in case that the market is not effectively competitive – have determined one (or more) SMP undertaking(s), will have investigated the source of market power, and will have identified actual and potential competition problems. All this knowledge is a necessary precondition for the imposition of effective and appropriate remedies. The markets under consideration have passed the 3 criteria test and are therefore characterized by high and non-transitory entry barriers, do not tend towards effective competition over time, and cannot adequately be addressed by competition law alone. As a consequence, the markets qualify for ex ante regulation according to the new regulatory framework.

If markets have the characteristics of natural monopolies (significant economies of scale and/or scope at the relevant level of output) and significant barriers to entry exist (e.g. because of large sunk costs), effective competition is unlikely to emerge on its own, and regulators will have to deal directly with the adverse effects of market power, such as excessive pricing, price discrimination, lack of investment, inefficiencies, and low quality. In other markets, where no significant economies of scale or scope, and only limited structural (and thus exogenous) barriers to entry exist, concerns about the market power are reduced, however, SMP positions may result from endogenous barriers to entry, i.e., barriers to entry following from the behaviour of the dominant undertaking (foreclosure). In such cases, the NRA is called upon to prevent such behaviour in order to promote market entry and enable competition to develop. The discussion of remedies in this chapter is based on the principles which have been identified in the previous chapter (and which are in turn based on the goals of Art 8 Framework Directive). The chapter takes the following approach to the application of these principles:

Principle 1 (NRAs should produce reasoned decisions in line with their obligations under the Directives): The standard competition problems are described as different kinds of anti-competitive or exploitative behaviour of an SMP undertaking, which may be identified by NRAs in course of the market analysis. The behaviour, in turn, rests on a certain ‘strategic variable’ like, e.g., price, quality, time, information, or a bundling decision. To be able to address a competition problem, the NRA will have to choose a remedy by which it is possible to – directly or indirectly – address the ‘strategic variable’ of the SMP undertaking. The ability to address a certain ‘strategic variable’ will thus be

[117] When referring to articles of these Directives in this chapter, the abbreviations AD and USD will be used. Other obligations which might be imposed following an Art 8 (3) procedure are not considered in this context.

the first criterion applied for selecting an appropriate remedy. This does not only ensure that the remedy is effective but also that it is based on the nature of the underlying problem as stated in principle 1. The principle of proportionality is applied by outlining, where possible, factors based on which NRAs should evaluate different regulatory options.

Principle 2 (Protecting consumers where replication is not considered feasible) and Principle 3 (Supporting feasible infrastructure investment): At the core of these principles is the question of replicability, which has technological, economic and time dimensions that will need to be assessed on a case-by-case basis. The issue of access to facilities which are considered to be non-replicable as well as the question how NRAs can influence investment incentives of the SMP undertaking and alternative operators and can support alternative infrastructure investments is particularly relevant for the problem of vertical leveraging and will be discussed extensively in section 5.2.

Principle 4 (Incentive compatible remedies): As the application of principle four crucially depends on NRAs' legal powers and the circumstances of the case at hand, it can be discussed on a general level only to a limited extent.

Once remedies are designed for each standard competition problem, patterns of remedies or competition problems may emerge in two ways: (i) certain competition problems may require the same remedy or set of remedies, (ii) certain remedies have to be imposed together with other (ancillary/accompanying) remedies. Such links will be discussed in a second step following the design of remedies for each competition problem individually. From an economic as well as from a legal point of view, it is important to distinguish between retail and wholesale markets wherever necessary. Reference to particular markets will be made whenever useful.

The analysis of this chapter is made on a general level, abstracting from conditions which NRAs usually will face and will have to take into account when taking decisions about remedies. The conclusions drawn should not be seen as advocating a mechanistic approach or preclude NRAs from coming to different conclusions based on their market analysis.

Where markets meet the 3 criteria test and qualify for ex ante regulation, NRAs do not need to show that an abuse of market power has actually occurred, but may impose remedies based on an SMP undertaking's underlying incentives to exploit its market power. The degree to which such incentives exist, and therefore the likelihood of an SMP undertaking exploiting its market power should be inferred from the NRA's market analysis. *Ex ante* regulation should aim at eliminating the incentives for incumbents to exercise their market power and, where possible, to create the conditions whereby effective competition can emerge, thereby decreasing the likelihood of anti-competitive or exploitative practices.

Therefore, an incentive-discussion will take place in short introductory sections to each remedies assessment and will provide a summary of the relevant findings in economic literature. The purpose of these introductory sections is not to draw direct conclusions from particular economic models of competition, or to identify mechanisms which are thought to be automatic and tangible. The purpose – in line with the spirit of the new regulatory framework and the use of economic analysis it advocates – rather is to gain an insight into the incentives to dampen the competitive process which exist under specific market structures, thereby informing NRAs on how to best deal with the need to reduce or eliminate such incentives.

5.2 Case 1: Vertical leveraging

Case 1 as set out in Chapter 2 is dealing with leveraging issues which may arise in a situation where a vertically integrated operator has SMP on the wholesale market.

Case 1 may pertain, e.g., to the following communications markets:

- Fixed line telephony, where the access network (or at least parts of the access network) is particularly hard to replicate due to significant economies of scale and large sunk costs in many cases. All retail services making use of the access network could then potentially be foreclosed by the SMP undertaking. This includes voice telephony but is also relevant for narrowband and broadband (e.g. xDSL) internet access.
- Leased lines, where terminating segments and in some cases even trunk segments (e.g. on ‘thin routes’) may form competitive bottlenecks.
- Terrestrial broadcasting, if the incumbent broadcaster owns the transmission infrastructure.

5.2.1 Relevant concepts: Incentives to anti-competitive behaviour

According to economic literature, a vertically integrated dominant undertaking supplying a necessary input to its downstream competitors has various possibilities to foreclose the potentially competitive retail market.[118] To actually engage in foreclosure, however, the undertaking needs an incentive to do so, i.e., it has to be able to increase its profits by driving its competitors out of the retail market.

In an unregulated environment with perfect competition on the downstream market, an upstream monopolist will in general not have an incentive to foreclose the retail market. Profits can be maximized by granting access to the most efficient downstream firms and setting the access price so as to extract the entire retail profit. This argument became known as the ‘Chicago Critique’ of foreclosure.[119]

This argument, however, only holds under the assumption that the retail stage is perfectly competitive and the monopolist can indeed extract all profits from the retail market solely by setting an appropriate access charge. Beside the problem that the monopolist would earn excess profits and supplies an inefficiently low level of output in this case, these assumptions will usually not be fulfilled in practice for several reasons:

- Where the dominant undertaking is subject to an access obligation with a tightly regulated (i.e., cost-oriented) access price, it is constrained from extracting retail profits by means of its access price. It then has an incentive to raise its rivals’ costs by means of non-price parameters like quality or product characteristics. The

118 In the following, the upstream market will be referred to as the wholesale market and the downstream market as the retail market. The same considerations apply, however, for any two vertically related markets, i.e., also two wholesale markets.

119 See, e.g., Armstrong (2002, p. 305) or Rey/Tirole (1997, p. 7).

dominant undertaking in this way can increase its profits by increasing its market share on the retail market as well as the retail price[120] and might even be able to (re-) monopolise the retail market. If the access price is regulated above costs, there is a trade-off between access and retail profits and thus the incentive to raise rivals' costs by means of non-price discrimination may be weaker.[121]

- Incentives to foreclose the retail market may also be present without regulation whenever an upstream monopolist faces potential competition on the wholesale market. This might be the case if entry at the retail level facilitates subsequent expansion by entrants into the upstream stage. After having developed a customer base, the risk of sunk-cost investments on the upstream level might be reduced.[122]

- An unregulated vertically integrated undertaking with market power on the wholesale market may have an incentive to apply a margin squeeze if there is an alternative supplier of the wholesale product. Independent retail undertakings may buy the access service from the alternative supplier, which will reduce the access profits of the incumbent. By setting a retail price which does not allow retail competitors to cover their costs given the access charge, the dominant undertaking is able to foreclose the retail as well as the wholesale market as long as the alternative supplier of the access service cannot undercut the incumbent's access price.[123]

- The unregulated monopolist will also deny access to alternative operators less efficient than its own retail business.[124] This may not be a problem from the point of view of static efficiency, however, is likely to be detrimental to customers as in the long run the (dynamic) gains from competition remain unexhausted.

- The unregulated vertically integrated monopolist also is likely to have incentives to foreclose the retail market whenever there is no perfect competition on the downstream level. If alternative operators have (some) market power (e.g. because of product differentiation), they will be able to retain some level of profits. This is also referred to as a double mark-up problem, as both the monopolist upstream as well as the alternative operator downstream set prices above costs. In such situations, the monopolist can increase its profits by foreclosing the retail market as this will allow him to capture the rents, which have been captured by the alternative operator before.

This list is not exhaustive. In general it can be stated that incentives to leverage market power into the retail market exist whenever the dominant undertaking is unable to extract all rents from the retail market and/or wherever downstream competition would lead to an erosion of its upstream market power.

Against this background, the following conclusions can be drawn: A vertically integrated monopolist on the wholesale market may be able to exert its market power by charging an excessive price for the wholesale input. If this is not possible for some reason, which is frequently the case, it is likely to attempt to exploit its market power by

120 See Economides (1998) and Beard et al (2001).
121 cf. Sibley/Weisman (1998) and Beard et al (2001).
122 cf. Beard et al (2003).
123 cf. Beard et al (2003).
124 cf. Armstrong (2002).

leveraging it into the retail market. This can be done either by denial of access or by means of a margin squeeze. Alternatively, and in particular in cases of mandatory access and access price regulation, discrimination on other parameters like quality, time, or product characteristics may be used. Incentives for leveraging will also exist if there is potential competition at the wholesale level, in particular if retail entry facilitates market entry on the upstream market.

It has to be mentioned, finally, that economic literature points out some cases, where exclusionary practices may be economically justified. If, for example, specific investments are necessary for one or both of the vertically related undertakings, a situation of 'bilateral monopoly' may emerge, which is associated with high transaction costs (this is also referred to as a 'hold-up' problem). In such a case, transaction costs can be reduced by vertical integration of the two undertakings.[125] Vertical foreclosure can also be welfare enhancing if it allows the dominant undertaking to enforce price discrimination on the retail market without which the fixed costs of production could not be covered.[126] When – as a consequence of regulatory intervention – price discrimination is rendered impossible, the product fails to cover its costs and will no longer be provided. Thus, although vertical foreclosure will in general have negative effects, welfare is likely to be reduced whenever the production of a particular good is ceased in response to regulatory intervention.

In the remainder of Section 5.2, the competition problems 1.1 to 1.11 (as identified in Chapter 2) will be discussed.

5.2.2 Refusal to deal/Denial of access

Refusal to deal/denial of access is referred to as standard competition problem 1.1. in Chapter 2. The strategic variable it is based on is the choice of the 'contractual partner' by the dominant undertaking. If the possibility to bypass the incumbent's wholesale product is limited, a refusal to deal will directly lead to foreclosure of the retail market.

As expressed in the principles 2 and 3 in Chapter 4, NRAs have to ensure sufficient access to wholesale products where replication is not considered feasible, while on the other hand, NRAs have to promote infrastructure investment in those areas where replication is considered to be feasible. In the following, therefore, it will be argued that in case of the competition problem of refusal to deal/denial of access the following measures are appropriate: (i) ensuring access to the necessary input and (ii) setting an appropriate price for the input. These issues will be discussed in turn.

5.2.2.1 Ensuring access

As discussed in the previous section, a vertically integrated operator with market power on the wholesale market will – in absence of access price regulation – deny access to its wholesale product whenever retail entry would – in the short or in the long run – erode its market power on the wholesale market. By denying access, the dominant undertaking can preserve its market power and charge an excessive price on the retail market. In this way it can leverage its market power from the wholesale market into the

125 cf. Rey et al (2001, p. 18).
126 cf. Rey et al (2001, pp. 19-21).

potentially competitive retail market. The welfare effects of such behaviour are clearly negative.

Competition at the wholesale level of course would solve the problem. In the communications sector, however, market power frequently rests on circumstances exogenous to the NRA like significant economies of scale and large sunk costs which make assets non-replicable. The only way in which competition on the downstream market can be created in such a situation is that the SMP undertaking grants access to the necessary input it produces. If this cannot be secured by commercial negotiation, the provisions of the Access Directive will need to be invoked.

The NRA will need to consider if the obligation of non-discrimination according to Art 10 AD is likely to be appropriate to force the SMP undertaking to grant access to the wholesale input. The NRA would have to ensure that non-discrimination between the own retail business and (potential) retail competitors implied that the same wholesale product is supplied to both companies. If the NRA comes to the conclusion that non-discrimination on its own would not remove the distortion to competition, non-discrimination could be envisaged to be an ancillary remedy.

Transparency as a remedy can help to bolster non-discrimination. Taken together, these remedies, along with regulatory oversight, could be considered. However, whilst transparency would make non-discrimination easier to enforce, it would not tackle the core of the problem. In these circumstances, it is likely that imposing access under Article 12 is the cornerstone of an effective set of remedies.

Establishing the obligation to meet reasonable requests for access, the NRA would also have to consider the potential for commercial negotiation in respect of access prices. If the underlying incentives and experience or evidence gained through the market analysis strongly suggested that there remains a considerable risk of excessive prices (or other pricing practices that can have a negative effect on competition), then the NRA should consider a price control rule.

Where the NRA is considering access to an enduring non-replicable network element, there is an expectation of on-going reliance to a key input. Thus, there is a strong case for setting out a clear and predictable basis for access so that both parties can make long term business plans on a solid platform. In these instances, the difference in negotiation power is likely to be such that on-going regulatory oversight is necessary.

When replication is feasible the NRA should, in line with the Access Directive, use access regulation as a tool to promote competition over competing infrastructure as a long-term goal. This is discussed in section 5.2.2.3 of this Chapter.

5.2.2.2 Setting the wholesale access price

5.2.2.2.1 Introduction

Where an SMP undertaking is vertically integrated, which is typically the case in ECS markets, it is likely to have the incentive and ability to foreclose downstream markets by restricting access to wholesale inputs over which it has SMP, often facilitated in part by excessive pricing at the wholesale level. Whilst the incentive to foreclose downstream markets is not generally present where SMP undertakings are not vertically integrated, the incentive to charge excessive wholesale prices is (as discussed in the sections on single market dominance and termination) still also prevalent. Thus, irrespective of its incentives to foreclose downstream markets, the SMP undertaking will typically have the incentive and ability to supply its input – either voluntarily or because of an Art 12 AD access obligation – at an excessive price, which may ultimately lead to excessive prices at the retail level. To promote downstream competition, and ultimately to protect consumers from the exercise of market power, a price regulation on the wholesale market is likely to be appropriate where the market power cannot be expected to erode within a reasonable period of time.

The only remedy by which a tendency towards excessive prices at the wholesale level can directly be targeted is an Art 13 AD price control and cost accounting obligation. Art 13 AD explicitly refers to access pricing in situations '... where a market analysis indicates that a lack of effective competition means that the operator concerned might sustain prices at an excessively high level, or apply a price squeeze, to the detriment of end users'.

Alternatively to Art 13 AD, a non-discrimination obligation (Art 10 AD) might be considered in order to regulate the access price. Under such an obligation, the SMP undertaking would be required to charge independent retail undertakings the same price it implicitly charges its own retail business or affiliated companies. The internal transfer price may be determined by means of an obligation of accounting separation according to Art 11 AD, and can then be applied as an access price to third parties. A question here from the perspective of proportionality is whether Art 10 in combination with Art 11 AD allows the NRA to arrive at the same access prices as under Art 13 AD. This seems unlikely, however, as Art 11 AD only states that NRAs '... may specify the format and accounting methodology to be used', whereas under Art 13 AD NRAs are also allowed to '... use cost accounting methods independent of those used by the undertaking'. Therefore, certain methodologies to calculate the access price which may be used under Art 13 AD might not be feasible under Art 10.

Relying solely on the combination of non-discrimination and accounting separation remedies as a method of setting access prices also carries a risk that the resultant transfer price will not be meaningful to the SMP undertaking; i.e. it may not reflect the true resource cost to the SMP undertaking of serving its downstream business. Thus in order to ensure that the price cannot be used to distort downstream competition, it should be subject to, and pass, a price squeeze test, for which an Article 13 obligation is a pre-requisite.

Hence an Art 13 AD obligation, which is not only more explicit about the use of cost accounting systems but also about the burden of proof, the requirements on the SMP operator and the goals related to the pricing methodology, may sometimes be more appropriate. In deciding which option to adopt, NRAs have to be aware that the potential costs of regulation may be lower under Art 10 and Art 11 AD obligations compared to Art 13 AD (which may also have to be backed by Art 11 AD). On the other side, the potential benefits from Art 13 AD regulation (for example, more efficient prices) may also be lower under certain circumstances. Thus, the best option can only be selected on a case by case basis.

Art 13 AD requires NRAs to ensure that any cost recovering mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximises consumer benefits. There are a range of approaches to determining the appropriate wholesale access price. The selection of the appropriate pricing approach to address a given situation will generally require a balance to be struck between a number of considerations. Whilst this assessment can be made on a case by case basis, this section will examine some considerations to be taken into account. It should also be noted that the price imposed under Art 13AD can take several forms. The NRA can set a specific access price, and/or it may set a glide path, whereby prices must converge from their current levels to a specified level over time, or reduce by a certain percentage as with a price cap. The selection between these methods must again be made on a case by case basis, however the principles of the framework, such as proportionality, must always be taken into account. Another factor to consider is the impact of contract terms (e.g. contract length) between the SMP operator and particular access seekers, which may mean there is no uniquely correct access price.

Current best practice suggests that NRAs use the following main approaches in order to establish the appropriate wholesale access price:

- Cost orientation: Linking prices to cost information derived from cost accounting models/systems, such as, e.g., LRIC (long-run incremental costs) or FDC/FAC (fully distributed/allocated costs);
- The ‘retail-minus’ approach, in which the “minus” may be calculated on the basis either of the incumbent’s efficiently incurred retail costs or alternatively on the basis of an efficient new entrant’s retail costs;
- Benchmarking, eg against other countries, where the price is arrived at on the basis of comparison with prices of similar services.

5.2.2.2.2 Cost orientation

Cost-oriented prices are most appropriate in situations where market power at the upstream level allows the SMP undertaking to charge prices above costs and where it is unlikely that this market power will be constrained by competition within a reasonable period of time (i.e. particularly in cases where replication is not considered feasible). It is recognised in the Access Directive that cost orientation is the most stringent form of price control.

The cost orientation methodologies most frequently employed by NRAs are LRIC and FDC. The LRIC approach calculates the costs (including a reasonable rate of return) of the increment the SMP undertaking has to produce in order to provide the service to independent retail undertakings (including its own retail arm). This can be understood as broadly reflecting the avoidable costs of providing the service. Given the forward-looking nature of LRIC, the method of asset valuation employed is typically one that reflects current costs, such as with CCA. In practice, the concept of forward-looking costs requires that assets are valued using the cost of replacement with the modern equivalent asset (MEA). The gross MEA value is what it would cost to replace an old asset with a technically up to date new one with the same service capability, allowing for any differences both in quality of output and in operating costs. The MEA will generally incorporate the latest available and proven technology, and will therefore be the asset that a new entrant might be expected to employ. These issues are further explored in the ERG Common Position on Accounting Separation and Cost Accounting[127].

It will also be necessary, particularly with top down LRIC models, to assess what costs are relevant for and appropriate to deriving LRIC data. There may be costs currently incurred that are inconsistent with a forward looking long run view of the business and which should be excluded or adjusted in the modelled cost base. Examples may be restructuring costs or costs of surplus capacity that arise from past decisions contradictory to best management practice

Calculating the LRIC-price, NRAs may use either a 'top-down' model, starting with the undertaking's actual costs and correcting them for inefficiencies, or a 'bottom-up' model, where the costs of an efficient undertaking are reconstructed using economic/engineering models of an efficient network. NRAs may also combine both models in their calculation, or may use one model as a 'sanity check' on the other. When using a cost model, a decision is needed about whether to adopt a "scorched node" or "scorched earth" approach.[128]

The LRIC price usually also contains some kind of mark-up allowing for the joint and common costs of the SMP player. Where costs are directly attributable to the provision of a particular service, consistency with the objectives of the framework and considerations such as cost causality would suggest that these costs are allocated to these services. However, to the extent there are indirect costs, there is necessarily a degree of arbitrariness in their allocation amongst the different services served by the common infrastructure. In order to minimise the arbitrariness, the distribution of joint and common costs is usually made by means of distribution keys (e.g. volumes or in proportion to incremental costs) within the LRIC calculation. These types of cost allocation methods have the advantage of being relatively simple to implement, although they do not necessarily represent the most efficient way in which to recover these costs. The notion of Ramsey-Prices refers to a particular method to distribute joints and common costs, whereby these costs are allocated with reference to demand elasticities. Although this allocation method may be more optimal, the requirement for detailed information about total costs, marginal costs and demand elasticities means that Ramsey-Prices can generally be regarded as having low practical feasibility.

With the FDC methodology, access prices are calculated based on the actual cost of the undertaking, which may be evaluated at historic (HCA) or at current (CCA) values. The choice between these two approaches can be largely seen as a trade-off between economic relevance and practicality. Due to the relatively rich availability of historical information, HCA is typically a relatively easy method of asset valuation to implement. However, based on historic costs, an FDC calculation may allow the undertaking to earn returns on inefficient investments, and hence not reflect the economic costs of providing the service consistent with those of a competitive market. This risk is reduced

127 „Guidelines for implementing the Commission Recommendation C(2005) 3480 on Accounting Separation and Cot Accounting Systems under the regulatory framework for electronic communications" - ERG (05) 29

128 See paragraph 4.2.3 of the ERG Common Position – ERG (05) 29

when assets are valued using CCA, since the valuation will tend to be more economically meaningful, and hence send more relevant price signals to current and potential market participants. However, even under this methodology, the undertaking might be compensated for inefficiencies to the extent that the existence of certain cost items is not consistent with the operation of an efficient undertaking. Thus, NRAs may decide to exclude inefficiently accrued costs from the calculation, in which case FDC may come close to a top-down LRIC approach. As Art 13 (2) AD states that NRAs "... shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency", FDC appears to be in line with Art 13 to the extent that inefficiencies are not allowed for (similar to a top-down LRIC model) or if there is no (or very limited) concern about inefficiencies. In accounting for these inefficiencies, NRAs may wish to apply a glide path to prices, whereby prices converge over time to reflect efficient costs, in order not to impose significant shocks on the market and to allow a transitional adjustment period for industry players.

The appropriate costing methodology will tend to reflect the objectives specific to each case. [129] FDC models are useful in providing an indication of access prices. LRIC, whilst typically more resource- and information-intensive, has the advantage, through the use of cost-volume relationships, of better illuminating how costs change in the long-run in response to changes in the relevant volume increment. Due to this close linkage to a notion of forward-looking economic costs, LRIC may better signal the prices that are relevant to decision-making on a forward-looking basis. Where used in preference to LRIC, FDC approaches will require careful analysis and exclusion of inefficiently incurred costs and an assessment of the reasonableness of the allocation of common costs to the services in question.

In order to be able to calculate the access price, an NRA may need information about the dominant undertaking's costs. In the case of a vertically integrated undertaking it might therefore be necessary to impose an Art 11 AD obligation of accounting separation in order to be able to separate parts of the retail business from any or all of the services in the wholesale business and derive the wholesale cost base by specifying the format and accounting methodology to be used. Any further information necessary for the calculation of the access price can be demanded under Art 5 of the Framework Directive (Provision of Information).[130]

Although these methodologies are used by most NRAs, some economists have argued that some costing methodologies may fail to provide the right investment incentives to the entrant and stifle investment incentives of the incumbent.[131] To what extent the allegedly missing incentives are in fact included in the cost calculation is still an open issue. In general it has to be noted that although there is a danger of setting the access price too low, there is also a danger of setting it too high, allowing the incumbent to exploit its market power, resulting in excessive prices for consumers and allowing the SMP undertaking to earn excessive returns, and possibly promoting inefficient entry on the wholesale level.

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129 For example, the Commission has proposed that in LLU markets characterised by low penetration and prices above the EU average, a forward looking long-run incremental cost ("FL-LRIC") model may be more appropriate in addressing the lack of effective competition than a fully distributed historic costs ("FDHC") methodology, notably in terms of tariffs, potential excessive costs and incumbent's inefficiency. See cases PT/2004/0117, HU/2005/0185.

130 This is not an SMP-obligation but a general provision.

131 See, e.g., Hausman (1997) and dotecon (2001).

5.2.2.2.3 Retail-minus access pricing[132]

While “retail minus” prices can be regarded as a special case of an “efficient component pricing rule” (ECPR) price, the more general forms of ECPR are rarely employed in practice, either because of inconsistency with regulatory policy objectives or impracticability or both. They will not be considered further here.

While the label “retail minus” is in universal use, the method can be and is used in practice to derive any upstream price from a price of a service further downstream.

The classical form of retail minus price is calculated on the basis of the incumbent’s retail price and its costs of providing the retail service

$$P_A = P_R - C_R$$

where P_A is the access price, P_R the retail price, and C_R the incumbent’s costs at the retail level. This ensures that only undertakings at least as efficient as the incumbent have incentives to enter the market. In some cases, however, ‘inefficient’ (e.g. small-scale) entry might be desirable, as short-run productive inefficiencies may be more than outweighed by the enhanced allocative efficiencies and long-run (dynamic) advantages provided by competition. In such cases, the ‘minus’ might be set at the costs of the entrant (including unexhausted economies of scale or scope) to avoid a margin squeeze. This issue is dealt with in depth in the Annex.

The retail-minus approach is – without retail price regulation – not able to immediately bring down excessive access prices to a cost-oriented level. As the wholesale price is calculated as the retail price minus the costs of an efficient undertaking, an excessive retail price will automatically feed into an excessive wholesale price (or vice versa).[133] It might therefore be applied in cases where the problem of excessive prices is less of a concern to the regulator. This may be the case where circumstances are such that the market power at the wholesale level is likely to erode within a reasonable period of time, such as where replicability of the underlying assets is seen to be a potential future development. Also, there may be a lack of clarity about the evolution of costs, or where flexibility regarding wholesale prices might be appropriate, In these cases, the long-run distortions which result from excessive prices might be negligible such that the remedy of cost-orientation is not appropriate. A retail-minus access price usually also prevents the dominant undertaking from exposing its competitors to a margin squeeze, as it links wholesale and retail prices such that an independent retail undertaking as efficient as the incumbent is able to compete. In the presence of economies of scope or scale on the retail market, however, it will usually be difficult to set the margin such that is allows alternative operators as well as the SMP operator’s retail arm to compete on a level playing field. Such issues are considered in greater detail in the Annex.

Under a retail-minus access price, the incentives of the dominant undertaking to discriminate against retail competitors may be reduced, as profits can be made by

[132] See also the IRG consultation document IRG(05) 39

[133] See Economides (1997) or Armstrong (2002, p. 326).

setting an excessive wholesale price in some cases. As long as the threat of backward integration exists, or if the SMP undertaking cannot extract all rents, the NRA will need to monitor behaviour on the market and ensure that no actions are taken to foreclose the retail market by means of non-price discrimination.[134]

5.2.2.2.4 Benchmarking

This section deals with the use of benchmarking for the purpose of setting a wholesale access price. There are of course many other uses and the considerations set out below would not necessarily apply in those cases.

To the extent that it would be considered disproportionate to impose cost-orientation and cost-accounting obligations (e.g. on small operators) or where appropriate cost models do not yet exist, other forms of price-control could be considered for such operators, such as benchmarking against the larger operators who are under a cost-orientation obligation.[135]Benchmarking[136] ties the price in one market to the price in another comparable market (sometimes in the form of an international comparison).

Benchmarking also has a number of other valuable uses. In the context of cost-oriented prices, it may be used as a cross-check on the outputs of a cost model. On the basis of a suitable comparison, it may also be used to set reasonable prices or as a cross-check on the reasonableness of a retail-minus price derived from the incumbent's financial data.

The relevance of the comparator figures is key to the use of benchmarking for setting an access price. If a NRA decides to impose price regulation on the basis of a comparison with other countries, it needs to have reason to believe that the overseas prices are relevant to its own case. This might not be the case if conditions prevailing on the relevant overseas market(s) were known to be fundamentally different from those which prevailed in its home market. The comparison could also be problematical if different cost standards were used in some of the other countries (e.g. some prices were cost-oriented, others not)[137]. Nevertheless, benchmarking should not be ruled out because a perfect comparison cannot be verified. Other methods also have their disadvantages and the NRA will need to choose the method which strikes the right balance, taking into account the regulatory objectives and the practical considerations of implementing each possible method.

5.2.2.2.5 Conclusion

Selecting a certain methodology for the calculation of the access price, NRAs should also be aware that the obligation to grant access at a cost-oriented price is probably the most intrusive measure an NRA can impose within the new regulatory framework. It is not only demanding to the NRA, which has to set the 'right' access price (in particular with regard to investment incentives) and monitor compliance, but may also create incentives to shift anti-competitive behaviour from price to non-price variables, which

134 Sometimes, however, 'inefficient' (e.g. small-scale) entry might be desirable; see discussion above and in the Annex.

135 See Commission comments on cases FI/2003/0028-0029, FR/2005/0228.

136 See AD Art 13(2).

137 See Commission comments on case DK/2005/0204.

are even more difficult to monitor and thus increase monitoring costs. At the same time, the setting of prices on a retail-minus basis can also be a complex and resource-intensive process, particularly where determining the appropriate size of the 'minus' requires considerable work by the NRA. In choosing its methodology, the NRA will need to satisfy itself that the benefits expected from that approach are sufficient to justify the resources which both it and the regulated player will be required to commit. That will sometimes lead the NRA to choose a method which is less resource-intensive, such as benchmarking or an obligation to charge "reasonable" prices, provided that this is consistent with the regulatory policy objectives.

However, the potential benefits from cost-oriented regulation are large. Where market power at the wholesale level is expected to endure (i.e. where replication is not considered feasible), the setting of a cost oriented access price appears to be the only possibility to open the retail market to competitors and bring prices down to a competitive level. Market entry and increased competition is likely to lead to lower prices, efficient production, more innovation and more variety for consumers.

When setting the access price, NRAs are influencing the investment incentives of the incumbent and the alternative operators. This is a crucial point within the new regulatory framework, as only the right investment incentives ensure that alternative infrastructure is built where desirable, leading to the emergence of self-sustained competition.

5.2.2.3 Incentives to invest

As formulated in principle 3 of Chapter 4, NRAs should ensure that investment incentives are such that alternative operators will replicate the incumbent's infrastructure where this is technically possible and economically desirable (undistorted make-or-buy incentive), whereas at the same time they should make sure that the incumbent has incentives to maintain and upgrade its network. In this, NRAs should form, where possible, a view on whether replication can be considered feasible or not on a case-by-case basis, taking into account all the relevant technological, economic and timing dimensions.

The concept of the ladder of investment is significant in ensuring coherent access regulation across the value chain. Nevertheless, NRAs should be mindful to avoid "micro-managing" competition. NRAs should not pick the winners or choose winning technologies, but regulation must remove distortions and ensure a level playing field/competitive conditions via consistent pricing giving the right signals for efficient investment in all technologies thereby encouraging sustainable infrastructure competition. Thus NRAs should provide the door of opportunity for investment in a technological neutral manner and not misunderstand the ladder of investment as a form of industry policy. Any regulatory intervention is only justified as long as it fulfils the objective of promoting sustainable competition providing consumers with good choice in quality and price, anything over and above this aim is outside the scope of regulators and must be left to policy makers.

Choosing the access point and the access price are probably the most crucial decisions by which an NRA can influence the investment incentives of the alternative operators as well as of the incumbent(s). The remainder of this section will briefly consider these points.

The setting of the access price has to be considered from a static as well as from a dynamic perspective. From a static point of view,[138] NRAs have to ensure productive as well as allocative efficiency. Productive efficiency means that only those undertakings have incentives to produce, which can do so at minimal costs, whereas allocative efficiency refers to a situation where prices reflect costs and no undertaking is able to earn super-normal profits.

If there are no other distortions in the industry, productive and allocative efficiency in a static sense is most likely to be achieved by a cost-oriented access price.[139] Whereas a cost-oriented access price allows the incumbent to cover its costs (allocative efficiency), only those alternative operators will enter the retail market which are at least as efficient as the incumbent (productive efficiency at the retail level). Furthermore, alternative operators will replicate the incumbents' assets only if they can produce the wholesale product at the same or at lower costs than the incumbent (productive efficiency at the wholesale level). An access price above costs is likely to result into inefficient bypass (economically inefficient duplication of the incumbent's assets) and into excessive profits for the incumbent, whereas too low an access price opens the retail market to inefficient entrants whilst at the same time curbing the incumbent's investment incentives to an inefficiently low level.

It follows therefore, that the level of access prices is positively correlated with investment incentives for the incumbent as well as for the entrant in a static framework (although too high an access price is likely to lead to statically inefficient investment decisions). This is not necessarily the case from a dynamic point of view, however.[140] Here, too high access prices may inhibit rather than promote alternative investments. Due to the high risk involved in investments with a high share of sunk costs, alternative operators are likely to follow a step-by-step approach, continuously expanding their customer base and infrastructure investments. The initial availability of the incumbent's infrastructure at low prices will make it easier for alternative operators to enter the market and develop a customer base. Equipped with a customer base, uncertainty is considerably reduced and the operator may then be ready to take further investments (this is sometimes referred to as the 'ladder of investment'). Initially, regulators may even decide to trade static inefficiency for the advantages of dynamic efficiencies resulting from intensified competition by setting the access price at a level allowing for disadvantages in economies of scale and scope of the entrant. In the presence of first mover advantages of the incumbent associated with high switching costs, entry might also be considerably facilitated if the access price is set at a level allowing for these switching costs.

In order to promote investment into alternative infrastructure, NRAs may have to signal in their reviews – as pointed out in Chapter 4 – that they view some remedies as bridging a gap so that new entrants can more easily make incremental investment but that market players cannot base their long-term business models on the basis of these remedies alone. NRAs may decide, for example, to adopt a dynamic access pricing regime, with an access price which is initially low, but rises over time. This allows the

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[138] For an economic analysis of access pricing in a static environment see, e.g., Armstrong (2002).

[139] See, however, Armstrong (2002) for situations where an access price other than cost-oriented may be desirable, e.g. in situations where retail tariffs are unbalanced or where excess profits on the downstream level exist.

[140] See Cave et al (2001).

alternative operator to develop a customer base without having to make risky investments at the outset, while it also provides incentives to climb up the 'ladder of investment' in order to be able to provide the access service in-house as soon as the (external) access price increases. Pursuing such a strategy, NRAs should also take into account differences in the manner and the point in time of market entry by different alternative operators as well as general investment conditions.

Such an active strategy presupposes, furthermore, that the NRA has sufficient knowledge about which assets of the incumbent can efficiently be replicated, or, more precise, in which segments of the market replication is technically feasible and economically efficient within a reasonable period of time. Whereas this is likely to be the case for some segments, there remains uncertainty of different degree in others. In such situations, regulators have to carefully assess the benefits from increased competition against the danger of eliciting inefficient duplication, stranded costs or excess capacity and the danger of ending up with a new monopoly if replication does not occur and downstream competition is stifled due to high access prices. Wherever an analysis of options indicates that negative aspects are likely to prevail, NRAs may decide to adopt a more 'neutral' approach, set the prices for the relevant access products at some measure of costs (which is consistent with static efficiency), monitor the market outcome, continually reassess their views and keep up discussion with the industry. In these situations NRAs should bear in mind the long term objective of ensuring infrastructure competition where feasible.

Taking such an approach would be justified as alternative operators may also be prepared to climb the ladder of investment without additional incentives (such as a dynamic access price), since market dynamics may create incentives to invest on their own. If an alternative operator starts out at the service level, the risks associated with sunk infrastructure investments will be relatively high, resulting in a high cost of capital. By and by, as the operator develops a customer base, this risk of exit is likely to be reduced, as experience is gained and name recognition is developed. This is likely to result into lower costs of capital as the risk associated with sunk cost investments is linked to the probability of subsequent exit, which clearly declines as soon as a customer base and a 'trademark' have been built up.[141] Therefore, the incentives to invest may increase over time for successful service providers without additional regulatory intervention. However, as more and more of these investments are at lower levels in the network hierarchy, both the size of the investments and the proportion that is potentially sunk increases. Against this, the benefits to the new entrant in terms of controlling more and more of the services that they can deliver to customers are also important in terms of giving incentives to reduce reliance, where feasible, on the access provider. It is then up to the NRA to monitor whether investment incentives are indeed self-propelling or whether additional incentives are needed.

Empirical evidence supporting the 'ladder of investment' idea is provided in Cave et al (2001), who, after an analysis of access policy and investment strategy in the Netherlands, conclude (p. 14):

> 'Our analysis of entrants' strategies in the Netherlands points to the progressive nature of their involvement in infrastructure. Typically, each has a strategic asset, which might be a cable network, or facilities for the construction of a national network, or a relationship with an international operator, or simply marketing and

141 cf. Beard et al (1998 p. 319).

retailing expertise. Capitalising on these assets, entrants can readily identify areas where they can replicate the incumbent's assets or (in the case of new service) be the first to install them. During this initial period they are heavily reliant upon the incumbent's network services. However, if the signs from the initial investments are favourable, then the entrant will expand the scope of its activities – obviously choosing those areas where the assets are fairly easily replicable.'

In a report for the European Commission, Ovum cited the examples of dynamic pricing for wholesale broadband services by the CRTC in Canada and by OPTA in the Netherlands.[142] Ovum notes that NRAs can justify this measure in that it promotes infrastructure competition on account of the dynamic benefits that this brings.

More recent evidence can be found in the ERG Broadband market competition Report[143] which showed that a number of European NRAs followed – sometimes without explicit reference – the model of the ladder. That Report suggests that in countries with an appropriate range and quality of access products and complementary products such as migration, there tend to be deeper levels of infrastructure investment, leading broadband markets to be more sustainably competitive. Lately, the working of the concept of the ladder was confirmed by data presented in the 11th Implementation Report[144]: "Equally, the data show that market entrants are investing more in infrastructure, thus boding well for the sustainability of competition" and even more explicitly stating that "the framework's concept of the investment ladder is still useful." [145] "For example the countries with the highest penetration (above 15%) all have high cable penetration but often also well-developed access regimes such as for LLU or bitstream. There have also been some notable successes such as in France, the United Kingdom, Austria and Estonia, where a combination of competing infrastructure and effective regulation have stimulated competition and resulted in relatively high broadband penetration."[146]

The progressive nature of infrastructure investment is in general confirmed by NRAs' experiences, as several cases have been observed already where alternative operators were gradually rolling out their networks making use of different access products (e.g. going from bitstream access to local loop unbundling). The shift[147] from the lower rungs (resale and bitstream) towards higher forms of access (shared and fully unbundled access to the local loop) became more markedly in the period covered by the 11th Implementation Report (October 2004 – October 2005) clearly indicating the process of moving up the ladder is working in practice as the following quotation underlines: "New entrants are gradually shifting from resale and bitstream access towards local loop unbundling in the provision of broadband services."[148] France is in general the example quoted most often as demonstrating the progression up the ladder. Most recently, this trend (progression up the ladder) has been confirmed with the data collected by the Communications Committee for its latest broadband report[149]

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142 cf. Ovum (2003, pp. 52, 53).

143 cf. ERG Broadband market competition report (ERG (05) 23), May 2005, Annex A "Country Studies".

144 Available at: http://europa.eu.int/information_society/policy/ecomm/implementation_enforcement/index_en.htm.

145 11th Implementation Report, Annex I, COM(2006)68, SEC(2006)193, p. 8/9.

146 11th Implementation Report, COM(2006)68, p. 6.

147 Cf. also above 4.2.3, Complementarity of access products", p. 71.

148 11th Implementation Report, COM(2006)68, p. 7 and 11th Implementation Report, Annex II, COM(2006)68, SEC(2006)193, p. 57 (Figure 55).

149 Broadband Data – COCOM 06-12 of 22 March 2006

Where new entrants gradually roll-out their own networks, regulators can start removing rungs corresponding to markets shown to have SMP no longer. As new entrants start using their own infrastructure and climb the ladder, the process might also be reinforced by the offering of wholesale products by new entrants. With competition becoming more intense, NRAs may have to regulate only the “higher rungs”. For example, in France, the Netherlands and Spain, new entrants offer resale or bitstream access products to third parties on the basis of bitstream access or shared/full unbundled access from the SMP operator. The theoretical model of the ladder of investment foresees that the regulator should not only encourage access, but may actively support the upward move by signalling either through dynamic pricing or sunset clauses that regulation will be removed (thus new entrants should not establish themselves forever on a particular rung, i.e. business models should not be built on the unlimited availability of specific mandated access products). However, at least in the case of broadband markets, it is too early to anticipate when and how these elements can be introduced by NRAs in practice[150] without risking disruption.[151]

Wherever the incumbent’s network is opened to competitors at more than one level (e.g. local loop unbundling, carrier pre-selection and wholesale line rental), NRAs have to be careful to correctly design the relative prices of the different options in relation to one another and in relation to the retail prices prevailing in the market. Too low a price on one level may inhibit investment on another level, where replication may be desirable. If a new possibility of market entry is opened up by the regulator, therefore, it has to take into account the options which already exist and ensure consistency between them. NRAs should further make sure that frictionless switching from one access service to another, after additional infrastructure investments have been taken (migration), is possible, in particular with regard to the consumer’s perception. This could be ensured by obligations attached to an Art 12 AD access obligation and/or to a reference offer according to Art 9 (2) AD.

From a dynamic perspective it is also particularly important to ensure investment incentives for the incumbent to maintain and upgrade its network in those sectors where a replication of assets is unlikely to happen.

In the context of an emerging market there may be the need for regulatory action if a failure to act will lead to the foreclosure of the emerging market. This can occur where the emerging market depends upon inputs that cannot be replicated or substituted within a reasonable period of time. In these circumstances, there may be grounds for early regulatory intervention in the market from which the market power could be leveraged to guarantee access to this input in the normal manner, in order to allow competition to develop in the emerging market. In this way, the distinct nature of the emerging market is maintained whilst at the same time preventing foreclosure by applying regulation only on the necessary input market and not on the emerging market itself.

In these circumstances, the NRA should attempt to leave the incumbent and the new entrant in an equivalent position in terms of investment incentives. In this way, both the

150 Until now only OPTA introduced dynamic access pricing.

151 Speeding up the process too much may create the opposite effect of efficient new entrants “falling down the ladder” (i.e. exiting the market).

new entrant and the incumbent can address the new market opportunities on an equal footing in terms of access to necessary legacy network inputs that are non-replicable. However, if the new investment is being made by a new entrant that necessarily requires an input from an SMP operator, the NRA will have a role to ensure that access to this input is not denied, delayed or otherwise obstructed.

An important issue arises when a new investment by an SMP firm, which is designed to deliver genuinely new services, can also be used to deliver services that are currently subject to regulation. SMP operators, when considering making investments in emerging markets, should bear in mind their on-going obligations in relation to existing markets. Whenever possible, they should configure the new technology such that they continue to accommodate access seekers in existing markets.

In all these cases, NRAs must attempt to strike a balance that maintains competition in current services, whilst at the same time preserving the incentives to invest and innovate both for the SMP operator and the entrants, as these incentives will ensure more competition in the long-term.[152] If it is deemed necessary to set access prices, NRAs should ensure that they bear in mind the initial investment and the risks involved in making the investment.[153] Regulatory controls on retail services are already seen as a last resort,[154] and in the case of emerging markets, it is difficult to envisage circumstances where regulation of an emerging retail market could be justified.

Textbox 2: Access regulation

Bitstream-access

If the market review leads to the conclusion that market no. 12 – Wholesale broadband access – is not effectively competitive, because e.g. the dominant voice telephony operator leverages its market power of the local loop into the wholesale broadband access market, the NRA has to decide on the proportionate remedy after having identified that company as being an SMP operator. The reason for the lack of competition may be that the SMP operator is not offering an adequate wholesale access product to new entrants thus preventing competitors to offer a differentiated broadband product, including such services as Voice over IP (VoIP), to the end user. In such a situation, the NRA may choose to impose an access obligation acc. to Art. 12 AD and mandate a bitstream access product as a proportionate remedy.

Bitstream access is defined as follows: ‘High speed bit-stream access (provision of DSL services by the incumbent operator) refers to the situation where the incumbent installs a high speed access link to the customer premises (e.g. by installing its preferred ADSL equipment and configuration in its local access network) and then makes this access link available to third parties, to enable them to provide high speed services to customers. The incumbent may also provide transmission services to its competitors, to carry

[152] Directive 2002/19/EC, Recital 19.
[153] Directive, 2002/19/EC, Article 12(2).
[154] Directive 2002/21/EC, recital 26.

traffic to a 'higher' level in the network hierarchy where new entrants may already have a point of presence (e.g., transit switch location). The bit-stream service may be defined as the provision of transmission capacity (upward/downward channels may be asymmetric) between an end-user connected to a telephone connection and the point of handover to the new entrant. Resale offers are not a substitute for bitstream access because they do not allow new entrants to differentiate their services from those of the incumbent.'[155]

As bitstream access can be granted at various points of the network hierarchy (points of handover of traffic), the points in the network at which the wholesale broadband access will need to be supplied will depend on national circumstances such as the network topology and the state of broadband competition, but the following characteristics should be kept in mind: bitstream access is an access product that allows new entrants to differentiate (directly or indirectly) their services by altering (directly or indirectly) technical characteristics and/or the use of their own network, which is definitely more than resale, where the incumbent is in control of the technical parameters and manages the service, whereas the new entrant can only market a commercially similar service. When defining the appropriate point of access, NRAs should take the perspective of market parties. The NRA thus has to assess the reasonableness of the requested points of handover asked for by the new entrants and weigh them in relation to the possibilities of the network hierarchy. Furthermore, the state of competition, i.e., the number of market players, the existence of alternative networks and infrastructure and the long run benefit for the consumer of having more choice have to be taken into account.

Bitstream access allows the competitor to differentiate the end user product by adding specific features such as a better contention rate or a lower overbooking factor (other QoS parameters). As the access to the unbundled local loop, to which it is complementary, it is a means to promote infrastructure competition. By investing more in own infrastructure, the competitor climbs up the value chain or the 'ladder of investment', in other words as it can use more and more of its own infrastructure it is able to add gradually more value to the product offered to the end user. At the same time it reduces the reliance on the wholesale products of the dominant operator. In order to enable a step by step increase of investment, NRAs must regulate prices of the various access products consistently if a price control measure acc. to Art. 13 AD is also in place. As discussed above and in the following sections, other remedies may be required to support the obligations according to Art 12 and 13 AD.

Re-selling Access Lines (Wholesale Line rental)

Wholesale line rental describes the possibility of entrants to get access to a wholesale product that allows them to offer not only voice services (through Carrier Selection or Carrier Pre-Selection) but also to rent (in addition) lines from the dominant operator in the access markets on a wholesale basis. [156] Wholesale line rental may also include ancillary services such as voicemail and

155 ONPCOM01-18Rev1 and ONPCOM02-03, quoted in ERG (03) 33rev2 "Bitstream Access - ERG CP - Adopted on 2nd April 2004 and amended on 25th May 2005.

156 See Commission's comments in cases UK/2003/0011-0016 and PT/2004/0091

call waiting, thus enabling alternative operators to replicate the retail service of the incumbent, making possible for the customer to have access to one-stop shopping and – depending on the circumstances – allowing for greater flexibility in bundling and pricing of services. To the extent that such a product is successful in the market, it may also reduce the need for regulatory intervention on the dominant operator's retail tariffs as it may bring service competition to an area in which competition is currently rather limited.

The main impediment to competition within the access network in fixed line telephony is that it is particularly hard to replicate due to significant economies of scale and large sunk costs, as such characteristics of natural monopolies. This is reflected by the fact that incumbent fixed operators in most Member States still have market shares in the access markets of 90% and more.

According to the principles outlined in Chapter 4 and taking into account the characteristics of access networks, NRAs may come to the conclusion that entry into access networks is rather unlikely as it is hard to replicate. In this case, NRAs will have to ensure that service competition is encouraged, that there is a sufficient return on the existing infrastructure to encourage further investment and that attention is given to likely effects on other markets.

Based on Art 12 (1) AD (or – possibly – Art 10 AD), NRAs may therefore consider to impose a wholesale line rental obligation, if it can promote sustainable competition on the retail market or would be otherwise in the end-users' interest. Clearly such an obligation does not contribute to infrastructure competition in the same way as would be the case with rolling out own networks or with unbundling of access lines. However, the positive effects to competition can be broader and faster as it may significantly reduce churn and facilitate entrants to build up a customer basis, which in turn may help them to take another step in the 'ladder of investment'.

If a wholesale charge for line rental is mandated, particular consideration will have to be given to its effects on other markets such as the unbundled local loop, as wrong price signals might either frustrate investments of operators (and thus interfere with the long term target of more sustainable competition) or lead to a situation where positive effects to competition will not emerge, as the product may not be competitive. Hence pricing will be central to this decision and NRAs may consider to determine the access price on a cost plus (e.g. LRIC) or – if retail tariffs are balanced and reflect costs due to existing regulation – an ECPR basis (which might be retail minus). Many of those NRAs which have mandated a wholesale charge for line rental so far have followed a retail-minus approach. In applying this methodology NRAs will not only have to decide whether avoided or avoidable costs should be the basis for calculating the minus, but also whether and to what extent set-up and other costs to the entrant will have to be shared and to what extent they should be made variable (reducing entry barriers). NRAs will also have to consider whether in calculating a retail minus rental whether to include or exclude call profits.

NRAs will further need to find a balance between removing existing retail price obligations for access lines and the bundling/pricing possibilities for entrants as otherwise the dominant operator in the access market might be put at a competitive disadvantage. In this context NRAs may need to consider to what extent the obligation of Carrier Selection and Carrier Pre-Selection needs to be re-defined for the dominant operator.

5.2.3 General considerations concerning discrimination between SMP player's own downstream business and third parties

Economists have recognised that, in certain circumstances, variation in the terms of supply can be welfare-enhancing. This can be the case even when the supplier has a position of market power. However, in the case of a vertically integrated SMP operator supplying on more favourable terms to its own downstream business, anti-competitive effects would be expected. In principle therefore, the aim of SMP non-discrimination remedies under the Framework should therefore be to prohibit the negative effects of variations in terms of supply, while permitting those effects which are neutral or (occasionally) beneficial to end-users.

5.2.3.1 Interpretation of discriminatory behaviour

As noted above, when an SMP player makes available services on more favourable terms to its downstream operation than to independent third parties, there is often an anti-competitive effect. Article 10(2) of the Access Directive underlines this point by providing that

> "*obligations of non-discriminations shall ensure, in particular, that the operator applies equivalent conditions in equivalent circumstances to other undertakings ……. as it provides for its own services, or those of its subsidiaries or partners*".

While this appears to be clear in legal terms, there may remain uncertainty about what is meant in practice by "equivalent" conditions or "equivalent" circumstances.

SMP players have commercial incentives to avoid compliance with non-discrimination obligations and, in particular, to take advantage of any uncertainty over the practical effect of such a remedy. Uncertainty has disadvantages for all market players. On balance though, the SMP player can be expected to be a net beneficiary of uncertainty, more often than not. Where entrants believe there is lack of clarity over how remedies operate in practice or where they lack confidence that remedies will be enforced vigorously, this may well create a significant practical barrier to entry.

Clarity of interpretation and vigorous enforcement go hand in hand since the latter is unlikely in the absence of the former. Therefore, NRAs should clarify, as far as possible, how the remedy will be interpreted in practice, via identification of forms of behaviour which will be considered to be discriminatory. Article 10 permits either a general formulation (e.g. "the SMP player must not discriminate") or a formulation of the rule which explicitly identifies specific forms of behaviour considered to be discriminatory. Alternatively, the NRA may prefer to provide clarity about specific forms of behaviour considered to be discriminatory through the issue of guidance to market players.

5.2.3.2 Comparison between non-discrimination remedies under the Framework and competition law obligations

It is significant that Article 10 is drafted so as to permit discretion to NRAs to formulate a fully effective remedy. In particular, where justified, non-discrimination rules compliant with Article 10 may be formulated by NRAs so as to place SMP players under more stringent obligations than they would face if they were considered to be dominant for the purposes of competition law. This is particularly so where the rationale for such variation is that the SMP player is able to benefit from an economy of scope or scale which is not available to independent third parties.

5.2.3.3 Effectiveness of non-discrimination remedies

Clearly, to be effective, non-discrimination remedies must not permit variations in terms of supply by SMP players which could reasonably be expected to give rise to distortions of competition. The test quoted above from Article 10(2) goes some way to achieving this. It is a necessary condition for the avoidance of such distortions but cannot be assumed to be sufficient. NRAs must therefore specify non-discrimination remedies in a suitable manner to avoid such adverse effects. The following sections deal with the formulation of discrimination obligations for non-price and pricing issues.

5.2.4 Non-price issues

Without regulation (i.e., no access obligation and no regulated access price, etc.), a vertically integrated undertaking with SMP on the wholesale market is unlikely to discriminate against retail competitors on non-price parameters like quality, information, or product characteristics. It is likely, instead, to either extract downstream rents by setting an excessive price at the wholesale level, or, if this is – for some (non-regulatory) reason – not possible, to foreclose the retail market by denial of access.

Subject to an access obligation according to Art 12 AD in combination with an obligation to set a cost-oriented price according to Art 13 AD, the vertically integrated undertaking has – deprived of the wholesale price as strategic variable – incentives to discriminate between its own retail affiliate and its retail competitors on other strategic variables.[157] Therefore, NRAs will need to engage in on-going regulatory oversight.

The following standard competition problems have been identified in this context (numbering of Chapter 2):

- 1.2. discriminatory use or withholding of information
- 1.3. delaying tactics
- 1.4. bundling/tying
- 1.5. undue requirements

[157] See discussion above with reference to Economides (1998), Sibley/Weisman (1998), and Beard et al (2001).

1.6. quality discrimination
1.7. strategic design of product
1.8. undue use of information about competitors

These potential competition problems will now be discussed in turn. As they are likely to arise under an access obligation and a cost-oriented access price in particular, it will be assumed in the following discussion that these remedies (Art 12 AD and Art 13 AD, possibly backed by 11 AD) are already in place. The discussion is based on principle 2 of Chapter 4, which states that NRAs should prevent the upstream SMP undertaking from distorting downstream competition where access to non-replicable wholesale inputs is granted. The creation of these incentives and the resources required to police them, should be borne in mind by NRAs in choosing remedies.

5.2.4.1 Discriminatory use or withholding of information

This refers to a situation where the SMP undertaking is not outright denying access to its network, however, it refuses to provide the entrant with information needed in order to be able to provide the retail service.

The strategic variable underlying this particular type of behaviour, information, can be addressed by three different types of obligations:

First, the SMP undertaking might be forced to disclose the information under an Access obligation according to Art 12 AD, which allows the NRA to '... attach to those obligations conditions covering fairness, reasonableness and timeliness'. If the relevant information is essential for the access seeker to take advantage of its rights, it would clearly be unreasonable of the SMP undertaking to withhold it.

Alternatively or additionally (depending on the circumstances), NRAs might impose an obligation of transparency (Art 9 AD) which explicitly relates '... to interconnection and/or access, requiring operators to make public specified information, such as accounting information, technical specifications, network characteristics, terms and conditions of supply and use, and prices'. NRAs might '... specify the precise information to be made available, the level of detail required and the manner of publication', and may oblige the SMP undertaking to publish the relevant information in form of a reference offer.

Finally, the integrated undertaking could be forced to disclose all relevant information which also is available to its retail affiliate under an obligation of non-discrimination according to Art 10 AD. The problem here is that this might provide the downstream competitor either with too little or too much information. Information about collocation, for example, might not be provided to the own retail affiliate, whereas much information provided to the retail branch will not be relevant for competitors in the context of access to network facilities. In the context of this section, the obligation of non-discrimination therefore seems to be suited only in those cases where the SMP undertaking's retail arm and its retail competitor need the same information.

5.2.4.2 Delaying tactics

Delaying tactics refers to situations where the SMP undertaking may have incentives to delay the provision of its (essential) wholesale input to its downstream competitors.

‘Time’, as the strategic variable on which the anti-competitive behaviour is based in this case, is mentioned in Art 12 AD, which allows NRAs explicitly to attach obligations of ‘... fairness, reasonableness and timeliness’ to an obligation of access. Imposing an access obligation according to Art 12 AD, therefore, NRAs may also specify the time frame within which the network has to be opened to independent retail undertakings. A time frame might also be set through a service level agreement based on Art 9 AD.

Regarding new wholesale products which allow the supply of new retail products, there is the danger that the dominant undertaking will gain a first mover advantage by supplying the wholesale product to its retail competitors at a later point in time as to its retail affiliate. First mover advantages can take the form of network externalities, learning by making cost reductions or customer lock-in effects. Where this may lead to market foreclosure, a non-discrimination obligation (Art 10 AD) might be appropriate in order to ensure that independent retail undertakings are able to compete with the SMP undertaking’s retail branch. Art 10 AD may be interpreted such that it also includes time as a parameter the SMP undertaking is not allowed to use to discriminate. It would then be allowed to offer a new retail product based on a new wholesale product only if the new wholesale product (under Art 12 AD) is also available to independent retail undertakings. The question how to ensure compliance with such an obligation is dealt with in Chapter 4 (Section 4.2.4.2 Delays in supply).

There is the danger, however, that the SMP undertaking offers a wholesale product which is of limited use for its competitors. Such issues are dealt with under Section 5.2.3.6. Although regulatory intervention is possible in such cases, it might be time-consuming and the SMP undertaking may nevertheless be able to achieve a first mover advantage. Furthermore, in some cases, a sensible wholesale product might not even exist or if it existed would not be demanded by other undertakings even at a cost-based price. A solution to these problems could be to ex ante require the SMP undertaking under Art 12 AD to meet all reasonable requests for access within a reasonable period of time. To judge whether a certain wholesale product demanded is reasonable might be – in case of dispute – up to the NRA.

5.2.4.3 Bundling/Tying

A vertically integrated undertaking may attempt to increase its downstream competitors’ costs by bundling the wholesale product with other components which are unnecessary for the provision of the retail product.

The strategic variable, i.e., the bundling decision (‘components offered together or individually’), is explicitly addressed in Art 9 AD (obligation of transparency). There it says: ‘In particular where an operator has obligations of non-discrimination, national regulatory authorities may require that operator to publish a reference offer, which shall be sufficiently unbundled in order to ensure that undertakings are not required to pay for facilities which are not necessary for the service requested’. The wording ‘in particular’ suggests that a non-discrimination obligation according to Art 10 is not a necessary precondition to oblige an SMP undertaking to publish a sufficiently unbundled reference offer. Undue bundling to raise downstream rivals costs thus could be prevented by requiring the SMP undertaking to publish a sufficiently unbundled reference offer based on Art 9 AD.

Alternatively, the NRA may allow the alternative operator to specify the wholesale product. If an Art 12 AD obligation to meet all reasonable requests is in place, for example, the NRA can assume that a certain access product demanded by an alternative operator is sufficiently unbundled.

Whether an Art 9 AD obligation to publish a sufficiently unbundled reference offer or an Art 12 AD obligation to meet all reasonable requests for access is more suitable (effective and least intrusive), will have to be decided by the NRA according to the circumstances at hand.

5.2.4.4 Undue requirements

Using contract terms as a strategic variable, the dominant undertaking may attempt to foreclose the retail market by requiring a particular behaviour of the downstream competitor, which is unnecessary for the provision of the upstream product but raises rivals' costs.

Contract terms are dealt with in Art 9 AD (obligation of transparency). Paragraph 2 says that the reference offer has to include 'associated terms and conditions', and that NRAs shall be '... able to impose changes to reference offers to give effect to obligations imposed under this Directive'. Thus, as far as undue requirements are included in the reference offer, they can be changed or eliminated by NRAs under Art 9 AD. Alternatively, they can be controlled via a "reasonableness" condition, as discussed below in section 5.2.5.5.

5.2.4.5 Quality discrimination

There are various possibilities to put competitors at a disadvantage by means of quality discrimination. The only way to address the strategic variable 'quality' seems to be an obligation of non-discrimination according to Art 10 AD. Art 10 AD '... shall ensure, in particular, that the operator applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and provides services and information of the same quality as it provides for its own services, or those of its subsidiaries or partners'.

As the quality of a service is particularly difficult to observe for an NRA, an obligation according to Art 10 AD may be backed by an obligation of transparency according to Art 9 AD. This may be done in the form of an obligation to offer service level agreements (SLAs) and periodically report key performance indicators to the NRA and where appropriate to other operators. Such key performance indicators could be reported for services provided to other operators as well as for self-provided services, to monitor compliance with the non-discrimination obligation.

5.2.4.6 Strategic design of product

In case of discrimination between its retail affiliate and downstream competitors, a strategic design of the wholesale product by the SMP undertaking which is targeted at raising rivals' costs or restricting competitors' sales can be addressed – similar to quality-issues – by the obligation of non-discrimination (Art 10 AD).

In case that a non-discrimination obligation does not suffice (the independent undertaking might be at a disadvantage even if it receives exactly the same service as the SMP undertaking's retail branch), an NRA might oblige the dominant undertaking to publish a reference offer according to Art 9(2) AD. It may then impose changes to the reference offer in order to prevent the dominant undertaking from putting its rivals at a disadvantage

Some issues of strategic product design might also be dealt with directly in course of the Art 12 AD access obligation, under which the NRA may attach conditions covering fairness and reasonableness to the access obligation. Where product design is deemed unfair and/or unreasonable, the NRA might intervene.

5.2.4.7 Undue use of information about competitors

The undue use of information about competitors is – independent from an SMP position – prohibited by Art 4 (3) AD: 'Member states shall require that undertakings which acquire information from another undertaking before, during or after the process of negotiating access or interconnection use that information solely for the purpose for which it was supplied and respect as all times the confidentiality of information transmitted or stored. The received information shall not be passed on to any other party, in particular other departments, subsidiaries or partners, for whom such information could provide a competitive advantage.' The task of the NRA thus is to ensure compliance with Art 4 (3) AD.

5.2.4.8 Need for identical treatment in certain circumstances

As noted above in paragraph 5.2.3.4, non-discrimination remedies can be formulated so as to impose additional restrictions on an SMP player over and above those which would apply to a dominant player under competition law. One possible such form of tighter non-discrimination obligation which NRAs should consider is a requirement for identical treatment as between the SMP player's own downstream business and independent third parties ("equivalence of input"). For example, the retail businesses of SMP players might be required to order retail DSL connections using the same operational support systems as third parties, on the basis of exactly the same network information (e.g. line lengths) as the third parties and subject to the same service levels as third parties. Such an obligation provides a much better guarantee of effective downstream competition than a simple obligation "not to discriminate", especially given the attendant difficulties over interpretation of the latter.

On the other hand, this is an especially intrusive form of remedy as it constitutes an instruction to the SMP player not only what is to be achieved but also the means by which it should be achieved. Further, by denying to the SMP player the benefits of any economies of scope, it tends to raise costs. Therefore, in circumstances where an "equivalence of input" remedy is justified, an NRA would need to safeguard against the possibility that the competition benefits may be insufficient to justify the increased costs to the SMP player. One method of achieving this is to permit an exemption from the remedy on a case by case basis, subject to objective justification. This will be addressed in the assessment of proportionality.

More generally, there are circumstances where economies of scope are likely to be minimal. Returning to the above example, where the SMP player's operational support systems needed fundamental redesign for other reasons, it is likely to be economical to design a system which meets the needs of SMP player and third parties equally. In such cases, an equivalence of input remedy may be rather easy to justify.

5.2.5 Non-price issues: Remedies complementary to non-discrimination remedies

5.2.5.1 Possible need for complementary measures

Non-discrimination remedies, however well-formulated and well-understood, may not be fully effective unless they are accompanied by complementary remedies of different types. The NRA may well have found it appropriate to impose an access obligation under Article 12, Access Directive. Where that is the case, the attachment of an obligation dealing with fairness, reasonableness or timeliness of terms of supply may well be essential to avoid negating the value of a non-discrimination remedy. A transparency obligation may similarly be necessary.

As ever, the remedies discussed here need to be justified on the circumstances of the individual case and may well not be the only method of dealing with the relevant problem.

5.2.5.2 Internal reference offers

The purpose of a requirement to publish a third party reference offer is to provide clarity about the terms on which services are to be made available and to permit an early assessment of whether those terms are, in principle, reasonable. It does relatively little to ensure non-discrimination between the SMP player's own downstream business and third parties.

Where the service provided by the SMP player to itself is not identical to that which it supplies to third parties, it may be entirely opaque whether the SMP player is in any sense favouring its own business. Where a third party reference offer obligation and a non-discrimination obligation are both to be imposed, NRAs should consider the merits of a complementary obligation to prepare an internal reference offer. This sets out the terms on which the SMP player makes services available to itself. Comparison of internal and third party reference offers will provide insights as to whether self supply and supply to third parties appear to be envisaged on broadly equivalent terms. This will sometimes allow NRAs to intervene sufficiently early to prevent significant distortion to competition arising from discrimination. Preparation of an internal reference offer in a reasonable timescale is unlikely to be an onerous obligation and may therefore be easy to justify in circumstances where it is reasonable to expect it to be of value.

Ideally, the internal reference offer would be published, since otherwise the insights of competitors as to the practical effect of any differences in internal and external offers would be unavailable to the NRA. However, where national law on business secrets inhibits publication, the NRA may still consider it useful to require presentation of the internal offer to the NRA, for its own analysis.

5.2.5.3 Service level guarantees

Where a service level agreement is in place to underpin an obligation to provide access on reasonable and non-discriminatory terms, NRAs may find it appropriate to oblige the SMP player to make compensation payments to reflect any failure to provide the agreed level of service. This can be justified as a reasonableness condition as it would be common commercial practice in a competitive market. Financial incentives are often an effective means of providing assurance that there will be few discrimination problems in practice.

There are some practical limitations which would need to be considered by an NRA imposing such a remedy. National legal systems may limit the scope of such compensation to damage actually suffered (e.g. revenue foregone) and may not permit the inclusion of an allowance for consequential damage (e.g. damage to reputation) or for exemplary penalties. NRAs will need to consider whether any such limitations undermine the purpose of such a condition.

5.2.5.4 Key performance indicators

One effective means of direct verification of non-discrimination is the formulation and publication of appropriate key performance indicators (KPI), describing parameters such as provisioning times, repair times, percentage of circuits which work on installation and so on. KPIs are in particular likely to be necessary for the verification of service level agreements. As with internal reference offers, publication is preferable to provide confidence to market players in the efficacy of a non-discrimination remedy. A sensible degree of disaggregation will be appropriate, both to guard against subtle forms of discrimination and to allow unforeseen problems to come to light.

Costs will inevitably be incurred by the SMP player in setting up such a monitoring system although typically, the SMP player will need much of the information for its own management purposes. The ongoing maintenance costs are usually fairly low, however. NRAs will need to judge whether the likely benefits of such a system are sufficient to justify the initial and recurring costs.[158]

5.2.5.5 Reasonableness conditions – general considerations

Some forms of reasonableness condition may be very effective at preventing certain types of discrimination and can therefore be an invaluable complement to a combination of access obligation and non-discrimination remedy. Article 12 of the Access Directive does not specify how a reasonableness condition should be formulated. Provided there is objective justification and the condition is proportionate, NRAs have considerable discretion to devise an explicit reasonableness condition which is effective in guarding against specific behaviour.

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158 For example, see IRG PIBs on LLU as amended in May 2002, in particular Annex 3 on KPIs.

5.2.5.6 Prohibition of unreasonable conditions of supply

Even where the conditions of supply appear to be equivalent, as between the SMP player's downstream business and third parties, they may be very much easier for the SMP player to satisfy than third parties. Such conditions may have the effect of suppressing competition. In the absence of objective justification for such conditions, they can properly be regarded as a form of discrimination.

Nevertheless, where such a practice has no real objective justification, NRAs may find it expedient to formulate a reasonableness condition which prohibits it explicitly. A wide range of possible subtly discriminatory practices can be envisaged but a few examples may nevertheless be helpful.

Textbox 3: Terms of supply which may be discriminatory in effect, even if formulated in a non-discriminatory manner

An SMP player may seek to impose an advance payment obligation, ostensibly to guard against the risk of default. (It might argue that there was no discrimination as it imposed such an obligation on itself. However, given that there was no risk of default to itself, the appropriate advance payment in that case would be zero.) Depending on the scale, this may not be unreasonable policy which would not have the effect of suppressing downstream competition. However, where the scale of the payment would have an anti-competitive effect, the NRA might wish to prohibit such a condition, permitting an allowance for bad debts in the cost base of the products concerned.

An SMP player may seek to impose advance forecasting requirements for access products, offering to fulfil orders in excess of the forecast only on inferior terms and/or imposing a financial penalty in the event of orders failing to meet the forecast. The stated justification for this could be to avoid the incurring of unnecessary costs arising from inaccurate forecasts Even if technically the SMP player itself needs to submit transparent forecasts alongside those of others, it is most unlikely that an over-forecast by the SMP player will cause real costs to be incurred. Objective justification of such a policy requires that the penalties for over- or under-forecasting should be commensurate with additional costs incurred by the SMP player. If not, they should be prohibited. Even where the scale of the penalty is capable of justification, NRAs need to consider whether there are other ways that the SMP player can recover the incremental costs of mis-forecasting which have less adverse effect on downstream competition

An SMP player may seek to require third parties to offer an indemnity against unspecified loss caused to the SMP player in supplying a product due to the fault of the third party. (For example, incumbents have sometimes required such indemnities in order to permit third party access to their exchanges for the purpose of local loop unbundling, ostensibly to guard against damage caused to the exchange.) In principle, there may be a case for indemnities but they can often be very expensive to provide. NRAs should consider prohibiting such requirements in the absence of objective justification of the scale or if they appear likely to damage competition. It is likely that the identification of reasonable safeguards will in practice minimise the risk of such loss.

5.2.5.7 Network Migration

An end-user's decision to transfer from one retail service provider to another may give rise to a need for an SMP player to intervene at the network level (a "network migration") in order to effect the retail transfer. Equally, a decision by an entrant to move to a different rung of the investment ladder or to acquire from another service provider a customer currently served via different infrastructure (see paragraph xxx) is likely to require a network migration. Competition is likely to be undermined unless the appropriate network migration processes exist in a form suitable to facilitate such decisions by the entrant. While it is obviously in the interests of entrants that such migration processes should work well, retail competition and end-user choice is also likely to be significantly affected by the quality of such processes upstream.

For example, in the case of a retail DSL service, if the two retail service providers are customers of different network operators but both network operators are reliant on the local loop of the SMP player, that SMP player will need to re-route the DSL traffic of that customer for the retail transfer to take place. If the two retail service providers are supplied by the same network operator, no network migration by the SMP player may be necessary. The end-user's choice therefore may or may not give rise to the need for a network migration. In practice, this is likely to be completely hidden from the end-user. Where a network migration is required and the process works badly, the end-user is likely to blame the acquiring service provider whereas the fault may well be that of the SMP player. (Logically, there will always be a migration process to be undertaken between the two service providers, irrespective of the network arrangements. This can also be problematic, causing inconvenience for the end-user. However, it is outside the scope of this discussion as the market concerned is normally not one in which SMP has been designated.)

It is often in the interests of the SMP player that network migration processes work badly as they generally own a much greater number of retail customers than others. Their incentives may be to accept the customer dissatisfaction from the smaller number of customers who find it difficult to transfer to their retail services in the interests of retaining a larger number of customers who would ideally wish to transfer to another service provider.

NRAs may therefore find it necessary to mandate fit-for-purpose and cost-effective network migration processes either to underpin an access obligation, a non-discrimination condition aimed at facilitating effective competition downstream or to facilitate efficient network investment by the entrants. It will usually be helpful to specify in advance what would be "good" or "bad" experiences (both for service providers and end-users) and to ensure that information is collated by the SMP player to allow such experiences to be measured. Verification of performance against measurable targets is likely to be a necessary part of ensuring the fitness-for-purpose of the migration process.To make a migration process fully effective, it may have to be underpinned by an obligation to offer a service level guarantee relating both to the date of introduction of the service and to ongoing service levels.

Practical issues often arise in the pricing of network migration services. SMP players have incentives to understate the demand for such services. Since there are often considerable economies of scale, arising both from set-up costs and from bulk migrations, the understatement may lead to a significant increase in price which (when passed through to the service provider) dampens downstream competition significantly. NRAs should therefore ensure that charges relate to an efficient bulk migration service, unless individual migrations are explicitly requested at an appropriately higher charge.

Moreover, it is appropriate to consider carefully how the set-up costs should be recovered. One method which at first sight appears natural is to apply a percentage “mark-up” to the incremental costs of migration so as to allow the set-up costs to be recovered over a reasonable period. Under such a method, the competitors would bear the bulk of the set-up costs. However, NRAs should consider that even those who choose not to switch service provider benefit from an efficient migration service since it provides them with an increased choice and with the other benefits of a more competitive market. Therefore, it is reasonable that those end-users should ultimately bear a share of the set-up costs. This suggests that the SMP player should recover a significant share (possibly all) of those set-up costs through standard network usage charges (including the transfer charge to the SMP player itself) rather than through explicit migration charges.

In many cases, NRAs will need to pay attention simultaneously to the specification of several different migration processes as any one of them could be undermined by inadequacies in another. Examples include:

- The co-existence of a number of wholesale products with Bitstream such as Carrier Pre Select and Wholesale Line Rental;
- The provision of voice and Broadband by different operators;
- The need for a synchronised Geographic Number Portability (GNP) process to accompany a move to LLU.

Complexity is further increased if the two (or more) access products relevant to a migration are in different relevant markets. NRAs have, in light of an access obligation, the power to require migration processes covering migrations to or from an SMP market even if one of the access products is not within a regulated market. Where the relevant products are in different regulated markets, an SMP migration obligation could in principle be attached to any of them. Where there are multiple migration processes, care will obviously be needed to ensure coherence, especially where there are multiple contracts and bilateral relationships involved. In the absence of such coherence, the experience of end users is likely to be poor and retail competition will be subdued as a consequence.

NRAs have to enforce compliance in this fundamental area and monitor closely the design of the processes as well as the handling. In order to make the ladder operational, it is of great importance that NRAs put the highest emphasis on the design and monitoring of migration processes while not forgetting that migration needs time to work out.

5.2.6 Pricing-issues

In the case of a vertically integrated undertaking with SMP on the wholesale market (case 1), three standard competition problems have been identified in Chapter 2 which are based on the wholesale and/or the retail price as a strategic variable:

1.9. price discrimination
1.10. cross-subsidisation
1.11. predatory pricing

These competition problems have in common that all three lead to a margin squeeze. The incentives for such behaviour and possible remedies against it shall now be discussed for each of the problems in turn. As in the case of non-price issues, this is an application of principle 2 of Chapter 4.

5.2.6.1 Price discrimination

A vertically integrated undertaking with SMP at the wholesale level may subject its downstream competitors to a margin squeeze if it charges them a price which is higher than the price implicitly charged to its own retail affiliate for products or services considered to be within the same relevant market.

Incentives for such behaviour exist whenever the dominant undertaking can increase its profits by foreclosing the retail market and the outright denial of access is for some reason impossible. In such cases the undertaking might simply maintain its price on the retail market and increase the wholesale price charged to its competitors to a level where the retail price is insufficient to cover their costs.

If the access price is regulated at a cost-oriented level, however, the undertaking will only be able to charge a price above costs to its competitors if either the access price has been calculated incorrectly by the NRA or if it transgresses the rules set by the regulator. Thus, if an access obligation according to Art 12 AD together with a cost-oriented price regulation according to Art 13 AD is in place already (possibly backed by Art 9 and 11 AD obligations), the task of the NRA is to ensure compliance with the obligation it has imposed. These monitoring costs need to be considered when choosing cost orientation as a remedy. When calculating a cost-oriented access price, NRAs have to make sure that the access product is sufficiently unbundled (see section 5.2.3.3.), and that the SMP undertaking does not artificially increase the costs at which it is providing the service to the alternative operator (‘gold plating’). Inflated costs can be dealt with by the NRA in course of the access price calculation. Further considerations have to be given to economies of scale and scope at the retail level, to allow the alternative operator to compete with the incumbent on a level playing field. These issues are discussed in the Annex.

Under a wholesale price set according to the retail-minus methodology, on the other hand, a dominant undertaking is able to raise the price for its wholesale product. This does not result in a margin squeeze, however, as – according to retail-minus – the retail price has to be increased as well whenever the wholesale price is increased. The task of the NRA thus is to ensure compliance with the retail-minus rule.

5.2.6.2 Unfair cross-subsidisation

A similar reasoning as for price discrimination can be applied to the case of unfair cross-subsidisation. Unfair cross-subsidisation of below-cost retail prices with profits from the access business is only possible when the price on the wholesale market is above costs. This is impossible under a cost-oriented access price regulation.

Unfair cross-subsidisation will also be impossible under a retail-minus regime, as an above-cost access price will automatically feed into an above-cost retail price and a predatory price on the retail market will result into an access price below costs.

Again, the task of the NRA thus is to ensure compliance with the access price it has set or the retail-minus rule. In order to be able to ensure compliance, an obligation of accounting separation (Art 11 AD) may be required.

5.2.6.3 Predatory pricing

When access prices are regulated, the possibility exists for an operator deemed to have SMP on the wholesale market to impose a margin squeeze on its downstream competitors by charging a low retail price. The incentives for such behaviour are similar to the incentives in other cases of predation. If the dominant undertaking is running at a loss during the predation period, predation will only pay if, once competitors have left the market, the retail price can be increased again without immediately attracting entry. This will be the case if barriers to entry exist or the SMP undertaking can build a reputation to resist new entry aggressively. Furthermore, predation is more likely to be successful if there is some asymmetry between the firms, in particular with regard to their access to financial resources.[159] There may also be incentives for dominant undertakings to sell at a retail price that covers short run marginal costs, which may be very small, but makes little or no contribution to joint or common costs, particularly where they are large multi-product firms operating in several markets and where their competitors sell a much more restricted product range. In this case competitors may have to cover a larger proportion of their common costs from the product in question and be unable to compete with the retail prices of the SMP undertaking. In these circumstances, the use of a combinatorial test may be appropriate.[160]

If the situation is such that predation can be expected to be profitable for the SMP undertaking, and wholesale remedies are likely to be insufficient, NRAs may want to impose some form of regulation on the undertaking's retail price. The retail price (which is the strategic variable in this case) can be targeted by Art 17 USD (regulatory controls on retail services), which allows NRAs, amongst other things, to impose obligations on the SMP undertaking in order to prevent it from inhibiting market entry or restricting competition by setting predatory prices. A common practice is, for example, to require the SMP undertaking to pre-notify changes in the retail price to the NRA. If the NRA considers the price as predatory, leading to a margin squeeze, and likely to have significant anti-competitive effects, it might prevent the undertaking from changing prices in the intended way. In such cases, NRAs may publish guidelines according to

[159] See, for example, Martin (1994, pp. 452-489).
[160] See, for example, OFT (1999b, paras 7.11 and 7.16).

which the effects of a certain price will be assessed. Retail pricing is, however, considered to be a tool of last resort.[161]

If the access price is regulated by means of retail-minus, a predatory price at the retail level will lead to a price below costs for the access service and therefore will not result in a margin squeeze.

5.2.6.4 Conclusion on pricing issues

With a cost-oriented access price, the problem of margin squeeze reduces to a problem of compliance with the access regulation at the wholesale level and/or to a potential predation problem at the retail level. If a danger of predation exists, it might be appropriate – after due consideration – to regulate the retail price by means of Art 17 USD (regulatory cost controls on retail services) ex ante.

A retail-minus approach in general should rule out the possibility of a margin squeeze as it links wholesale and retail prices exactly in a way such that all operators that are equally efficient as the dominant undertaking will usually be able to compete.

A margin squeeze thus can also be precluded by linking the retail price to the (cost-oriented) access price in a retail-minus-like fashion. This is sometimes referred to as ‘imputation requirement’. Given the variety of retail prices in many communication markets, however, such a rule may be difficult to enforce. Furthermore an imputation requirement might be ineffective under certain circumstances, for example, if new entrants have to bear consumer switching costs which are not born by the SMP undertaking.[162] This could be allowed for by increasing the ‘minus’ to the level which allows entrants to compete. NRAs should consider taking into account economies of scale and scope when determining the access price to ensure that incumbent and entrant are competing on a level playing field on the retail market (cf. Annex).

5.3 Case 2: Horizontal leveraging

Case 2 as set out in Chapter 2 deals with leveraging issues which may arise in a situation where an undertaking is operating on two or more markets which are not vertically related, and is dominant on one of them, and the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market. Two standard competition problems have been identified in this context:

2.1. bundling/tying
2.2. cross-subsidisation

Although in most cases only retail markets are involved, there may be cases where market power is leveraged between two wholesale markets or between a wholesale and a (not vertically related) retail market. As a particular remedy of the new regulatory framework can only be applied either to the wholesale or to the retail level, all possible cases will have to be discussed.

161 Directive 2002/22/EC, Recital 26.
162 See Beard et al (2003).

By preventing the dominant undertaking from leveraging its market power to horizontally related markets, NRAs promote competition in those markets and protect consumers from the exercise of market power (principle 2 of Chapter 4)

5.3.1 Relevant concepts: Incentives to horizontal leveraging

Economic analysis suggests that an undertaking with market power will have an incentive to leverage its market power to an adjacent potentially competitive market whenever it can – in the short or in the long run – increase its profits by doing so. If leveraging is successful, this will usually be the case. Economic literature therefore is dealing with the question if and under which circumstances leveraging between two (not vertically related) markets is possible. The main focus here has been on leveraging by means of bundling and tying.

In general, tying and bundling can be used by monopolists (or, more generally, firms with market power) in order to engage in price discrimination to extract more consumer surplus and increase profits. As such, the welfare implications of tying and bundling are uncertain, i.e., can be either positive or negative depending on the specific conditions of supply and demand. Tying and bundling might also have technological reasons and as such may also be welfare enhancing. If tying and bundling is solely motivated by the intention to leverage market power from a monopolistic to a potentially competitive market, however, it usually is detrimental to overall welfare.[163]

Economic theory[164] suggests that it is hardly possible to exactly specify conditions under which leveraging by bundling or tying is possible. It may also be difficult in practice to distinguish cases of anti-competitive bundling or tying from cases where it is used as means of price discrimination or for production efficiency reasons.

Thus, bundling or tying between two not vertically related markets usually should be judged on a case-by-case basis. Particular concern, however, will have to be given to situations where the dominant undertaking is bundling its monopolistically supplied product with a (potentially) competitively supplied product and the bundle cannot be replicated by its competitors.

Besides bundling, a dominant undertaking might also attempt to leverage its market power by means of cross-subsidisation. Basically, predatory pricing cross-subsidized with profits from a monopoly market can be viewed like any other form of predatory pricing: A firm charges a price below (marginal or average) cost in order to drive its competitors out of the market. After the exit of all (or most) of its competitors, it charges an excessive price, covers the losses from predation and makes additional profits. As discussed in Section 5.2.4.3, predation will only be profitable if there are at least some imperfections on the second market (like, e.g., barriers to entry) and/or if there are asymmetries between the SMP undertaking and its competitors, in particular with regard to their access to financial resources.

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163 As stated in Chapter 2, bundling/tying cannot only be used to leverage market power to a related market but also to inhibit entry to the SMP market. With regard to remedies, however, the same considerations as in the leveraging case apply.

164 See, e.g., Nalebuff (2003) or Inderst (2003).

As prices below (average or marginal) costs are frequently part of business strategies (for example if new products are introduced) and not aimed at driving competitors out of the market, NRAs will have to judge on a case-by-case basis whether such behaviour will lessen competition or not.

5.3.2 Bundling/Tying

Bundling by dominant undertakings which is considered to be detrimental to the development of competition by the NRA can be targeted by two remedies of the new regulatory framework: Art 9 (2) AD requires the undertaking to publish a sufficiently unbundled reference offer, whereas Art 17 (2) USD allows NRAs to impose requirements on the undertaking not to unreasonably bundle services.

Art 17 (2) USD is a retail obligation and thus can be applied to cases of anti-competitive bundling between two retail products where wholesale obligations are insufficient (Art 17 (1b) USD). As mentioned in the previous section, however, such an obligation should usually not be imposed ex ante to all types of bundles, as this may rule out cases of welfare-enhancing bundling. Rather, the obligation on an SMP undertaking might be to report new bundles to the NRA, which will then judge on a case-by-case basis whether the bundle is likely to have anti-competitive effects. Such a monitoring could be limited, for example, to bundles which are not replicable for competitors. As far as possible, the assessment of the bundle should follow clear guidelines stating when a bundle is likely to be considered to be anti-competitive. NRAs may also prohibit the SMP undertaking ex ante from specific bundling or tying practices which have been found to be anti-competitive in the market analysis.

Alternatively, depending on the circumstances highlighted in the market analysis, NRAs may also decide to make available (additional) wholesale inputs to alternative operators which allow them to replicate a bundle which otherwise is likely to have anticompetitive effects. An example for this could be an obligation for the SMP undertaking to provide flat rate interconnection offers or wholesale line rental (WLR) to allow alternative operators to replicate or at least compete with the bundle of access and a package of call minutes.

Bundling of wholesale services in the communications sector usually does not aim at leveraging market power, but may rather aim at raising rivals' costs by forcing him to buy unnecessary components. This case has been dealt with in section 5.2.3.3 above.

Bundling between wholesale and retail services is seldom observed, however, it may be dealt with by NRAs – depending on the case at hand – either by Art 17 (2) USD or by Art 9 (2) AD.

Although the welfare gains from preventing the dominant undertaking from distorting competition in horizontally related markets are potentially large, NRAs should also take into account in their option assessment the danger of prohibiting bundles which may increase welfare.

5.3.3 Cross-subsidisation

According to economic analysis, cross-subsidisation is based on two strategic variables: the price in market 1 (the SMP market), which is above costs, and the price in market 2 (the potentially competitive market), which is below costs.

To the extent that this strategy hinges on the profits made in the SMP market, to deal with the problem at the source, remedies should first target the SMP market and attempt to eliminate the exploitation of market power there. If competition in the SMP market is unlikely to emerge due to circumstances beyond the control of NRAs, then an ex ante price control may be an appropriate remedy to eliminate the exploitation of market power. Above-cost prices on a retail market can be addressed by Art 17 (2) USD (subject to the conditions for its use being met), whereas excessively high access or interconnection prices may be targeted by Art 13 AD (which usually will be accompanied by an Art 11 AD obligation of accounting separation).

Only if the excess profits on the SMP market cannot be eliminated, or if the predation problem remains after having eliminated excessive profits, the price on the second market may be targeted. This could be done by an Art 17 USD obligation '... not to inhibit market entry or restrict competition by setting predatory prices'. As such cases should be dealt with individually, an ex ante obligation to notify tariff changes to the NRA seems to be most appropriate. Regulatory intervention presupposes, however, that the undertaking is holding an SMP position on the relevant market.

5.4 Case 3: Single market dominance

Whereas cases 1 and 2 were dealing with leveraging issues, where market power is transferred from an SMP-market to a potentially competitive market, case 3 focuses on anti-competitive and exploitative behaviour which may occur within the borders of a single SMP-market. Three different types of problems may arise there: (i) An SMP undertaking might attempt to protect its SMP market by engaging in entry-deterring behaviour; (ii) The dominant undertaking may potentially exploit its customers by charging excessive prices or by means of price discrimination; (iii) Not exposed to (sufficient) competitive pressure, the SMP undertaking may fail to produce efficiently, provide a decent level of quality or to take certain investment decisions.

The following sections will discuss incentives for such behaviour together with the remedies which may be imposed if such behaviour is likely to occur. The cases outlined in this section more closely relate to the concerns that arise when replication is not feasible.

5.4.1 Entry-deterrence

There are several ways in which an SMP operator can behave in order to erect entry barriers, i.e., to either increase the costs of potential entrants or to restrict their sales. Such barriers to entry are sometimes referred to as 'endogenous' entry barriers as opposed to 'exogenous' entry barriers, which do not result from firms' behaviour, such as economies of scale and sunk costs or the limited availability of frequency spectrum.

A number of entry-deterrence strategies have been identified, which are reflected in the following standard competition problems of Chapter 2:

3.1. strategic design of product to raise consumers' switching costs
3.2. contract terms to raise consumers' switching costs
3.3. exclusive dealing
3.4. overinvestment
3.5. predatory pricing

5.4.1.1 Relevant concepts: Incentives for entry-deterrence

According to economic analysis,[165] the conditions under which incentives for a particular type of entry deterring behaviour exist are highly specific and difficult to observe for regulators. Furthermore, there is a large variety of ways in which a dominant undertaking may engage in entry deterrence. Thus it might not be possible to assess *ex ante* whether incentives for entry deterrence are present and/or which particular type of behaviour is likely to occur. Wherever incentives for such behaviour or a certain behaviour itself is detected in the course of the market analysis, it may be possible to address it by *ex ante* regulation.

A second point is that, in the cases described above, it might be hard for NRAs to distinguish *anti-competitive* product design, investment, contract terms, contractual relations or pricing behaviour from *efficient one.* Therefore, some issues might have to be judged on a case-by-case basis.

The problems described may occur on retail as well as on wholesale markets. Wherever a certain competition problem is likely to occur on the retail market, NRAs should, according to the new regulatory framework, first attempt to address it by wholesale remedies, and only if those are insufficient may impose obligations on the relevant retail market.

5.4.1.2 Strategic design of product to raise consumers' switching costs

The strategic design of products to raise consumers' switching costs can be applied by the SMP operator either on the wholesale or on the retail market.

At the wholesale level, the strategic variable 'product characteristics' can be influenced *ex ante* by an Art 9 (2) AD obligation to publish a sufficiently unbundled reference offer which might be changed by the NRA. Alternatively (or additionally, depending on the case at hand) product design can be dealt with under Art 12 AD, which allows the NRA to attach conditions covering fairness and reasonableness to an access obligation.

At the retail level, Art 17 (2) USD may be used (if the conditions described in the article are met) to target the SMP operator's product characteristics. This article primarily focuses on pricing issues, however, and thus it is uncertain to which extent properties such as product design, compatibility, norms and standards, etc can be addressed.

[165] See e.g. Aghion/Bolton (1987) for exclusive contracts or Dixit (1981) and Fudenberg/Tirole (1984) for overinvestment.

Some product characteristic issues might – independent from an SMP position – already be covered by Art 17 Framework Directive. This article is dealing with standardisation and in particular states that Member States shall encourage the use of standards and/or specifications for the provision of services, technical interfaces and/or network functions published by the European Commission to the extent that they are necessary to ensure interoperability of services and to improve freedom of choice for users. Some potentially anti-competitive product designs (in particular with respect to compatibility) might already be ruled out by such standards and specifications.

5.4.1.3 Contract terms to raise consumers' switching costs

The strategic variable on which the anti-competitive behaviour is based in this case is 'contract terms'.

Contract terms at the wholesale level may be influenced via Art 9 (2) AD obligation to publish a reference offer. The NRA might then impose changes with regard to the length of the contract period or penalties in case of premature termination.

At the retail level, switching costs can – given that wholesale obligations are insufficient – be dealt with under Art 17 (2) USD to the extent that switching costs are imposed on customers in forms of charges they have to pay to the SMP operator in case of switching. If, for example, the SMP undertaking charges a certain amount in order to enable customers to make use of carrier pre-selection, the NRA might intervene and limit this charge to the underlying costs.

Other switching costs on the retail market, like lengthy contract durations and high penalties in case of premature termination, are usually not dealt with by the NRA, but by national consumer law.

NRAs should also attempt to reduce exogenous switching costs (switching costs which do not result from the behaviour of an undertaking, but exist due to other circumstances) wherever possible, for example by making prices more transparent (Art 21 USD) or by the introduction of number portability (Art 30 USD).[166]

5.4.1.4 Exclusive dealing

Exclusive dealing is a competition problem, which can arise only at the wholesale level. Two cases can be distinguished: (i) the case where a downstream undertaking is obliged to buy its inputs only from the dominant undertaking and (ii) the case in which a supplier is obliged to supply its input only to the dominant undertaking (and not to other undertakings).

In case of an access service, case (i) might be dealt with by imposing changes to a reference offer according to Art 9 (2) AD. An obligation of the downstream undertaking not to buy the input also from other upstream firms could then be eliminated by the NRA.

In case (ii), it does not seem possible for NRAs to address the strategic variable 'contract terms', as Art 9 (2) AD only relates to interconnection and access and Art 17

166 These are not SMP-obligations but general provisions of the new regulatory framework.

USD can be applied to retail markets only. Thus, such cases might be dealt with by the national competition authority.

5.4.1.5 Overinvestment

The investment decision (strategic variable 'investment') of an SMP undertaking cannot be targeted by remedies of the new regulatory framework. Such cases should therefore be dealt with by the national competition authority.

Still, when calculating a cost-oriented access or retail price, the NRA has to ensure that an SMP undertaking is not able to earn returns on investments which serve as a device for entry deterrence.

5.4.1.6 Predatory pricing

The case of predatory pricing in one market does not differ – with regard to regulatory consequences – from the case of predatory pricing as described in section 5.2.4.3. Therefore, the same reasoning as above applies.

5.4.2 Exploitative behaviour

An undertaking with market power is able to set prices above costs and earn super-normal profits. It can do this either by simply charging a (uniform) excessive price or by means of price-discrimination, i.e., by setting different prices to different customers which do not reflect differences in underlying costs. This is reflected in the following standard competition problems:

3.6. excessive pricing
3.7. price discrimination

5.4.2.1 Relevant concepts: Incentives for exploitative behaviour

A dominant undertaking always can increase its profits by setting an excessive price and thus always has a clear incentive to do so. The welfare consequences of an excessive price are clearly negative, as additional supply at lower prices would be beneficial both for the undertaking as well as for the consumer.

Price-discrimination, on the other hand, will only be possible if the undertaking with market power (i) is able to sort customers and (ii) is able to prevent resale. Incentives for price discrimination exist whenever the undertaking is able to extract more consumer surplus compared to a uniform price. The welfare effects of price discrimination are ambiguous. Depending on supply and demand conditions, welfare might either increase or decrease compared to a situation where a uniform price is set. As a general rule, welfare can be expected to increase under price discrimination if total output rises. Nevertheless, as long as market power exists, welfare will usually fall short of its maximum value under competition.

5.4.2.2 Excessive pricing

Excessive pricing on the wholesale market has already been discussed in Section 5.2.2. above. The discussion here therefore will be limited to excessive prices on the retail market.

As a general rule and in the spirit of the new regulatory framework, excessive prices on the retail market should first be addressed at the wholesale level, e.g. by ensuring access at cost-oriented prices. Only if excessive prices on the retail market cannot (or only in the long run) be eliminated by regulation at the wholesale level, a retail price regulation according to Art 17 (2) USD appears appropriate ('... requirements that the identified undertakings do not charge excessive prices'). On most retail communication markets, however, it would be inappropriate to impose a single price or a single two-part tariff. A price cap including several tariff schemes might therefore be reasonable. Such a price cap would allow the undertaking to design its tariffs in response to the peculiarities of retail demand.

If prices are deemed to be in line with costs (due to previous regulation) but are likely to be raised by the SMP undertaking without regulation, another option would be – as for the predatory pricing problem described in Section 5.2.4.3. – an obligation according to Art 17 (2) USD to subject changes in retail prices to approval of the regulator. If a certain tariff change is deemed to lead to excessive prices, it should not be approved by the regulator. If necessary, both instruments (price cap and tariff approval) may be applied together.

5.4.2.3 Price discrimination

Price discrimination on the retail market can – as excessive pricing – be addressed by Art 17 (2) USD ('... requirements that the identified undertakings do not [...] show undue preference to specific end users'), subject to the conditions for its use being met. As price discrimination may also be welfare enhancing, it might be appropriate to deal with it either ex post or ex ante on a case-by-case basis, e.g. in the form of tariff approval, where the SMP undertaking has to pre-notify changes in its tariffs to the NRA. The NRA then has to judge whether the price discrimination is justified in light of the goals of Art 8 Framework Directive. This judgement may be based on guidelines to be set out by the NRA.

5.4.3 Productive inefficiencies

Exposed to competitive pressure, undertakings are forced to minimize costs, provide a decent level of quality and take investments whenever the expected return is above costs of capital. SMP undertakings are not (or only to a limited extent) exposed to such pressure and thus might fail to produce efficiently, provide high quality products or to take efficient investments.

Clearly, there are no 'incentives' for inefficiencies in terms of profit maximization. It rather 'happens' that efficiency is traded off against leisure, fringe benefits, higher wages, etc. where competition is not sufficiently intense.

Three standard competition problems have been identified in this context:

3.8. lack of investment
3.9. excessive costs/inefficiency
3.10. low quality

Productive inefficiencies are particularly likely to occur in sectors which have been monopolies for long periods and are unlikely to see the emergence of effective competition in the near future, such as the fixed network local loop. Wherever possible, NRAs should promote market entry to allow effective competition to emerge, which usually will solve problems of productive inefficiencies. Only where market entry is unlikely to occur and/or where competitive pressure is likely to be limited in the future, NRAs should address these problems directly.

5.4.3.1 Lack of investment

'Investment' as a strategic variable cannot directly be addressed by remedies of the new regulatory framework. Art 13 (3) AD, however, allows NRAs to calculate access prices based on an efficient cost structure, which also include efficient investments. A similar argument can be made about the retail market with reference to the Art 17 (4) USD (although the discretion of the NRA under Art 17 (4) USD with regard to the accounting method applied is unlikely to be equal to that of Art 13 (3) AD).

Regulators will have to set an access price which is low enough to induce the SMP undertaking to take cost-reducing investments, while on the other hand it allows him to earn sufficient returns on such investments and gives incentives to maintain and upgrade infrastructure.

5.4.3.2 Excessive costs/inefficiency

The SMP operator's costs can be targeted by NRAs in course of price regulation on the wholesale as well as on the retail market.

On the wholesale market, NRAs may calculate prices based on '... methods independent of those used by the undertaking' (Art 13 (3) AD). This implies that costs can be calculated based on a (hypothetical) efficient input combination (e.g. an efficient network). This is frequently done in course of the cost calculation by means of a bottom-up model.

A similar method of calculation might – if necessary – be applied on the retail market under Art 17 (4) USD: 'National regulatory authorities shall ensure that, where an undertaking is subject to retail tariff regulation [...], the necessary and appropriate cost accounting systems are implemented. National regulatory authorities may specify the format and accounting methodology to be used'. However, this article does not seem to be as far-reaching as Art 13 (3) AD which allows NRAs to use '... methods independent of those used by the undertaking', such as a bottom-up model. If an RPI-X type[167] of dynamic price cap is imposed, the undertaking has clear incentives to improve efficiency as it can retain the revenues from any efficiency increase beyond the X-factor within the period for which the price cap is set. At the same time, however, NRAs

[167] Under such a regime, the change of the maximum price (the price cap) per period is equal to the change of an inflation factor (e.g. the retail price index RPI) minus a productivity factor X..

have to ensure that quality is not degraded, as the dominant operator may be able to increase its profits by saving costs on quality.[168] Benchmarking may be used as a way of measuring inefficiency and the incentive properties of price caps as a way of encouraging efficiency.

5.4.3.3 Low quality

If an access obligation is in force, the variable 'quality' can be dealt with at the wholesale level by an Art 9 (2) AD obligation to publish a reference offer, to which the NRA might impose changes which may also concern the quality of service. Some quality issues might be dealt with directly under Art 12 AD which allows NRAs to attach conditions covering fairness and reasonableness to the access obligation.

At the wholesale level, quality of service can to some extent also be dealt with by a non-discrimination obligation (Art 10 AD) as described in section 5.2.3.5. Such an obligation will only be useful however, if the wholesale service is also provided internally, and even in this case the SMP undertaking cannot be obliged to provide a quality better than the one it provides to its retail affiliate. The obligation of non-discrimination therefore cannot be used to address degraded quality resulting from the lack of competitive pressure.

On the retail market, quality of service remedies could be imposed by NRAs if they met all the usual tests. Quality is indirectly,addressed in Art 22 USD (quality of service): NRAs may '... require undertakings that provide publicly available electronic communications services to publish comparable, adequate and up-to-date information for end-users on the quality of their services'. Making transparent differences in quality may increase pressure on the SMP undertaking and induce it to supply better quality at the retail level. Indirectly, quality on the retail market can be influenced by setting quality requirements at the wholesale level as discussed above.

With regard to fixed line telephony, according to Art 11 USD, NRAs may set performance targets for the provider of universal service according to the USD and for the provider of the minimum set of leased lines if an Art 18 USD obligation has been imposed.

5.5 Case 4: Termination

Case 4 (termination) refers to a situation of two-way access (as opposed to one-way access dealt with in case 1) in which two or several networks in a first step negotiate interconnection agreements and in a second step set their prices on the retail market where they may or may not be in competition with other networks. Given the nature of fixed networks and the current state of technology and conventions in the mobile sector, it is not possible for the firm seeking access to replicate the service being provided by the access provider that "owns" the access to the customer. Thus, the considerations that arise in relation to non-replicable situations also apply in relation to termination.

Four standard competition problems have been identified in such a setting (see Chapter 2):

[168] See, e.g., Intven (2000, Module 4 – price regulation, p. 4-30).

4.1. tacit collusion
4.2. excessive pricing
4.3. price discrimination
4.4. refusal to deal/denial to interconnect

In the following sections, incentives for such behaviour and possible remedies for each of the four problems are discussed. Wherever useful, a distinction between mobile to mobile (M2M) and fixed to mobile (F2M) telephony will be made (although the termination service itself is the same in both cases). The main differences between the two are that mobile networks compete for customers, whereas the competition between fixed and mobile networks for the same customers is limited.[169]

5.5.1 Tacit collusion

Tacit collusion is a competition problem pertaining to M2M (and possibly to F2F) interconnection. Tacit collusion may take different forms, among other things some form of reciprocal rate setting. Any type of collusion related to termination rates would be an inter-market collusion, however, where operators use their market power in the termination market (in which they are likely to be individually dominant) in a co-ordinated fashion. As discussed in Chapter 2, the setting of reciprocal termination charges will result in excessive retail prices only under specific circumstances and is unlikely to emerge in practice where networks of different size with different cost structures exist. Tacit collusion may occur, however, where market conditions are stable, networks are of similar size, have similar cost structures, and traffic between networks is symmetric. Depending on the price-setting mechanism on the retail market, a collusive outcome might be maintained either by setting above- or below-cost reciprocal termination charges.

In such cases, welfare can potentially be increased by bringing access charges back to a cost-oriented level. The termination charge of individual networks can directly be targeted by an Art 13 AD price control and cost accounting obligation. In order to be able to calculate a cost-oriented termination charge, an NRA may have to impose an obligation of accounting separation according to Art 11 AD.

Other remedies like an Art 10 AD obligation of non-discrimination and/or an Art 9 AD obligation of transparency are unlikely to solve the problem on their own. The collusive access charge between symmetric networks may already be non-discriminatory, and transparency on the wholesale-level is likely to further collusion rather than prevent it, as it allows the operators to observe each other’s charges and thus makes cooperation easier.

5.5.2 Excessive pricing

Market power on individual termination markets is likely to result in excessive pricing of the termination service which will lead in turn to allocative inefficiencies and a distorted pricing structure. This holds even true if the profits made are competed away on the

169 The actual extent of competition between fixed and mobile telephony is considered in the course of the market definition / market analysis.

retail market. As outlined in section 2.3.4, this problem may, in particular, arise in the F2M and F2F situations.

The remedies to be considered in this context are those which can – directly or indirectly – influence individual network's termination charges, i.e., Art 9 AD (transparency), Art 10 AD (non-discrimination) and Art 13 AD (price control and cost accounting).

Economic theory[170] suggests that transparency of retail prices may mitigate the excessive pricing problem to the extent that customers aware of prices of calls to individual networks can better adjust their demand in response to price increases following from the increase of termination rates. However, given the situation of fragmented numbering areas for mobile, number portability and customer ignorance this might not be easy to achieve. But even under perfect transparency, the termination-monopoly continues to exist, and prices may still be set at the (inefficiently high) monopoly level, (without transparency, prices are likely to be even above that level). Furthermore, an Art 9 AD obligation of transparency at the wholesale level does not lead by itself to increased transparency of retail prices. The obligation of transparency therefore would in most cases be inappropriate to solve the problem at hand.

An Art 10 AD obligation of non-discrimination (possibly backed by an Art 11 AD obligation of accounting separation) is also unlikely to sufficiently restrict the SMP undertaking in its power to raise prices above costs. Although such an obligation would make the costs of terminating on-net calls visible, the SMP undertaking can still set an excessive termination charge externally and have at the same time low (on-net) retail tariffs that do not take into account the full costs of the service. The operator may claim that it is charging the same (high) price he is charging externally also to its own retail business, but that he is ready to take a loss on his retail service.

An obligation by which the termination charge can be targeted directly is by setting a cost-oriented price based on an Art 13 AD price control and cost accounting obligation. This may have to be backed by an Art 11 obligation of accounting separation. With a cost-oriented access price, excessive pricing is made impossible and allocative inefficiencies are reduced.

When determining the level of the termination charge for mobile networks, it should be taken into account that cross-subsidisation from the fixed to the mobile sector may increase penetration rates on the mobile retail market and thus may – to some extent – increase total welfare (as long as high levels of penetration have not already been reached). Both effects, the distortions from cross-subsidisation as well as the welfare-effects from increased penetration (which may now be exhausted in relation to 2G services in most of the EU countries) should be taken into account when the access price is determined.

In cases where an immediate implementation of charge control that sets charges at the competitive level could cause disproportionate problems for mobile operators, NRAs may apply a price cap system or a glide path to achieve a competitive level over a reasonable period of years.

170 See Gans/King (1999).

For example NRAs may consider that, in the short term, new entrants into the mobile sector, where high initial investments are required, do not benefit from economies of scale (and possibly scope) to the same extent as the incumbents such that an immediate implementation of charge control that sets charges at the competitive level could cause disproportionate problems for operators. In such circumstances NRAs may apply a price cap system or a glide path to achieve a competitive level over a reasonable period of years. The period of the glide path must be strictly limited in time to that appropriate to the particular market conditions.Where price regulation is appropriate some Member States already use long-range dynamic cost models.

Economic analyses point to the fact, however, that, if only the termination market is considered, smaller operators might even have a greater, and not smaller, degree of market power due the limited consequences of an increase in their termination rates on the consumers perception of tariffs for calls to mobiles.[171] NRAs will have to formulate expectations about a reasonable period of time until when the price of the entrant may become regulated according to the general regulatory approach to the sector, taking into account the competitive situation in the markets. Otherwise more efficient operators in the market might be put at a competitive disadvantage, as they have to subsidize less efficient operators. Although it might be justified in the light of the goal of sustainable competition that new entrants are treated differently, the long run goal is to ensure that all operators are producing efficiently.

Similar considerations apply to new entrants into the fixed sector. Although entry into the fixed market usually does not require as much initial investment as in the mobile sector (investments can usually be made – at least to some extent – in a step-by-step manner), there may still be significant economies of scale, which are likely to remain un-exhausted in the early stages of market entry. This may justify higher termination rates at the outset, which may then be reduced along a glide path down to a level where scale economies can be considered to be exhausted. When setting the initial termination charge, NRAs may also take into account differences in network topologies, and the geographic dimension of network coverage. However, similar to the reasoning above for the mobile sector, in the long run all operators have to be treated equally in a way that ensures efficient production. While in principle the same considerations apply in the case of both fixed and mobile termination, the nature of the market dynamic and the ability to reach minimum efficient scale may in practice lead to different outcomes with regard to the appropriate period of any possible glide path. Nevertheless, where glide paths are to be used, NRAs should construct glide paths which encourages greater efficiency over time. A further factor, which has to be considered by NRAs compared to the mobile sector is the larger number of operators in the fixed sector, which may lead to complex retail tariff structures if operators charge prices which reflect the differences in termination charges.

5.5.3 Price discrimination

There are various types of price discrimination relevant to a termination market context that under certain circumstances have the potential to distort competition. For example, a mobile operator might charge different termination prices i) between

[171] This effect is also referred to as horizontal externality or horizontal separation, see e.g. Gans/King (1999, p. 7).

different MNOs, ii) between different FNOs, or iii) between FNOs and MNOs. Another type of price discrimination is where SMP players may attempt to leverage market power from the relevant call termination market with the effect of dampening competition in the retail market by charging a high (above-cost) termination charge to other operators while (implicitly) charging a low price for on-net termination internally. This is likely to result in high off-net and low on-net tariffs on the retail market which may put entrants with a small customer base at a disadvantage.

An obligation of non-discrimination (Art 10 AD) prohibiting the SMP operator from charging a higher termination charge to other operators than it is charging internally (on-net) is unlikely to be necessary to prevent foreclosure of the retail calls market. Very large market shares are needed in order to tip a market to one supplier and such market shares happen infrequently. Therefore prices at cost-oriented levels are likely to resolve any residual leverage problem that might be created by on/off-net price differentials. High termination charges can be addressed by an Art 13 AD price control and cost accounting obligation (possibly together with an Art 11 AD obligation of accounting separation). The alternative approach of a non-discrimination obligation, even in combination with an obligation of accounting separation, is unlikely to be sufficient to achieve the intended aim of regulation, i.e., termination tariffs at an efficient level.

There may however be a case for a non-discrimination requirement where there is a concern about leverage of a position of SMP in termination so as to suppress competition for bundles of services to certain customer segments. For example, fixed operators sometimes express concern about their inability to compete for contracts to supply packages of services (for example voice and VPNs) to corporate customers, where on-net discounting is practised, arguing that MNOs are unfairly cross-subsidising. There is no presumption that any such on-net discounting will inevitably distort competition in this way even if it prevented particular competitors from offering the relevant package. Each case would need examination on its merits. Nevertheless, where this was a legitimate concern, a non-discrimination obligation would be an ineffective means of dealing with it, unless complementary obligations were applied in the relevant retail market. Otherwise, the MNO could avoid the intent of the obligation by charging itself the same termination rate as charged to third parties and taking a loss (or reduced margin) on on-net voice calls in the retail market. In the absence of a dominant position in the retail market, such behaviour would offend no rule.

5.5.4 Refusal to deal/Denial to interconnect

Without an obligation to interconnect, the incumbent operator(s) might be able to foreclose the market by refusing to interconnect with new entrants. Without interconnection, the service of the new entrant will be of limited use to customers, as they cannot reach a large share of mobile subscribers.

The interconnection decision of an operator can be addressed by Art 12 AD: ‘Operators may be required [...] to interconnect networks or network facilities’. Independent from an SMP position, interconnection can also be imposed based on Art 5 AD. Therefore, where an Art 5 AD obligation is already in place, it will not be necessary to impose an

Art 12 AD obligation in addition. Where Art 5 is not in place and only the SMP undertakings are to be addressed, an Art 12 obligation appears appropriate.

As soon as an obligation to interconnect is in place, however, an interconnection charge may have to be determined. With regard to the competition problems reviewed above, a cost-oriented regulation of the termination charge according to Art 13 AD appears appropriate.

5.6 Other issues

5.6.1 Variations in remedies

In circumstances where it is likely that the market failure identified will be the same in all markets (for example, very high market share, high barriers to entry and the economic viability of installing a competing local access infrastructure), where it is intended to impose different remedies on different operators within similarly defined markets, such differential treatment (i.e. variations in remedies across markets) should be adequately reasoned.[172]

However, variations may be appropriate within a market for various reasons including geographical variations and variations arising from differences in demand and supply factors. Such reasons do not imply that the market should be segmented by geography or demand or supply factor, because of the presence of a common pricing constraint or an atypically responsive supply function.

NRAs have the ability to vary remedies within SMP markets according to the problems identified and the proposed resolution. The varying of remedies within an SMP market may be required in order to achieve the objectives set out in Article 8 of Framework Directive.

Single geographic markets are capable of supporting geographical variations within them which are not insignificant and which may warrant specific adjustments to the remedies proposed. It is often the case that geographical markets are national in character due to a common pricing constraint. The origin of such a common downstream pricing constraint may in fact be regulatory or the result of normal economic forces. However the national pricing system may not reflect inherent differences in the underlying demand or supply conditions in certain geographic areas within the national market.

The economics of density which are so important to the viability of infrastructural deployments are markedly different in urban rather than rural areas. In this context the long-term prospects for competition development, due to the presence of potentially non-replicable assets in less densely populated areas, may mean that the basis on which competition develops may differ within a single geographic market. The phenomenon of variations across geographic markets may not be stable over time such that any remedies reflecting geographic variations will need to be sensitive to developments that affect those variations.

[172] See Commission comments on cases FI/2003/0028-0029, FI/2003/0030, FI/2003/0031, HU/2005/0152, DK/2005/0204, FR/2005/0228.

It is also true that market definition normally places far greater emphasis on demand conditions than on supply conditions. However the supply function in communication markets is atypically responsive such that what might at first have been considered as separate markets are sometimes brought into one as a result.

Within such product markets variation in either demand or supply condition may warrant the use of asymmetrical remedies. In some markets products such as partial private circuits[173], LLU backhaul and Radio Base Station backhaul were all placed in the same market since from a supply perspective all three products are essentially the same product and can be used to provide service to any of the customer segments. It is also the case that these customer segments have the capacity to exert differing levels of buyer power, especially in the case of the radio base station operators who often have self supply as a backstop in negotiations with backhaul suppliers. The result is that certain product users may need less regulatory intervention to protect their interests from the exertion of SMP than others, justifying such asymmetrical remedies. From this perspective variations in remedies to reflect the variations within the market can be justified.

While any of the above arguments may provide a *prima facie* justification for variation in remedies in particular circumstances, consideration of the principle of incentive-compatibility of remedies tends to lead to uniformity. Introduction of variations is bound to complicate the task of enforcement and, consequently, the practical opportunities for avoidance of compliance. NRAs will need to strike the right balance between these considerations before concluding that variations are appropriate.

Textbox 4: Variations in remedies associated with new or upgraded infrastructure

Existing services delivered via new infrastructure

New infrastructure investments that provide existing services would not *a priori* warrant any different treatment from existing infrastructure. This is in line with the principle of technological neutrality. The delivery of existing services through networks using new technology may enhance total welfare as a result of cost reductions. These welfare gains may not be achieved if there is room for re-monopolization of the downstream markets through foreclosure or leveraging.

Substitute products delivered via new technology

For some time substitute products may be delivered through different technologies with different economies of scale and cost conditions, leading to different supply functions. This may facilitate leveraging of market power based on the old technology into the market segment served through innovative technology, for instance where services delivered through both technologies should be interconnected or need to be

173 For example, see Commission comments in case DK/2005/0245

interoperable. In such situations ex-ante regulation should intervene on the SMP market to prevent leveraging while ensuring that migration to the innovative technology is not inhibited and end users profit from the introduction of innovative technology, by ensuring interoperability (e.g. via standardisation and/or interconnection).
To achieve this balance, a (temporary) differentiation of remedies, where innovative services delivered through the new technology are regulated less stringently, can be justified. Whether a differentiation of remedies is justified and proportionate depends on the nature and cause of the competition problems in the relevant market. Where the competition problem is such that it can be solved by applying a remedy only to the products delivered through the old technology, proportionality requires leaving alone the innovative part and vice versa.

For example, the non-imposition of remedies on Voice over Broadband (VoB) services, where SMP has been found on a retail market comprising both PSTN calls and VoB services, may be justified if wholesale access regulation is sufficient to prevent leveraging. If the SMP player offers a retail bundle of VoB and internet access, this can in principle be replicated by any competitor able to gain wholesale access on non-discriminatory terms or to provide its own broadband connection on a competitive basis.

However, each case must be treated on its merits and monitoring of market development is necessary to ensure timely reaction of the regulator if the SMP operator engages in anti-competitive behaviour. [174] For example:

- where bundling of traditional voice and data services is prohibited (or subject to an advance notification requirement) because it would risk distorting competition, it may equally be necessary to apply the same remedy to bundling of those data services with VoB;

- where no regulation has been applied to the service supplied using new technology on the grounds that regulation of the traditional service offering is sufficient to protect end-user interests, care needs to be taken that the remedy remains effective and the SMP operator is prevented from undermining regulation by offering the unregulated service only.

New services delivered via new infrastructure

The question of regulation – or avoidance of regulation – of new services delivered via new or upgraded infrastructure is a particularly difficult one. Services of this nature may not fall in a market which would be considered to be susceptible to ex-ante regulation (see discussion in Textbox 1 on “emerging markets”) taking into account the Commission’s guidance on the subject. But in practice, such infrastructure will often be used partly in substitution for existing infrastructure and partly (probably to a limited extent initially) for delivery of new services. In such a case, the access services are in practice quite likely to fall within an existing SMP market. The following general remarks therefore apply only to the case where the services fall inside a market which is considered to be susceptible to ex-ante regulation and a position of SMP is established.

[174] See Commission comments in case FR/2005/0221-0226.

The challenge for NRAs is therefore to assess the likelihood of replicability of such facilities. Where early replication seems probable, “traditional” forms of regulation may be unjustified; where it is unlikely, the justification is greater.

In assessing the appropriate regulatory approach, NRAs will certainly wish to avoid deterring investments which facilitate the introduction of innovative services. Badly-designed access regulation could have such an effect. But provided that regulation is well-designed so as to permit the investor a return on its investment which properly reflects the levels of risk borne, such deterrence may be avoidable.

NRAs will also need to consider the negative effects which could result if access to non-replicable bottleneck facilities is not guaranteed, resulting in foreclosure of the downstream markets. Consumers would not of course derive the benefits of the competitive downstream markets which would result from innovation and investment by other market players in those downstream markets. Moreover, foreclosure could ultimately leave the NRA with the most unattractive prospect of long-term regulation of an enduring downstream monopoly,

It is undoubtedly the case that the investors require a reasonable opportunity to make a fair return on their investments, which properly reflects the risks undertaken. However, a guaranteed monopoly over access is by no means a pre-requisite for such a return. Given the major disadvantages outlined above, ERG considers that it will not be justifiable to grant such access holidays, implicitly or explicitly, to infrastructure where the access services fall within an existing SMP market. This does not imply that any regulated access to new and old infrastructure should be on precisely the same terms. ERG is currently developing its thinking on appropriate ways of ensuring that access remedies properly reflect investment risks.

5.6.2 Removal or replacement of remedies

When considering the removal of an obligation, it is of course necessary to take into account whether removal would cause a material adverse effect on competition in the relevant market. It is equally necessary to consider the effect of that obligation in related markets, especially downstream. It would not be appropriate to remove obligations which were a pre-requisite for effective competition in the related markets.

Before concluding that an existing SMP remedy should be removed or replaced by a different one, NRAs should consider the disruptive effects on the market players of changing remedies and the consequential risk to achievement of the objectives of the framework. As above, NRAs should consider not only the effects in the market in which SMP has been established but in all related markets.

When an NRA removes an obligation or replaces one obligation with another, it should give an appropriate period of notice before the change takes effect, in order to avoid undue disruption to the market players.

Where the effects of removal or replacement are not fully predictable, a period of monitoring of such effects would be appropriate to ensure the validity of the assumptions made by the NRA which led to the removal or replacement.

5.6.3 Remedies in linked markets

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[175], provided such imposition constitutes

(i) an essential element in support of obligation(s) imposed on the relevant SMP market without which these obligations would be ineffective and

(ii) in combination the most appropriate, proportionate and efficient means of remedying the lack of effective competition found on the relevant market.

- In such cases, it is not necessary to consider whether the area outside the identified market forms a coherent economic market itself; nor
- to notify it separately under Article 7, Framework Directive; nor
- to notify the remedy as an exceptional measure under Article 8(3), Access Directive. Any such remedies should be notified under Article 7, Framework Directive alongside remedies which apply to services within the identified SMP market

For example, as a consequence of SMP in the local loop unbundling market, NRAs may need to impose an obligation to provide a tie-cable to link the main distribution frame to the entrant's premises

175 Cf. Commission Recommendation on Relevant Product and Service Markets
Cf. Commission comments of 4 August 2004 in case EL/2004/0078 (Voice call termination on individual mobile networks in Greece).

Textbox 5: Price squeeze

It is frequently the case that the regulatory objective of imposition of an access obligation in a wholesale market is to enhance or protect competition in an adjacent market, usually downstream. In imposing such an obligation, NRAs will be concerned that it will be ineffective if the SMP player conducts a price squeeze by using the flexibility available to them to set either the wholesale access price or the price of downstream services. To guard against such an outcome, it will usually be appropriate to impose a non-discrimination obligation, as discussed earlier. Even assuming effective formulation of such an obligation, there will remain an opportunity for the SMP player to squeeze margins and foreclose competition by lowering the retail price. It cannot be assumed that obligations under competition law will be sufficient to prevent a price squeeze in a regulatory environment. This is because a competition authority, in assessing whether or not a dominant position has been abused, would tend to base its calculations on the costs actually incurred by the dominant undertaking. In particular, this would allow the dominant player to take credit for economies of scope or scale and consequently to be able to operate a profitable downstream service on thinner margins than would be possible for an entrant. Any such action will tend however to foreclose the downstream market, contrary to the intentions of the regulator. These issues are explored in more depth in the Annex. To prevent this, the NRA should consider the need to specify (for regulatory purposes) a price squeeze test with treatment of common costs which is appropriate to the regulatory objectives. The test for the price squeeze should be determined in advance and made transparent when making the decision to apply wholesale price controls.

To ensure effective operation of the price squeeze test, NRAs should also consider the need for either or both of the following:

(a) an accounting separation obligation which provides effective separation of costs between the SMP and downstream markets;
(b) an obligation to provide advance notification of downstream price changes.

It is apparent that these remedies apply, partly or wholly to the linked market(s), In their absence, effective regulation may be impossible and consequently foreclosure of the downstream market may take place. Since, in a regulatory environment, price squeeze tests need to be applied ex-ante, a requirement to provide information on retail prices may be imposed as part of the price control obligation (Art 13 AD).

Annex: Margin squeeze – dealing with economies of scope and scale

This annex focuses on three questions that arise when considering whether there is or has been a margin squeeze: (i) how to assess the costs of an efficient competitor, (ii) how to deal with economies of scale, and (iii) how to deal with economies of scope.

A margin squeeze occurs when:

- a dominant provider supplies an "upstream" product A which is itself (or is closely related to) a component of a "downstream" product A+B (product B is supplied by the dominant provider only to itself: those who compete against A+B will supply their own alternative to B).

- the implicit charge by the dominant provider to itself for B (i.e. the difference between the prices at which it supplies A+B and A only) is so low that a reasonably efficient competitor cannot profitably compete against A+B.[176]

With regard to the issue of how to assess the costs of an efficient operator, it is assumed to be impractical to obtain the actual costs of an efficient competitor.[177] Competitors may not naturally have prepared their accounting records on a basis, or to a standard necessary to support a margin squeeze calculation. Furthermore, it will be difficult for NRAs to assess whether or not a particular competitor is efficient, at least without a major time-consuming exercise involving all of them.

Therefore, the natural course is to take the incumbent's costs as a proxy for efficient entrant costs, although some adjustments may be necessary. To the extent that the incumbent is inefficient, the margin squeeze calculation favours the entrants.

Economies of scope may arise because there are things which a dominant provider does not need to do in order to provide the equivalent product A* to itself.[178] One possible approach is to recalculate the incumbent's unit costs, disallowing the economies of scope. This amounts to assuming that the dominant provider supplies precisely the same product on precisely the same terms to itself as to others. There are dynamic efficiency arguments for this, along the lines of those discussed below under economies of scale. But this amounts to raising the dominant provider's own charges above the minimum level they need to be. The NRA needs to be clear that the dynamic efficiency gains from competition will outweigh the short-term consumer disadvantages.

Upstream economies of scale in the provision of A or A* are irrelevant to the margin squeeze investigation as both the dominant provider and those to which it supplies A are entitled to benefit equally. But there is an issue to be resolved on how to treat the economies of scale in the self-provision of B.

176 In the event that the price paid for A is not transparent, accounting separation will be needed to establish the price paid by the incumbent's retail arm.

177 In some circumstances it may be appropriate and practical to use new entrants' costs.

178 For example, whereas a competing operator will have to interconnect with the incumbent's network, the incumbent does not have to bear this cost because the network connection already exists to supply other services.

If the dominant provider assumes that it will achieve a significant share of the downstream market, then it will be able to be profitable with a relatively low margin for B. But those who do not expect to achieve that scale cannot be profitable on such a margin. Accordingly, they would exit the market, thus fulfilling the dominant provider's prophecy. On the other hand, if the dominant provider assumed that it would achieve only a small share of the market, it would not benefit from economies of scale and would need to set a higher margin for B. This would allow others to compete successfully once again fulfilling the dominant provider's prophecy. Unless otherwise constrained, the dominant provider is therefore in a strong position to dictate how much competition will emerge in the downstream market. There is a circularity in the margin squeeze test which can be broken only by the regulator.

The dilemma is this: If there are genuine economies of scale in the provision of B, it will at first sight be less efficient for B to be provided by multiple suppliers. The product may be a natural monopoly. On the other hand, multiple supply will often give rise to dynamic efficiency gains which benefit consumers in the long run. And where the competitors each have scale which is above the level at which economies of scale are substantially exhausted, there should be considerable benefits from competition. The ideal outcome would therefore be a sufficient number of competitors to generate substantial dynamic efficiency benefits but not too many so that none can benefit from economies of scale. The NRA cannot possibly hope to 'manage' competition to achieve some theoretical ideal. If it has decided that the product does not have the characteristics of natural monopoly, an adequate policy would be to take steps to ensure that a number of competitors can enter the market, each with reasonable prospect of being profitable. The market itself will sort out which of them survive.

The conclusion is that when imposing a wholesale supply obligation on a retail basis, the NRA should conduct the margin squeeze test on the assumption that the downstream market will be reasonably competitive. While there can be no hard and fast rules and it will always be necessary to examine the dynamics of the market in question, it might be reasonable to assume that the incumbent will attract, e.g., 20 or 25% of the downstream market and to use that assumption in the calculation of the minimum margin. This should in principle allow several competitors to enter and compete vigorously against the dominant provider for downstream business.

The same approach might be considered independent of whether the test is being defined *ex ante* (i.e., how to set a price for A which prevents squeezing the margin for B) or whether an investigation into an alleged past or existing margin squeeze is being carried out (i.e., is the margin between A and A+B sufficient to permit competitors to enter the market?). In the latter case, it may be inappropriate to use the <u>actual</u> market share of the dominant provider for the calculation of unit costs to avoid the self-fulfilling prophecy discussed above. The more justifiable approach may be to recalculate the unit costs on the basis of a market share for the dominant provider consistent with a competitive market.

Finally, one potential downside of this approach is that it cannot guarantee that the long-term outcome will be a competitive market. It may well be monopoly or oligopoly. But that result will at least have been determined by market dynamics, not by the dominant provider or by the NRA.

List of Abbreviations

AD	Access Directive
ECPR	efficient component pricing rule
ERG	European Regulators Group
F2F	fixed to fixed
F2M	fixed to mobile
FAC	fully allocated costs
FDC	fully distributed costs
GSMA	GSM Association
IRG	Independent Regulators Group
IOT	Inter Operator Tariffs
LRIC	long-run incremental costs
M2F	mobile to fixed
M2M	mobile to mobile
MNO	mobile network operator
NRA	National Regulatory Authority
ONP	Open Network Provision
SMP	significant market power
USD	Universal Service Directive

Glossary

Accounting separation: the preparation of separate accounts to reflect the performance of markets as though they were separate businesses. In particular, transactions across the boundaries of these markets are identified and treated as if the transactions were between separate companies. These are called transfer charges.

Allocative efficiency: the extent to which the economy's finite resources are deployed in a fashion so as to derive maximum benefit. An important condition is that prices reflect underlying costs.

Barrier to entry: an additional cost which must be borne by entrants but not by undertakings already in the industry; or other factors, which enable an undertaking with significant market power to maintain prices above the competitive level without inducing entry.

Bitstream: a wholesale product provided by an incumbent that consists of bi-directional high speed transmission capacity between an end user connected to a telephone connection and the point of handover to the new entrant. It is essentially the corresponding wholesale product for DSL services.

Bundling: where services are only sold together and not available for individual purchase (pure bundle) or services sold as a package at a discount to their individual prices (mixed bundle).

Calling party pays principle: where the person who initiates a call pays the full retail price for the call (the standard arrangement In Europe).

Carrier pre-selection/Carrier selection: carrier pre-selection is the facility offered to customers which allows them to opt for certain defined classes of calls to be carried by an operator selected in advance (and having a contract with the customer), without having to dial a routing prefix or follow any other different procedure to invoke such routing. Carrier selection is the facility whereby customers can opt to use an alternative operator on a call by call basis by dialling a routing prefix.

Charge control: in the context of termination charges**,** a control on the level of charges operators can make to another operator for connecting calls to its network.

Collocation: the ability for other operators to install equipment in the incumbent's local exchanges in order to supply services over the access network (local loop).

Combinatorial test: a test to be applied on a combination of services where there are common costs between services. The revenue from any combination of services would need to cover the common costs between the services as well as the incremental cost of each service.

Cost accounting: the preparation and presentation of financial information including the attribution of costs, revenues, assets and liabilities to regulatory "objects" such as product/service markets, activities or cost components. It enables prices to be demonstrated to be transparently and reasonably derived from costs.

Common costs: costs that are incurred in the supply of all or a group of products provided by an undertaking and that do not arise directly from the production of a single good or service.

Common Position: an ERG Common Position is a document expressing the position of the Group on any given topic within the ERG's domain. A Common Position is published at the initiative of the Group itself.

Deadweight loss: a measure of allocative inefficiency. It is equal to the loss in total surplus (consumer surplus plus producer surplus) that results from producing less than the efficient level of output.

Demand: the relationship between the quantity of a good or service that consumers plan to buy and its price with all other factors remaining the same.

Downstream market: a market one step down the supply chain. In the context of this document downstream market frequently refers to the retail market.

Efficient component pricing rule (ECPR): a price for a good or service calculated as the costs of the provision of the service plus the opportunity costs the undertaking incurs from providing the service to a retail competitor.

Endogenous barrier to entry: a barrier to entry caused by the behaviour of the SMP undertaking.

Exogenous barrier to entry: a barrier to entry which arises for factors outside the control of market players.

Foreclosure: any behaviour by a SMP undertaking which aims at excluding competitors from the market.

Fully allocated costs (FAC): the fully allocated cost or fully distributed cost of a service, is where all reasonably incurred costs are attributed to all the services of the regulated entity.

Fully distributed costs (FDC): see "fully allocated costs".

Internalisation (of negative external effects): refers to actions which account for (internalise) the possible negative consequences of other agents' (e.g. firms, consumers) actions. For example, exclusive vertical relations can allow an upstream firm to better control the behaviour of a firm in the downstream market, and thus force the downstream firm to take into account any external effects (on the upstream firm) in its decisions.

Joint costs: see "common costs".

Leveraging: transfer of market power from one market in which an undertaking has SMP into an adjacent vertically or horizontally related market.

LRIC (Long Run Incremental Costs): the costs caused by the provision of a defined increment of output, taking a long run perspective, assuming that some output is already produced. The ‘long run’ means the time horizon over which all costs (including capital investment) are avoidable.

Margin squeeze: a margin squeeze occurs when the prices set by a vertically integrated company have anticompetitive effects in a downstream market. A margin-squeeze results in a reduction of the profitability of rivals in the downstream market or forecloses the downstream market altogether.

NRAs (National Regulatory Authorities): the body or bodies, legally distinct and functionally independent of the telecommunications organisations, charged by a Member State with the elaboration of, and supervision of compliance with, telecoms authorisations.

Network externality: the effect which existing subscribers enjoy as additional subscribers join the network which is not taken into account when this decision is made.

Price cap: a control on prices which specifies the maximum price which can be charged for a product/service or for a set of products/services included in the cap.

Productive efficiency: a situation where it is not possible to produce more of one good or service without producing less of some other good or service.

Predatory pricing: a strategy where an undertaking deliberately incurs short term losses so as to eliminate a competitor and be able to charge excessive prices in the future.

Remedy: a specific regulatory obligation or a set of obligations imposed on an undertaking which is found to have significant market power in a specified market.

Rent: monopoly rents is another way of expressing the profits a monopoly can make; that is consumer surplus plus producer surplus (surplus being the difference between value of a good and its price).

Super normal profits: a level of profits greater than those would be typically earned by an undertaking facing competition

Service provider: a provider of electronic communications services to third parties whether over its own network or otherwise.

SMP: Significant Market Power in the new regulatory framework is equivalent to the competition law concept of dominance.

Structural barrier: structural barriers to entry are market characteristics which cannot be influenced by firms’ decisions (such as technology and the level of demand) and which make it difficult for new entrants to enter profitably.

Sunk costs: costs which, once incurred, cannot be recouped, e.g. when exiting the market. Examples for sunk costs are transaction costs, advertising expenses or investment in infrastructure for which there is no or little alternative use.

Upstream market: a market one step up the supply chain. In the context of this document upstream market frequently refers to the wholesale market.

Vertically integrated: a situation where a firm owns operations at different levels in a supply chain, e.g. owning both a retail and a wholesale operation.

Welfare: a measure of total well-being achieved by all agents in a market, e.g. by firms via making profits and by consumers via consuming goods at a price at or below their valuation of that good.

xDSL: a family of technologies capable of transforming ordinary phone lines (also known as copper pairs/the access network/local loop) into high speed digital lines capable of supporting fast internet access. Individual variants include ADSL, SDSL, HSDL and VDSL.

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