Consultation Document

on a

Draft joint ERG/EC approach on appropriate remedies in the new regulatory framework

as of 21/11/2003

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Executive summary

This document sets out the joint views of the European Regulators Group of National Regulatory Authorities (NRAs) and the European Commission Services on remedies under the new regulatory framework for electronic communications. It aims to ensure a consistent and harmonised approach to the application of remedies 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 FWD). The document is organised in four chapters following the underlying logic of a remedy selection process: (i) identification and categorization of standard competition problems; (ii) a catalogue of the available standard remedies; (iii) the principles to be applied in selecting appropriate remedies; (iv) a matching between the standard competition problems and the remedies available.

1. Standard competition problems (Chapter 1)

Under the new regulatory framework the choice and design of remedies follows as a third step after the definition of a relevant market based on the extent of demand and supply substitution, and after the designation in such relevant markets of one or more undertakings to enjoy significant market power (SMP). The SMP designation has no bearing on whether that undertaking has committed an abuse of a dominant position within the meaning of Article 82 of the EC Treaty or national competition laws. It merely implies that, from a structural perspective, and in the short to medium term, the operator has and will have, on the relevant market identified, sufficient market power to behave to an appreciable extent independently of competitors, customers, and ultimately consumers, and this, solely for purposes of Article 14 of the Framework Directive.

A lack of effective competition and the existence of significant market power in electronic communications markets tend to be linked to structural and legal/regulatory entry barriers. The four basic market constellations relevant to such competition problems are:

1. vertical leveraging of market power;
2. horizontal leveraging of market power;
3. single market dominance;
4. termination (two-way access).

- *Vertical leveraging:* This occurs where a dominant firm seeks to extend its market power from an upstream wholesale market to a downstream retail market. This situation may lead to a refusal to deal, to price problems like excessive and predatory pricing, and to non-price issues like tying, delaying tactics and abusive use of information, with foreclosure effects.

- *Horizontal leveraging:* This applies where an SMP operator seeks to extend its market power to another market that is not vertically related. Here tying and cross-subsidisation may occur, resulting in foreclosure.

- *Single market dominance:* Within the context of a single market, three types of problems could emerge: entry deterrence with foreclosure effects, exploitative price abuses like excessive pricing and price discrimination that are associated with allocative inefficiencies, and productive inefficiencies related to levels of investment, quality and cost.

- *Termination (Two-way access):* This relates to the link between price setting in monopoly termination markets and in the related retail markets that may be competitive. The competition problems may range from refusal to deal/interconnect and price discrimination with foreclosure effects to excessive wholesale pricing and tacit collusion associated with allocative inefficiencies.

The standard competition problems that occur in each market constellation can be analysed based on behaviour (price and quality discrimination etc) and effects (raising rivals' costs, restriction of competitors' sales, margin squeeze, foreclosure etc). Using this typology, 27 generic competition problems are described, all of which have the ultimate effect of either foreclosing the markets involved or of leading to allocative and/or productive inefficiencies. Each of these competition problems may be identified in course of the market analysis as a problem that has to be addressed by the NRA. This list of competition problems is a guide only and does not preclude NRAs from identifying other potential problems and/or from applying different remedies to them.

2. Standard remedies (Chapter 2)

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:* to publish specified information (accounting information, technical specification, network characteristics, prices etc.). This obligation generally serves to make the overall remedy more effective by making the SMP operator's behaviour verifiable;

- *Non-discrimination:* to apply equivalent conditions in equivalent circumstances, and not to discriminate in favour of the regulated firm's own subsidiaries or partners. This obligation clearly covers a firm's internal processes. To be effective it is likely to require transparency and/or accounting separation remedies to be imposed as well;

- *Accounting separation:* to make transparent the internal transfer prices to the regulated firm's own downstream operation to ensure compliance with a non-discrimination obligation or to 'prevent unfair cross-subsidies'. NRAs have discretion to specify the format and accounting methodology to be used.

- *Access:* 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 to maintain supply, to provide wholesale services for resale, and to provide interconnection. NRAs may attach conditions of fairness, reasonableness and timeliness. Access obligations must in addition to serving the objectives set out in the Framework Directive take into account the feasibility of the action, the viability of using or installing competing infrastructures, the initial investment and the investment risk, as well as the need to promote long-term competition. To be effective, access obligations are likely to be accompanied at least by transparency and non-discrimination obligations and may be accompanied by price control obligations;

- *Price control and cost accounting obligation:* In cases where the market analysis suggests that otherwise access charges are likely to be sustained at an excessive or at a predatory level, or where the firm is likely to engage in a margin squeeze, NRAs can require operators to set cost-oriented access charges or can impose a price control on the regulated firm. The NRA is free to select a methodology or a particular cost model provided it does so consistent with the general objectives set out in the Framework Directive. The burden of proof that charges are cost-based rests on the operator. Where it is appropriate to set the rate of return, it is necessary to ensure that investment is maintained, and that long-term competition and consumer benefits are promoted.

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.

Retail Obligations under the Universal Service Directive:

The list of possible retail obligations mentioned in the Universal Service Directive is not exhaustive. However, it includes specific mention 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.

In addition to regulation of retail services the Universal Service Directive provides for the imposition of obligations to supply a minimum set of leased lines, and to supply carrier selection and carrier pre-selection services, on organisations that are found to have significant market power in the respective relevant markets.

3. Principles for imposing remedies (Chapter 3)

In order to impose a remedy, NRAs must first have conducted a market analysis and have identified an SMP operator in a defined market. To be eligible for ex ante regulation such markets must be (i) characterised by high and non-transitory entry barriers, (ii) the emergence of effective competition must not be foreseeable, and (iii) the application of ex post controls must be insufficient to address the market failures concerned. The latter includes situations where the compliance requirements of an intervention to redress a market failure are extensive (e.g. the need for detailed accounting for regulatory purposes, assessment of costs, monitoring of terms and conditions including technical parameters etc), where frequent and/or timely intervention is indispensable, or where creating legal certainty is of paramount concern. The markets defined by the European Commission in its Recommendation on relevant markets[1] are susceptible to ex ante regulation unless a market analysis indicates that effective competition prevails.

When imposing a remedy the NRAs must demonstrate it is appropriate to address the underlying competition problem, 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 interests of EU citizens. These requirements are summarised in the following principles:

[1] 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 the Council on a common regulatory framework for electronic communications networks and services, OJ 8.5.2003 L 114/45.

- The remedy selected must be based on the nature of the problem as identified in the market analysis procedure.

- Where infrastructure competition is not likely to be feasible, due to the persistent presence of significant economies of scale or scope or other entry restrictions, NRAs must ensure sufficient access to wholesale inputs in order to secure maximum consumer benefits, and should also protect against any potential behavioural abuses.

- Where as a result of the market definition and analysis procedure replication of the infrastructure of the party with significant market power is known to be feasible, remedies should assist in the transition process to a sustainable competitive market. Markets where there is sufficient certainty that replication is feasible should be treated in an analogous manner to those markets where replication is known to be feasible. In other cases NRAs should keep an open mind and continue monitoring to re-assess their views, while being aware of the possibility of inefficient investment.

- NRAs should produce reasoned decisions in a transparent manner respecting the principle of proportionality in line with the objectives set out in the Framework Directive. Such decisions should include a regulatory options assessment of alternative remedies (if available) so that the least burdensome effective remedy can be selected.

- Remedies should be designed 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.

In addition, remedies should strike the correct balance between generality (ensuring flexibility) and specification (for legal certainty).

Special considerations have to be given to regulation in emerging markets. As a general principle, emerging markets should usually not be subject to ex ante regulation but should be allowed to develop according to the normal dynamics of market forces. Where the incumbent uses legacy infrastructure to deliver new services in an emerging market, however, NRAs may need to consider how to grant access to new entrants to non-replicable network elements on equivalent terms. If the new investment is being made by a new entrant that necessarily requires an input from an SMP operator, on the other hand, the NRA will have a role to ensure that access to this input is not denied, delayed or otherwise obstructed. In this way, the distinct nature of the emerging market is maintained whilst at the same time preventing foreclosure by applying regulation as far as is possible only on the necessary input market. The question as to when an emerging market should not be considered an emerging market any longer is difficult to answer, as it will depend critically on the context. However, after a sufficient amount of time

for the emerging market to mature, the NRA can make a better assessment of the three criteria, which have to be applied in order to determine whether a market is susceptible for ex ante regulation.

4. Matching remedies to competition problems (Chapter 4)

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. 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.

Three types of situations may be identified:

- Markets with the characteristics of natural monopolies (significant economies of scale and/or scope at the relevant level of output) where significant barriers to entry exist (e.g. because of large sunk costs), where competition is unlikely to emerge. Here regulators must prospectively address directly the adverse effects of market power which are likely to prevail, such as excessive pricing, price discrimination, lack of investment, inefficiencies and low quality.

- In markets where there are no significant economies of scale or scope or other barriers to entry exogenous to firms' behaviour or regulatory decisions, SMP positions are likely to result from barriers to entry deriving from the behaviour of the incumbent, such as vertical or horizontal leveraging and market foreclosure. Here, NRA must prevent such behaviour in order to promote market entry and enable competition to develop.

- Markets where incumbents benefit from first mover advantages, allowing them to retain a large share of customers and/or to charge premium prices even after market entry. Here NRAs will have to deal with similar problems as in the case of natural monopoly with high barriers to entry, i.e., excessive pricing, price discrimination, inefficiencies, etc., until effective competition has emerged.

By preventing the SMP undertaking from the erection of barriers to entry, NRAs will promote market entry and competition in those markets where there are limited exogenous barriers to entry, i.e., barriers such as a lack of spectrum, which are not derived from the behaviour of the incumbent. In order to promote sustainable competition, NRAs have to set investment

incentives such that the incumbent's infrastructure is replicated wherever this is economically desirable. Where competition is unlikely to emerge either due to high exogenous barriers to entry or (at least in the short run) due to the incumbent's first mover advantages, NRAs have to protect consumers against exploitative behaviour and inefficiencies.

<u>Vertical leveraging:</u> Economic theory suggests that a vertically integrated monopolist at the wholesale level will have incentives to exert its market power by means of charging excessive prices for its wholesale inputs, and, where this is not possible (e.g. due to regulation), to engage in foreclosure of the retail market by means of a refusal to deal, a margin squeeze or non-price discrimination.

To prevent the operator from leveraging its market power into the potentially competitive retail market and from charging excessive prices, NRAs should ensure that access to the wholesale product is available at cost oriented prices. Therefore an access obligation according to Art 12 AD in combination with price control and cost accounting obligations (Art 13 AD) seems appropriate. In order to be able to correctly calculate the access price and for practical reasons to enable the offer to be taken up, NRAs might additionally impose obligations according to Art 9 and 11 AD (obligation of transparency including a reference offer and obligation of accounting separation). Where there are differences in costs due to wholesale specific costs being imposed on alternative operators only, it may be necessary to decide that such costs are also born (wholly or partly) by the SMP operator.

However, when a cost-oriented access price is set, the SMP undertaking is likely to have incentives to foreclose the retail market either by non-price discrimination or by subjecting its downstream competitors to a margin squeeze. To prevent non-price discrimination, NRAs may impose an obligation of non-discrimination (Art 10 AD) and an obligation to publish a sufficiently unbundled reference offer according to Art 9 (2) AD. To avoid a margin squeeze resulting from below-cost pricing on the retail market (given the cost-oriented access charge of the incumbent), NRAs may, if wholesale obligations are insufficient, impose retail price controls according to Art 17 USD.

Although the incentives to discriminate on non-price parameters might be reduced under a retail-minus access charge in some cases, they are likely to remain as long as the SMP undertaking faces the threat of backward integration (where a competitor at retail level markets enters related wholesale markets) or is barred from charging an excessive access price. Therefore, the same set of remedies as in the case of a cost-oriented access price will usually also have to be applied when the price is set at retail minus.

By the decision 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. In this context, NRAs have – in order to promote self-sustained competition – to ensure that the access obligation(s) and the access price are such that alternative operators have incentives to replicate the infrastructure of the incumbent wherever this is economically sensible. 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 are likely to prevail, NRAs should adopt a more 'neutral' approach (e.g. setting a cost-based access price) and should continue to monitor the market. If the advantages from infrastructure competition are likely to outweigh possible (static) inefficiencies from replication, NRAs may 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 up the 'ladder of investment' which will finally allow them to phase out regulation in those markets where replication has occurred. Investment incentives may also change over time due to market dynamics, leading to replication without additional regulatory intervention. 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.

Horizontal leveraging: Dominant undertakings may have the incentive to leverage their market power across different wholesale markets or across different retail markets by means of bundling and tying or by means of cross-subsidisation where they can increase their profits by doing so.

The tying/bundling decision of an SMP undertaking can be targeted by Art 9 (2) AD, which requires the undertaking to publish a sufficiently unbundled reference offer, and – subject to the conditions of its use being met – Art 17 (2) USD, which allows NRAs to impose the requirement not to unreasonably bundle services.

To deal with the problem of cross-subsidisation at the source, remedies should first target the SMP market. If competition in the SMP market is unlikely to emerge, then an ex ante price control may be an appropriate remedy to eliminate excess profits. Excessive prices on a retail market may sometimes be addressed by Art 17 (2) USD, whereas excessive access or interconnection prices may be targeted by Art 13 AD (accompanied by an Art 11 AD obligation of accounting separation). If prices above costs cannot be eliminated, or if a predation problem remains, the predatory price on the second market may be targeted by an Art 17 USD obligation. As such cases should be dealt with individually, an ex ante obligation to notify tariff changes to the NRA appears to be most appropriate.

Single market dominance: Anti-competitive and exploitative behaviour may occur within a single SMP market where a dominant operator may attempt to deter entry by raising switching

costs, to exploit its consumers by means of excessive prices or price discrimination, or where it may fail to produce efficiently, or may provide sub-optimal levels of quality and of investment.

Because it usually cannot be predicted if and how an SMP undertaking will engage in entry deterrence and as it may be hard for NRAs to distinguish *anti-competitive* from *efficient* behaviour in this case, entry deterring behaviour may have to be dealt with ex post and on a case-by-case basis. If sufficient knowledge about entry deterrence is gained in course of the market analysis, however, most issues can be addressed *ex ante* via Art 9 (2) AD at the wholesale level and Art 17 (2) USD at the retail level.

If excessive prices on the retail market cannot be eliminated in a timely manner by regulation at the wholesale level, a retail price regulation according to Art 17 (2) USD appears appropriate. This price regulation may take the form of a price cap. Where prices are deemed to be in line with costs (due to previous regulation) but are likely to be raised by the SMP operator without regulation, another option would be – similar as in the case of a potential predatory pricing problem – an obligation according to Art 17 (2) USD to subject changes in retail prices to prior approval of the regulator.

Productive inefficiencies related to excessive costs and sub-optimal investment can be addressed by calculation of an access or retail price (or price cap) based on a (hypothetical) efficient undertaking. Such a calculation is most likely to be appropriate for those SMP undertakings that previously enjoyed special and exclusive rights.

<u>Termination</u>: This case is dealing with problems arising in the context of 2-way access between fixed and/or mobile networks. The problems which may emerge in such a context are tacit collusion, excessive pricing of termination services, market foreclosure by means of price discrimination, and market foreclosure by means of a denial to interconnect.

Most of these problems can be addressed by setting the termination charge at a cost oriented level (Art 13 AD). In the case of new entrants, however, NRAs may set prices other than cost-based, as cost-based prices are likely to be very high given the large fixed costs and the small scale of the entrant. A denial to interconnect can be dealt with by an Art 12 access obligation or – more general – by Art 5 AD.

<u>Joint Dominance:</u> An SMP position can be held by a single firm or jointly by two or more firms. Joint dominance should first be addressed by promoting entry and competition which is likely to undermine the potential for explicit or tacit collusion. Only if entry is unlikely to occur, the adverse effects of market power will have to be dealt with directly by the NRA.

5. Conclusion

While NRAs have to protect consumers against exploitative behaviour and inefficiencies wherever significant market power exists, the declared goal of the NRF is to promote self-sustaining competition and to limit regulation to 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.

Introduction

1. Purpose and policy context

This document serves to promote a consistent approach to regulation by the National Regulatory Authorities (NRAs) under the new regulatory framework for electronic communications. The new framework operates on the principle of technology neutrality and is based on the application of established competition law principles by sector-specific NRAs. Accordingly and in line with the new framework, NRAs must first identify relevant markets in line with the principles of competition law and the Commission's Recommendation on relevant markets,[2] based on three criteria: (i) whether a market is subject to high and non-transitory entry barriers; (ii) whether a market has characteristics such that it will tend over time towards effective competition; and (iii) whether general competition law alone will suffice to remedy the market failures concerned. If these three criteria are cumulatively fulfilled, the market is susceptible to ex ante regulation according to the Commission's Recommendation on relevant markets. In this Recommendation, the Commission has listed the markets for which it believes that these tests are met. Second, NRAs must identify those undertakings that enjoy significant market power in such specific electronic communications markets, consistent with the principles of competition law and the Commission's SMP-Guidelines.[3] Third, NRAs must impose ex ante regulatory measures, or remedies, on the parties enjoying SMP. This document deals with the last of these three steps. It is without prejudice to action that may be taken or remedies that may be imposed under competition law.

The NRF requires that remedies must be appropriate for the problem identified, proportionate and justified in relation to the objectives of the new regulatory framework. This document aims to structure the work of NRAs by identifying the main market failures which may be observed and by providing a common basis for assessing which remedies can be considered reasonable and proportionate. As such, this document promotes a more harmonised approach to regulation under the new framework that is more explicitly based on economic principles and in accordance with administrative law principles of sound governance. However, because decisions to impose remedies on undertakings must be based on the facts and on the market context of the particular case, it does not prescribe outcomes, which must be determined on a case-by-case basis following an in-depth economic analysis based on national circumstances, also taking into account transnational effects of regulation.

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2 OJ 8.5.2003 L 114/45.

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

2. Legal basis

Cooperation: The need for cooperation between the NRAs and the Commission on a consistent application of remedies under the new regulatory framework follows directly from Articles 7(2) and 8(3)d of the Framework Directive.[4] These provisions require NRAs to contribute to the development of the internal market by cooperating with each other and with the Commission in a transparent manner to ensure the consistent application, in all Member States, of the provisions of the Framework Directive and of the Specific Directives. To this end the NRAs and the Commission shall seek in particular to agree on the types of remedies best suited to address particular situations in the market place.

Consultation: According to Article 7(3) of the Framework Directive, NRAs must consult on measures concerning market definition and market analysis (including decisions to impose, maintain, amend or withdraw obligations such as are set out in Articles 5 and 9 to 13 of the Access Directive[5] and Articles 17 to 19 of the Universal Service Directive[6]) if they affect trade between Member States. This means that the Commission and other NRAs may express their views on the proposed remedies prior to their entry into force. This document can be seen as the first step to address this responsibility. However it should be noted here that the veto power of the Commission set out in Article 7(4) concerning measures that in its view may create a barrier to the single market or may be incompatible with Community law does not extend to remedies as such, but is limited to market definitions and decisions to designate an undertaking as enjoying significant market power. Only the exceptional measures that are not listed in the Directives and that NRAs may impose based on Article 8(3) Access Directive are subject to prior Commission approval. (These however are not covered in the present document.)

Proportionality: Apart from the need for a consistent approach, the NRAs actions on remedies are constrained by the Community law principle of proportionality in line with the objectives set out in the Directives. Thus Article 8(1) of the Framework Directive requires the NRAs to take all reasonable proportionate measures aimed at achieving the objectives of promoting competition in the provision of electronic communications networks, services, and associated facilities and services, of contributing to the development of the internal market, and of promoting the interests of the citizens of the EU. Likewise Article 8(4) of the Access Directive

[4] Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), OJ 24.4.2002 L108/33.

[5] Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive), OJ 24.4.2002, L114/21.

[6] Directive 2002/22EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive), OJ 24.4.2002, L114/7.

and Article 17(2) of the Universal Service Directive require all remedies imposed by NRAs to be proportional.

Proportionality is one of the over-arching general principles of European law. It requires that the means to attain a given end should be no more than what is appropriate and necessary. To be compatible with the principle of proportionality, the action taken must pursue a legitimate aim, and the means employed to achieve the aim must be both necessary and the least burdensome, i.e. it must be the minimum necessary to achieve this aim.[7] Thus, the NRA must demonstrate that the remedy chosen will contribute to promotion of competition, the development of the internal market and the protection of EU citizens. When there is a choice between different appropriate measures the least onerous must be chosen. Finally the costs associated with the measure must not be disproportionate relative to the aims to be pursued.

3. Procedure

Consistent with the requirements of cooperation set out in the Framework Directive the contents of this document are based on a joint effort by, on the one hand, the NRAs in the context of the European Regulators Group (ERG) and preparatory work by the expert working groups of the Independent Regulators Group (IRG), and on the other hand the European Commission Services.[8] In the interest of maximising the transparency of this process and in order to obtain inputs from industry and other interested parties the issue of remedies under the new regulatory framework has been subject to public consultation. The result will be a document that both serves as guidance to individual NRAs in their decision making practice, and as a guide for interested parties that will help explain the rationale of the policy choices involved.

Public consultation: Public consultation took place in the form of an ERG call for inputs from interested parties in June and July 2003. Inputs were requested both concerning principles to be applied when selecting remedies, and regarding concrete competition problems and appropriate remedies. The call for inputs resulted in 29 reactions predominantly from operators and users' groups of which the main suggestions can be summarised as follows:[9] remedies should be based on the problem identified, proportionate and justified in the light of Art 8 of the Framework Directive (as set out in Art 8(4) of the Access Directive); also the recitals 14-23 of the Access Directive should guide regulators; competition law analyses should be carried out prior to imposing remedies; the degree of competitiveness in retail markets should determine which wholesale obligations are imposed; competitive constraints, not significant market power as

7 Commission guidelines on market analysis and on the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, OJ 11.7.2002, C165/6; Cf Case C-331/88, 13 November 1990, FEDESA.

8 DG Information Society and DG Competition

9 These reactions have been made publicly available at http://erg.eu.int/documents/index_en.htm.

such should be targeted; in determining proportionality, the NRAs should undertake cost/benefit analyses; the issue of combining certain remedies (inevitably) must be covered; a balance must be struck between infrastructure- and service competition; NRAs must take account of particularity of different markets in Europe; and the need for sunset clauses should be considered. The comments provided have been taken into account when drafting the present document.

The document also takes into account studies prepared by Martin Cave, Christian Koboldt and Tommaso Valletti on behalf of the European Commission.[10]

4. Approach

The decision to impose remedies is the final step in a three-stage process. First, markets susceptible to ex ante regulation are identified according to the criteria of the Commission's Recommendation on relevant markets, the latter of which (insufficiency of general competition law) includes situations where the compliance requirements of an intervention to redress a market failure are extensive (e.g. the need for detailed accounting for regulatory purposes, assessment of costs, monitoring of terms and conditions including technical parameters, etc.), where frequently and/or timely intervention is indispensable, or where creating legal certainty is of paramount concern.[11] Second, significant market power is determined based on the criteria for dominance, i.e. whether an undertaking is able to behave independently of its competitors, customers and ultimately of its consumers.

The third step of the process is the imposition of remedies on undertakings deemed to have SMP. Situations where remedies are considered are those where non-transitory dominance is established and where the application of ex post controls is deemed insufficient to address the market failures concerned. However, because in implementing the Directives NRAs are creating an ex ante (and not ex post) framework, a determination of abuse according to competition law is not a necessary precondition to imposing remedies. Ex ante obligations imposed by NRAs on undertakings with SMP aim to fulfil the specific objectives set out in the relevant directives, whereas competition law remedies aim to sanction agreements or abusive behaviour which restrict or distort competition in the relevant market. Moreover, because the question whether the ex post application of competition law would suffice is answered at the stage of market definition already, abuses that can be remedied in this manner have already been screened out.

The approach to the imposition of remedies adopted here takes as its starting point market failures that may be conducive to specific types of abuse that are familiar from ex post control

[10] cf. Cave (2003), Koboldt (2003) and Valletti (2003)

[11] Commission's Recommendation on relevant markets, OJ 8.5.2003 L 114/45 and explanatory memorandum.

(standard competition problems). This is not because proof of the existence of such abuse is necessary to impose remedies, but because remedies must provide adequate forward-looking protection of the market process where incentives to engage in such abuse exists. The standard competition problems are then matched with those categories or sets of measures that are available to NRAs according to the new framework and which – from an economic perspective – are best suited to remedy the market failures concerned.

5. Structure

The structure of this document is as follows:

1. The first chapter provides a generalisation of competition problems.
2. The second chapter sets out the standard remedies available under the Directives.
3. The third chapter sets out the principles to be applied when imposing remedies consistent with the principle of proportionality.
4. The fourth and final chapter establishes a match between these problems and the standard remedies.

1 Generalization of competition problems

1.1 Introduction

The underlying source of most of the competition problems in communication markets which will be described in this chapter 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 communication markets, as barriers to entry, which may be either structural or legal/regulatory exist in many areas. These barriers have been identified in the Commissions Recommendation[12] 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.'[13]

Legal or regulatory barriers as the second source of entry barriers 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.'[14]

While there is very limited scope for NRAs to address structural barriers, some of the regulatory or legal barriers may be addressed. Overall, the new regulatory framework and other obligations on Member States (which were already part of the previous ONP-framework) address some of

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12 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.

13 Commission Recommendation on relevant markets, p. 10

14 Commission Recommendation on relevant markets, p. 11

these issues in that they aim to limit legal and/or regulatory barriers (e.g. through general authorisation, frequency trading or stronger requirements 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,[15] or in the presence of significant first mover advantages, 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.

Against this background, 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 the incumbent 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.

Within the framework, 27 'generic competition problems' are identified. Such a classification should allow – in a second step, dealt with in Chapter 4 – to match these generic competition problems to generic 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 will not be taken into account in the following 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 3, 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:

15 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 subadditive cost structure).

- First, the framework within which the generic competition problems are classified will be explained.
- Second, 27 generic competition problems are identified and depicted in the framework developed above.
- Third, 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'.

1.2 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 communication markets. As mentioned above, 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.[16] 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

[16] 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.).

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 (i.e., is vertically integrated) and has SMP upstream (i.e., on the wholesale market). This is by far the most prevalent case in communications markets, at least as far as fixed networks are concerned. The incumbent operator owns some essential upstream input and may attempt to leverage 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 leverage its market power from the SMP market to the related market. In most cases, only retail markets will be involved but there might also be some instances in which market power is leveraged between two 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 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.

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, transnational effects, or dynamic considerations, which have to be taken into account by NRAs when designing remedies as well, but as this chapter aims at developing a generic 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 generic competition problems in a way which allows them to be addressed with the remedies of the new regulatory framework.

1.3 ‘Generic competition problems’ - an overview

In the framework described above, and based on experiences of NRAs, 27 generic competition problems have been identified and outlined in table 1. They are based on a stock-taking exercise performed by the IRG working groups as well as on several documents dealing with competition problems and/or regulation.[17] This list is guide only and does not preclude NRAs from identifying other (potential) problems which may be addressed by remedies of the new

[17] See, e.g., European Commission (1998), Oxera (2002) or OFT (1999).

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.

Figure 1 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.

The 'generic 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 (the cases 1 and 2 as well as the problems 3.1.-3.5. and 4.3.-4.4.), the problems 3.6.-3.10. and 4.1.-4.2. 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. In figure 1, the problems of case 1 are further classified into (i) refusal to deal / denial of access, (ii) non-price issues, and (iii) price issues, case 3 is further divided into (i) entry deterrence, (ii) exploitative behaviour, and (iii) productive inefficiencies.

Table 1: Generic 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. overinvestment 3.5. predatory pricing 3.6. excessive pricing 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

strategic variables of the undertaking		behaviour (generic competition problem)		effects

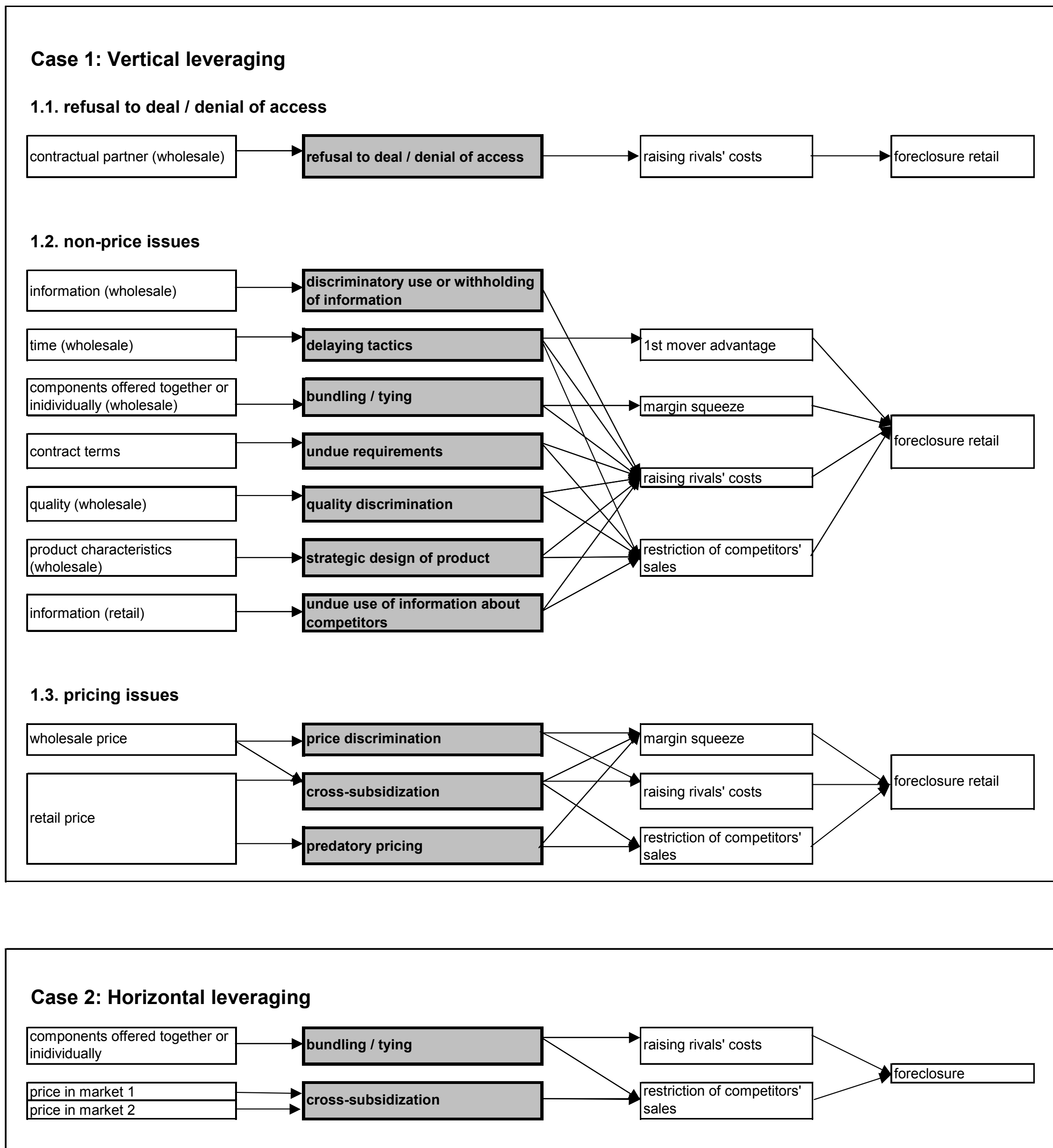
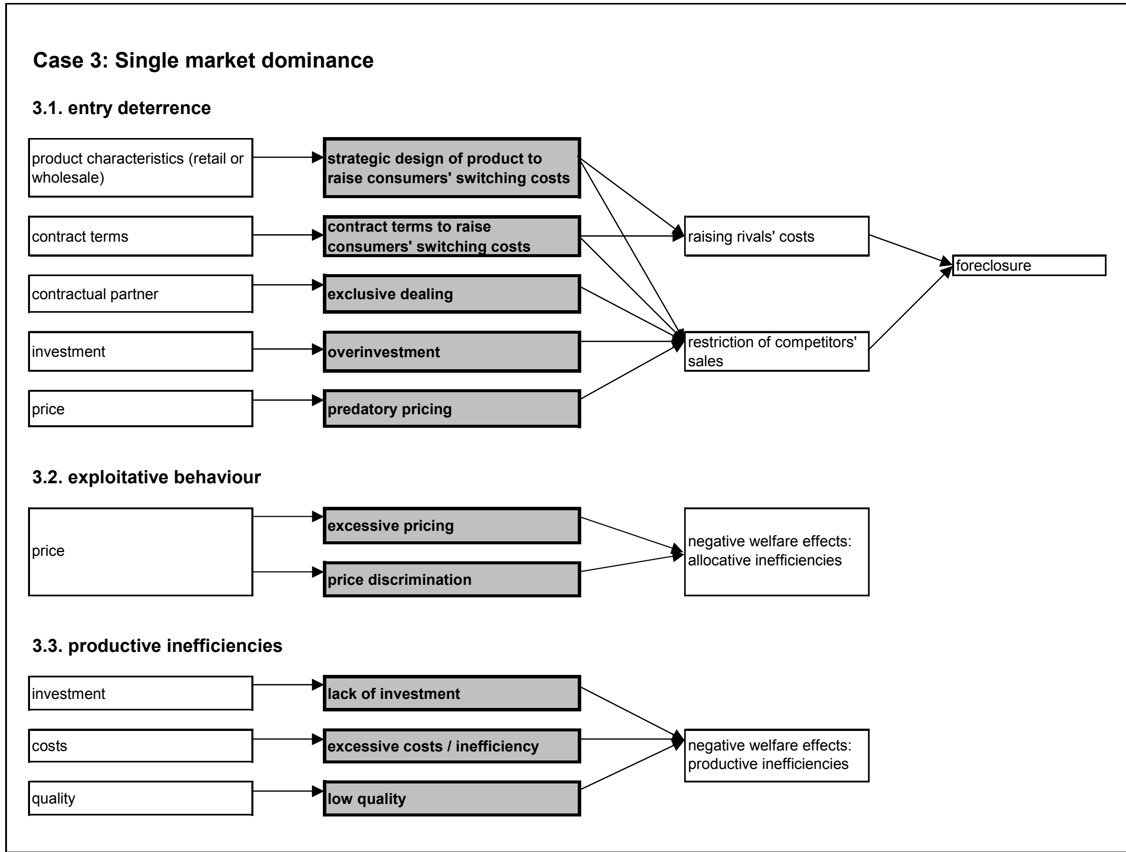


Figure 1a: Overview of ‘generic competition problems’, cases 1 and 2

strategic variables of the undertaking		behaviour (generic competition problem)		effects



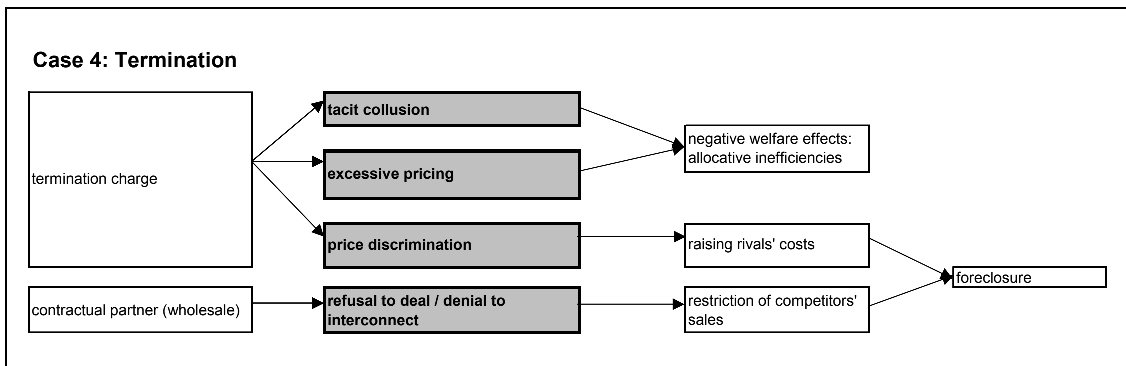


Figure 1b: Overview of 'generic competition problems', cases 3 and 4

1.4 'Generic competition problems' - details

In this section, the 27 competition problems identified in the previous section are described in detail.

1.4.1 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)'.[18]

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

[18] Rey/Tirole (1997, p. 1)

1.4.1.1 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.'[19]

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.

'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.'[20] Taking into account the effects on retail markets is not only standard in merger analysis but is also emphasized in Art 12 (1) AD.

Refusal to deal / denial of access can lead directly to foreclosure if the wholesale product is an 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.

1.4.1.2 Non-price issues

Discriminatory use or withholding of information

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.

[19] Oxera (2003, p. 7)
[20] Oxera (2003, p. 8)

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

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, however, 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 undertakings margins on that market, the dominant undertaking will certainly 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.

Bundling/Tying can be used by undertakings with market power to extract consumer surplus, which cannot be extracted when the goods are sold individually. As such, its a form of price discrimination and has ambiguous welfare effects.[21]

Under certain circumstances, however, bundling/tying can also be used to leverage market power from an SMP market to a potentially competitive market. Such leveraging may occur between two vertically related markets as well as between two not vertically related markets.

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

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[21] see, e.g., Varian (1989, pp. 626-630)

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

Undue requirements

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. 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).

Quality discrimination

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.

Strategic design of product

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.

Undue use of information about competitors

When a dominant undertaking on the wholesale market provides access to an undertaking on the retail market, it will obtain 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 advertising 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.

1.4.1.3 Pricing issues

Price discrimination

A vertically integrated undertaking with SMP on the wholesale market can use price discrimination to raise its rivals' costs downstream and effect 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

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 per se. In some cases, however, 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

'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.'[22]

Predatory pricing thus 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 (in contrast to margin squeezing which will not necessarily involve such a trade-off). 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 might engage in predatory pricing to expose its downstream rivals to a margin squeeze, restrict their sales, and drive them out of the market.

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[22] European Commission (1998, p. 16)

1.4.2 Case 2: Horizontal leveraging

Bundling/Tying

In the case of two horizontally related markets, 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. 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. Bundling/Tying can also be used by a dominant undertaking to defend its dominant position in the SMP market.[23]

Cross-subsidisation

Leveraging by cross-subsidisation as discussed above (Section 1.4.1.3.) may also occur between two not vertically related markets. Here, cross-subsidisation may – similar to a predation strategy – lead to a restriction of competitors' sales in the potentially competitive market.

1.4.3 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.

[23] 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).

1.4.3.1 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 at 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

A dominant undertaking has several possibilities to design its contracts in a way that raise consumers' switching costs and so 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

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'.[24] Exclusive dealing can thus lead to a restriction of competitors' sales and in this way can foreclose the SMP market.

Overinvestment

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

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[24] Oxera (2003, p. 13)

entry will be unprofitable. The circumstances under which such a strategy is viable are rather specific, however.[25]

Predatory pricing

As discussed in Section 1.4.1.3., predatory pricing may lead – under certain circumstances – to a restriction of competitors' sales and thus to foreclosure.

1.4.3.2 Exploitative behaviour

Excessive pricing

A price is considered excessive if it exceeds the hypothetical competitive level, i.e., the incurred costs of production (including the cost of capital).

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 possible maximum values under competition in such a case, there is potential for regulatory intervention.

Price discrimination

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.[26]

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.[27] 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.

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[25] see, for example (Gilbert, 1989)
[26] see Varian (1989, pp. 599, 600)
[27] see Laffont/Tirole (2000, p. xv)

1.4.3.3 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.

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.[28]

1.4.4 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 customer at the retail market, e.g. fixed-to-mobile (F2M) or mobile-to-fixed (M2F) telephony.[29]

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.[30] 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.

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[28] 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

[29] 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.

[30] see Laffont/Tirole (2000), Armstrong (2002) or Gans/King (2000)

Excessive pricing

An excessive pricing problem is particularly likely to emerge 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. At the same time, they may cross-subsidize their retail business, e.g. in the form of free handsets. Even if the profits from the SMP termination market are competed away on the retail market and thus no firm is able to earn excessive profits, the pricing structure remains distorted and welfare will fall short of its possible maximum value.

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, customers do not sufficiently care about the costs other parties have when calling them, and there is no countervailing buyer power. Operators then have incentives to charge the monopoly price on their termination services.

If retail tariffs are cross-subsidized with profits from the termination business, welfare is 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 are nevertheless likely to 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.[31]

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 are likely to raise the price of termination even above the monopoly level.[32]

The problem is less likely to occur in an M2M situation. As long as traffic between networks is balanced and cost structures are symmetric, termination charges are likely to be reciprocal and therefore termination payments 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 three competition problems of this section.

[31] see Armstrong (2002) and Wright (2000)
[32] see Gans/King (1999)

Price discrimination

The problem of price discrimination to foreclose the market pertains mainly to the M2M situation. The incumbent operator(s) may foreclose the 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'[33]) 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 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 do 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.

1.5 'Generic competition problems' - effects

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

First mover advantage

The term first mover advantage refers to the economic advantage the company which is first in a new 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 doing cost reductions, whereas demand side advantages primarily result from customer lock-in effects.[34] A first mover advantage thus can be said to raise rivals' costs (relative to the first

[33] see Laffont/Tirole (2000)
[34] see Clemenz/Mueller (1999, pp. 153-164)

mover) or restrict competitors' sales. A first mover advantage 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.[35]

A margin squeeze can be effected in three ways:[36] (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.

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. A margin squeeze might result in partial foreclosure only 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.

[35] 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.

[36] see Canoy, et al (2002, pp. 26-31)

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

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

Restriction of competitors' sales is defined here as the result of any behaviour of the dominant undertaking, which does not (or not only) negatively effect 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

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

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, which leads to drifting cost curves (i.e. 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.

2 Remedies Available

2.1 Introduction

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 obligations not explicitly listed, subject to the prior agreement with the Commission.[37]

In order to impose any given remedy, NRAs need to ensure a number of conditions are satisfied. Firstly, NRAs need to conduct a market analysis and identify an SMP operator on a defined market. Secondly, NRAs need to demonstrate that the chosen remedy satisfies the overall objectives, which are set out in Article 8 FWD. These are that the remedy is appropriate for 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.

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; finally under the Access Directive there is
- 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.[38]

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

[38] 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.

Obligations mentioned in the Universal Service Directive include the prohibition of excessive or predatory pricing, undue price discrimination or unreasonable bundling of services, which may be implemented through price caps or individual price controls.

This section 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.

2.2 Remedies available

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

2.2.1 Transparency

Looking first at the transparency obligation[39] 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.[40]

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.[41]

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

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[39] Directive 2002/19/EC, Article 9
[40] Directive 2002/19/EC, Articles 9(1) and 9(2)
[41] Directive 2002/19/EC, Article 9(4)

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 compliment to transparency in pricing and costing matters. Transparency is a very important obligation as it is a significant counterweight to possible SMP operators strategies in reaction to regulatory obligations. Economic literature[42] 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.

2.2.2 Non-discrimination

In general non-discrimination[43] requires that the SMP operator '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 firms internal processes. The general non-discrimination obligation requires that third party access seekers be 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 compliment 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 operator to justify self-supplying inputs at greatly reduced prices because of scale where significant scale economies are exhausted much

[42] For example see Laffont, J-J and J Tirole (2000), *Competition in Telecommunications*, MIT Press.
[43] Directive 2002/19/EC, Article 10

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. In markets which meet many or all of the criteria[44] 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.

2.2.3 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.

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.[45] The identification of cross subsidy through the use of accounting separation will

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[44] See SMP Guidelines, OJ C 165, 11.7.2002, p.6.

[45] Art. 11 (2) AD

often require finely balanced decisions regarding the allocation of joint and common costs which are very frequent in electronic communication markets.

2.2.4 Access to, and use of, specific network facilities

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.[46]

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 FWD and Article 8(4) of the AD. 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 pecuniary level mean that no efficient competitor can be reasonably expected to enter the market 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.[47] 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.

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[46] Directive 2002/19/EC, Article 12 (1)
[47] Directive 2002/19/EC, Article 12 (2)

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 RIO 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 a priori 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 to give careful consideration to the investment decisions of both entrants and incumbents to ensure, where possible, that self sustaining competition is encouraged.

2.2.5 Price Control and Cost accounting Obligations

The obligation concerning price control and cost accounting allows that a 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 and general competition laws.

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.

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 where possible 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.[48]

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 Chapter 3.

2.2.6 Retail Obligations

Under the Universal Service Directive regard is given to interventions specifically concerning retail markets. As a general rule, regulatory controls on retail services should only be imposed where NRAs consider that relevant wholesale measures or measures regarding carrier selection or pre-selection would fail to achieve the objective of ensuring effective competition and public

[48] 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.

interest.[49] This is a common theme in the NRF 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.'[50]

Article 17(1)(b) suggests that if measures 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 can be applied. It is clear that the obligations available in the Access Directive may, if appropriate, be available for application at the retail level.[51] 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, 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 consumer's 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 of

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[49] Directive 2002/22/EC, Recital 26, Article 17.

[50] Page 15 Recommendation

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

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 ant-competitive behaviour.

2.2.7 Leased Lines and Carrier Selection/Pre-selection

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 operators must provide leased lines in the minimum set in a non-discriminatory manner, at cost orientated price (with associated cost accounting) a transparency requirement and according to certain quality parameters.

Carrier selection by means of a carrier selection code and carrier pre-selection combined with carrier selection are also available at cost orientated prices. In addition direct charges to subscribers should not act as a disincentive to the use of such facilities.

3 Principles to be applied by Regulators in choosing appropriate remedies

3.1 Introduction

The new framework operates on the principle of technological neutrality and is developed in a manner based on a competition law. 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 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).[52] The three steps are summarised below.

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 market identified in the Commission Recommendation on relevant markets.[53] 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[54] 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. The Commission will also use these criteria when NRAs notify markets that differ or go beyond those in the Recommendation.

[52] Directive 2002/21/EC, Arts 15 and 16
[53] Commission Recommendation of 11th February 2003.
[54] Directive 2002/21/EC, Article 15

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.[55]

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, appropriate ex-ante remedies must be applied;[56] this is the third and final stage.

The definition of markets susceptible to *ex-ante* regulation (stage 1) is distinct from the assessment of market power in individual markets (stage 2). It is also distinct from the application of remedies in particular markets (stage 3). There will nevertheless be a strong relationship between each of the three stages.

As set out in Article 8 of the Access Directive, obligations must be based on the nature of the problem identified and should be proportionate to the nature of that problem.

The NRA should in selecting remedies keep in mind the objectives set out in Article 8 of the Framework Directive. 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 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 particular those with special needs.

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.[57] Furthermore, 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. This joint paper is an effort to ensure such consistency of approaches in relation to remedies.

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55 Commission Recommendation on relevant markets, OJ 8.5.2003 L 114/45.
56 Article 16 of the Framework Directive [Directive 2002/21/EC]
57 Directive 2002/21/EC, Article 7

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. Deviations from the recommendation are subject to further single market controls through the use of the Article 7 procedure.

In some instances the impact of a particular remedy 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.[58] The European Regulators Group (ERG) was specifically set up in order to deal with this and other issues.[59] Thus, in addition to the processes outlined in Article 7 of the FWD, NRAs (through the ERG) should remain in close contact with each other (and with the Commission) when they are considering remedies 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.

The remainder of Chapter 3 goes on to outline principles that should guide NRAs when they are at the remedies stage of the process. There is a short section on emerging markets and some conclusions are drawn.

3.2 The Principles

There are a number of high level principles set out in the New Regulatory Framework both explicitly and implicitly which are to guide NRAs in their selection of remedies. Article 8 of the Access Directive requires that regulation must be based on the underlying (competition) problem identified, proportionate and justified in light of the objectives set out in Article 8 of the Framework Directive.[60]

A summary of these principles is outlined below. The remainder of this section of Chapter 3 deals with each of these principles in turn.

A first principle is that the remedy selected must 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.

58 Article 8(3) of the Framework Directive [Directive 2002/21/EC]

59 Article 3, Commission Decision 2002/627/EC

60 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.

A second principle is that where infrastructure competition is not likely to be feasible, due to the persistent presence of 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.[61] 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 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 NRAs should produce reasoned decisions in a transparent manner that respect the principle of proportionality and that are in line with the objectives set them in the Framework Directive. 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 fifth 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.

3.2.1 Remedies should be based on the nature of the problem identified

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.[62] This gives the NRA a clear insight to the nature of the market failure that they are considering. NRAs can then

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[61] 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.

[62] Directive 2002/21/EC, Articles 14, 15 and 16.

apply the available remedy (or the series of remedies) that most clearly addresses the core of the problem.[63]

By tackling the underlying 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 below.

In terms of access to the local loop, the fundamental problem is that there are extensive economies of scale, from which the incumbent benefits. The bitstream regulation for example 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 is clear 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. The notion of bridging remedies enabling new entrants to progressively rollout their own infrastructure is dealt with later.

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.

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 those that may bring forward the day that regulation (for a particular issue) may no longer be required.

[63] 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.

Once both potential remedies are 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 specification. Highly specified remedies provide a greater degree of legal certainty but tend to be inflexible and not well future-proofed. However, careful specification can consume large quantities of time and regulatory resources and 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.

3.2.2 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 those areas where the view is taken that new entry/replication is very unlikely (and there is very little uncertainty surrounding this assessment for the foreseeable future), 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.[64]

The NRA’s main concern will be on ensuring 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.[65] 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,

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

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

discriminatory access prices and quality degradation. These market failures are familiar in the economics and competition law literatures and from regulatory practice.[66]

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.[67] The Framework Directive explicitly identifies leveraged dominance as a third form of dominance (in addition to single and joint dominance).

The Access and Interconnection 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 4.

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 infrastructural 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 4.

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.

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

[67] See the Annex

3.2.3 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.[68] 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. 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 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 increases as it increases their control of their service offerings. In planning their investment strategy new entrants will, of course, benefit if NRAs have 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

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

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 it is 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 their 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.

In this, NRAs should bear in mind the guidance given in the Access Directive where it is said that.[69]

> '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.'

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.

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 (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 withdrawal of regulatory obligations.

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

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.

It will also be necessary to impose remedies that enable the new entrant to make the incremental steps (along the investment ladder), so that it can roll out competing infrastructure. This will require a consistent price structure over a range of regulated access products. Such remedies act as a bridge that should enable new entrants to consolidate their market position so that they will undertake the necessary investments.

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.

An important consideration is that of maintaining 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.

Where NRAs make the assessment that replication is feasible, they will have to ensure that they promote this at the same time as supporting competition in services. Thus, the NRA may have to trade-off short-term losses in welfare against much larger welfare gains that will be sustained into the long run. This arises due to the generally held view that to promote innovation, growth and push efficiencies all the way through the value chain that infrastructure based competition delivers more sustainable consumer benefits in the long run. On an on-going basis NRA is left with the complex task of ensuring that relative prices are consistent with sustaining existing service competition and the promotion of infrastructure based competition in the long term.

NRAs will also have to envisage the intermediate steps that will assist new entrants as they climb the investment ladder. For example, there is general agreement that the existence of a bitstream product in broadband is an important bridging remedy that should enable the new

entrants to compete vigorously until they are in a position to roll-out more of their own infrastructure (which must be the ultimate goal). Of course, bitstream is a step jump 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.

NRAs should monitor the process of migration to competing infrastructure in their own Member State. This process should be carried out on an EU wide basis so that any lessons that emerge can be quickly disseminated to ensure that the additional benefits of infrastructure based competition can be felt more widely throughout the EU.[70]

The setting of access prices is a complex task. 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 to 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 easier 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.

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[70] The ERG held a consultation on Bitstream Access in July 2003, which elicited over 20 responses from players in the market.

3.2.4 Reasoned decisions, proportionality and transparency

A fourth principle is that NRAs should produce reasoned decisions in a transparent manner that respect the principle of proportionality and that are in line with the objectives set out for NRAs in the Framework Directive. These objectives are to promote competition, to develop the internal market and to protect the interests of EU citizens as consumers.[71]

NRAs have experience of engaging in transparent public consultations and producing reasoned decisions. This is a proper discipline that all NRAs must work under.

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.

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.[72] As the new framework envisages on-going interactions between the NRA and the NCA, 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 NCA if they were ever to become involved in a complementary manner in relation to the same issue.

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:[73]

> '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 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.'

Thus, the NRA must be able to justify that the remedy chosen will contribute to promotion of competition, the development of the internal market and the protection of EU citizens.

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71 Directive 2002/19/EC, Article 8(4) in relation to access and interconnection obligations and Directive 2002/22/EC, Article 17(2) in relation to obligations under the Universal Service Directive.

72 Directive 2002/21/EC Article 8 3 FWD

73 Case C-331/88, 13 November 1990, FEDESA.

Proportionality requires that when there is a choice between a number of appropriate measures the least onerous must be chosen. In addition, there is the obligation that the costs associated with the measure must not be disproportionate relative to the aims to be pursued.

The decisions of NRAs should 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.[74]

3.2.5 Incentive compatible remedies

Remedies are much more likely to be effective if they are designed in such a manner to give strong incentives for compliance. Measures to enforce compliance with a SMP firm's obligations are outlined in the Authorisation Directive.[75] 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 operator fails to comply with an obligation (after such failure has been pointed out to it).[76] However, such a power has to be given by Member States in accordance with national law. In addition, when there is 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

[74] 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.

[75] Directive 2002/20/EC, Articles 10 and 11.

[76] Directive 2002/20/EC.

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:

3.2.5.1 Delays in setting cost-based prices

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.

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. This provision of 'retrospection' should not, of course prevent an aggrieved party from seeking further redress in Court.

3.2.5.2 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 incentivise 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'.

Were applicable, financial incentives can also be created in this area. Were 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 to 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.

3.2.5.3 Service Level Agreements and Service Level Grades

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 regulator 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.

3.3 Emerging markets

Encouraging efficient investment in infrastructure, by incumbent operators and new entrants, and promoting innovation are explicit objectives for regulators. This means taking account of the need for investors to obtain an adequate return on their investment, in the light of the risks taken. This also means that regulatory uncertainty for investors must be reduced as much as possible. Such considerations come to the fore when considering emerging markets.

As a general principal, emerging markets should be allowed to develop according to the normal dynamics of market forces. Thus, emerging markets should in almost all circumstances be governed only by the application of general competition law. Early intervention in an emerging market should only be considered in exceptional circumstances. It is important that the market

place understands that in coming to decisions on potentially large-scale risky investments, which will be used to deliver new and innovative services that the normal forces of competition will be allowed to reign.

Indeed, competition policy takes a much more benign view of market power that is caused by innovation, which is likely to be temporary in any case. In these cases a balance has to be struck between preserving the incentives to invest and innovate (which will deliver higher growth rates) and the interest that consumers have in greater competition today. For example, the R&D Block Exemption applies (for a limited period) irrespective of the parties' market shares.[77] This is done to await stabilisation of market shares, particularly after the introduction of an entirely new product, and to guarantee a minimum period of return on the investment involved.

NRAs have an important role in promoting efficient investment and innovation, with a view to obtaining the benefits associated with competition in the provision of electronic communications networks and services. There are numerous potential dynamic gains that the EU can hope to obtain from fostering innovation and efficient investment in the information sector.

It is made clear in the Framework Directive that in emerging markets, the market leader should not be subjected to inappropriate obligations.[78] NRAs will have to ensure that they can fully justify any form of early, *ex ante* intervention in an emerging market. Premature imposition of ex-ante regulation may unduly influence the competitive conditions taking shape within a new and emerging market. At the same time, foreclosure of entry into emerging markets should also be prevented. These are important principles since NRAs retain the ability to intervene at a later stage, in the context of the periodic re-assessment of the relevant markets. In addition to this, there is no presumption that a firm that has SMP on a specific market can leverage this onto a closely related emerging market. Any potentially abusive conduct in the emerging market will normally be dealt with under standard competition law.[79] Thus, to the extent that there is a real threat of dominance being leveraged this will be addressed by placing measures on the market that the dominance is being leveraged from. None of this precludes the possibility of analysing and studying emerging markets.

The remainder of this section deals with a number of important issues:

Firstly, there is a discussion of what is a *bona fide* emerging market as given the safe harbour that such markets will have there is an incentive for firms to claim that something is an emerging market in cases where it is not.

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77 Regulation 2659/00, Recital 16.

78 Directive 2002/21/EC, Recital 27.

79 Commission's Guidelines on Market Analysis [2002/C 165/03]

Secondly, guidance is given for those cases where a NRA is convinced that a genuine emerging market exists. Particular consideration is given to the situation where there is a risk of dominance being leveraged due to the control of a necessary input into the emerging market. This may arise if elements of legacy technology are used to deliver the new services.

Finally, there is a discussion of how NRAs can establish whether an emerging market is susceptible for *ex ante* regulation.

3.3.1 Defining emerging markets

In the NRF markets are defined without reference to the infrastructure that is required to deliver the services. These markets are those set of services that consumers consider sufficiently substitutable for each other. For a market to be considered an emerging market it must be distinct in terms of the services currently offered to consumers. Consumers of the new service should not substitute to currently available services, in response to a small but 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.

3.3.2 General approach to emerging markets

When an NRA has outlined a genuinely emerging market that uses completely new infrastructure the approach is very simple: the NRA should let market forces work and not intervene. Where legacy infrastructure is used to deliver new services in an emerging market the following issues may arise.

If it is the incumbent that is investing to be able to provide new services over what are non-replicable legacy network elements, then the NRA may need to consider how to grant access to new entrants to these on equivalent terms. Thus, 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 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. In this way, the distinct nature of the emerging market is maintained whilst at the same time preventing foreclosure by applying regulation as far as is possible only on the necessary input market.

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 accommodate access seekers in existing markets. 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.

3.3.3 Re-analysing emerging markets over time

To establish that there is a relevant market that is susceptible to *ex ante* regulation in normal markets the next step is to apply the three criteria. These criteria are that the market is characterised by high and persistent barriers to entry, the dynamic of competition behind the entry barriers and the sufficiency of competition law. However, by definition in an emerging market, it is likely to be difficult to make definitive statements in relation to any of the above criteria that would be immune to a legal challenge. Thus, it would be prudent that NRAs delay making this assessment until the emerging market has reached a sufficient level of maturity. NRAs should nonetheless give as much certainty as they can in relation to markets that will, in their opinion, never be susceptible to *ex ante* regulation (for instance, where entry barriers are low or trivial).

The question as to when an emerging market would no longer be considered an emerging market, is perhaps, more properly put as when would an emerging market be susceptible to *ex ante* regulation.

It is inappropriate at this stage to make any definitive statement, in this regard, as it will depend critically on the context. However, after a sufficient amount of time for the emerging market to mature, the NRA can make a better assessment of the three criteria. In particular, the NRA will be in a much better position to come to a justifiable view on the persistence of entry barriers and the dynamic of competition.[80] Independently of this, the elapse of time should allow the investor to make an adequate return.

After examining the three criteria the NRA may conclude that whilst the market is still emerging, it is nonetheless a market that is susceptible to *ex ante* regulation. In assessing SMP in an emerging market it is important to examine the market shares of firms in the market, though this cannot be, of itself, decisive. From a competition law perspective there is a presumption of dominance when one firm has more than 50% of a market over a period of

[80] NRAs will have to consider the normal dynamic of newly created markets and the potential for disruptive technologies when making the assessment on the dynamics of competition.

time.[81] The important qualifier that this position must be held ‘for some time’ should be borne in mind by NRAs in determining if there is SMP on the market. Special care will need to be taken when considering these issues in a still immature market.

Even if SMP is found in the emerging market the Framework Directive and the market analysis guidelines make it clear that any obligation imposed must not be ‘inappropriate’. This must be considered in light of the objective set in Article 8 of the Framework Directive to encourage efficient investment in infrastructure and to promote innovation. If NRAs consider it necessary to mandate access at this point, prices should be set to take into account the initial investment, bearing in mind the risks involved in making the investment.[82] NRAs may consider pricing rules based on a retail-minus basis or take on board the risk of the investment in the calculation of the appropriate rate of return. These issues are dealt with in greater detail in Chapter 4.

3.4 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. These are to promote competition, the internal market and the interests of EU citizens. 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.

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[81] See cases, Hoffmann-La Roche v Commission and AKZO v Commission.
[82] Directive 2002/19/EC, Article 12(2)(c).

4 Application of remedies to competition problems

4.1 Introduction

This final chapter will attempt to match the remedies available to NRAs according to Art 9-13 of the Access Directive (AD) and Art 17-19 of the Universal Service Directive (USD)[83] (see Chapter 2 of this paper) to the 'generic competition problems' identified in Chapter 1. Underlying this match are the 'principles to be applied by regulators in choosing appropriate remedies' as discussed in Chapter 3.

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 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 NRF.

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 exogenous barriers to entry exist, SMP positions may result from endogenous barriers to entry, i.e., barriers to entry following from the behaviour of the incumbent, such as vertical or horizontal leveraging and market foreclosure by means of exclusive dealing or predatory pricing. In such cases, the NRA is called upon to prevent such behaviour in order to promote market entry and enable competition to develop. Frequently, however, incumbents benefit from first mover advantages, which allow them to retain a large share of customers and/or to charge a premium on their services even after market entry has been rendered possible. If this is the case, NRAs will have to deal with similar problems as in the case of natural monopoly with high barriers to entry, i.e., excessive pricing, price discrimination, inefficiencies, etc., until effective competition has emerged.

[83] Other obligations which might be imposed following an Art 8 (3) procedure are not considered in this context.

In order to promote sustainable competition, NRAs should make sure that investment incentives are such that alternative operators have incentives to replicate the incumbent's assets wherever this is economically efficient and technically possible. Likewise, NRAs should ensure that the incumbent operator has sufficient incentives to maintain and upgrade its infrastructure, in particular in those parts of the market where it is unlikely and/or economically undesirable that alternative infrastructure will be built.

The chapter takes the following approach to the design of remedies:

The 'generic 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 the first criteria 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. Where several remedies (or sets of remedies) pass the first criterion, the principles discussed in Chapter 3 will be applied (as far as this is possible in a general framework). Any remedy (or set of remedies) has to be justified in the light of the objectives of Art 8 of the Framework Directive, i.e., to promote competition, to contribute to the development of the internal market and to promote the interests of EU citizens.

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.

Once remedies are designed for each 'generic competition problem', patterns of remedies or competition problems may emerge in two ways: (i) certain competition problems 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.

When remedies are imposed ex ante it is frequently not possible for the NRA to actually observe a certain competition problem (i.e., a certain type of anti-competitive or exploitative behaviour). Rather, the appearance of a particular competition problem without regulation will have to be anticipated, which is the rationale for regulation to be deployed. It is therefore necessary to identify the *incentives* of an SMP undertaking to engage in anti-competitive or exploitative behaviour. Thus, before remedies for a 'generic competition problem' are discussed, the question under which circumstances an SMP undertaking has an incentive to

behave in that particular way will be elaborated. 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 the incentives and possibilities the SMP-undertaking has to behave in an anti-competitive or exploitative manner. Ex ante regulation should aim at eliminating the incentives for incumbents to exercise their market power and, where possible, to eliminate their market power altogether, thereby decreasing the likelihood of anti-competitive or exploitative practices.

The 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 NRF 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, wherever possible eliminate, such incentives.

4.2 Case 1: Vertical leveraging

Case 1 as set out in Chapter 1 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.

4.2.1 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.[84] 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.[85]

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 his access price. It then has an incentive to raise its rivals' costs by means of non-price parameters like quality or product characteristics. The dominant undertaking in this way can increase its profits by increasing its market share on the retail market as well as the retail price[86] 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.[87]

- 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.[88]

- 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

[84] 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.
[85] see, e.g., Armstrong (2002, p. 305) or Rey/Tirole (1997, p. 7).
[86] see Economides (1998) and Beard et al (2001)
[87] cf. Sibley/Weisman (1998) and Beard et al (2001)
[88] cf. Beard et al (2003)

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.[89]

- The unregulated monopolist will also deny access to alternative operators less efficient than its own retail business.[90] 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 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

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89 cf. Beard et al (2003)

90 cf. Armstrong (2002)

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.[91] 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.[92] 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 4.2, the competition problems 1.1 to 1.11 (as identified in Chapter 1) will be discussed.

4.2.2 Refusal to deal / Denial of access

Refusal to deal / denial of access is referred to as 'generic competition problem' 1.1. in Chapter 1. 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.

In the following, 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.

4.2.2.1 Ensuring access

As discussed in the previous section, a vertically integrated operator with market power on the wholesale market will – absent 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 re-establish 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 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 a regulator's decision like significant economies of scale and large sunk costs which make assets – at least in

[91] cf. Rey et al (2001, p. 18)
[92] cf. Rey et al (2001, pp. 19-21)

the short run – unreplicable. The only way in which competition on the downstream market can be created in such a situation is by forcing the SMP undertaking to grant access to the necessary input it produces. An access obligation according to Art 12 AD is the only remedy by which the strategic variable on which the anti-competitive behaviour is based (choice of the contractual partner) can be influenced and therefore appears appropriate in this case.

The obligation of non-discrimination according to Art 10 AD is unlikely to be appropriate to force the SMP undertaking to grant access to the wholesale input. Although one could argue that non-discrimination between the own retail business and (potential) retail competitors also implies that the same wholesale product has to be supplied to both, Art 10 (1) AD explicitly states that non-discrimination can only be imposed '... in relation to interconnection and/or access'. In the situation considered here (one way access to an essential wholesale input) it thus seems to be an ancillary remedy.

The only alternative to an access obligation according to Art 12 AD would be a cost oriented regulation of the retail price (according to Art 17 of the USD). This might eliminate the incentives of the dominant undertaking to exclude efficient retail competitors, as the retail price cannot be raised subsequently. Such a remedy however neither goes to the source of the competition problem, which is the SMP-position on the wholesale market in this case, neither is it desirable with regard to the new regulatory framework, under which retail remedies would only be justified if wholesale remedies are insufficient (cf. Art 17 (1b) USD).

An Art 12 AD access obligation is – on its own – unlikely to solve the problem, however. As discussed above, the dominant undertaking will have incentives to either charge a price above costs for its input in order to extract rents from the retail market, or – if this should not be possible – to drive competitors out of the retail market by means of a margin squeeze or discrimination on non-price parameters. As margin squeeze and non-price issues will be dealt with in the following sections, the focus here will be on excessive prices.[93]

4.2.2.2 Setting the wholesale access price

Wherever undertakings dispose of significant market power, they are likely to attempt to restrict output and raise the price in order to increase their profits. This leads to allocative inefficiencies and is clearly detrimental to overall welfare and to consumers in particular. Welfare may additionally be reduced by productive inefficiencies resulting from the absence of effective competition.

[93] To some extent this pre-empts the discussion of the competition problem 3.7. 'excessive pricing'.

Irrespective of the incentives for foreclosure, therefore, the SMP undertaking will supply its input – either voluntarily or because of an Art 12 AD access obligation – at an excessive price. To protect consumers from the exercise of market power, a price regulation on the wholesale market is appropriate wherever the market power cannot be expected to erode within a reasonable period of time.

The only remedy by which 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 imposed in order to regulate the access price. Under such an obligation, the SMP undertaking is required to charge independent retail undertakings the same price it implicitly charges its own retail affiliate. The internal transfer price can 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 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, e.g. a bottom-up calculation of LRIC prices, might not be feasible under Art 10. Therefore, and in particular when excessive prices or inefficiencies can be expected, Art 13 AD, which is particularly designed for access price regulation, will usually be most appropriate.

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 is no guidance on what methodology to use but current practise suggests that NRAs initially look to the more developed methodologies to assess their appropriateness against the criteria above. These include:

- Linking prices to cost information from LRIC (long-run incremental costs) or FDC/FAC (fully distributed/allocated costs) systems or models;
- Use of the efficient component pricing rule (ECPR), a simplified form of which is the 'retail-minus' approach;
- Ramsey-Prices;
- Benchmarking.

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.

Calculating costs involves three steps: (i) A decision about which assets are evaluated, e.g., the currently existing assets or the assets of a (hypothetical) efficient operator, (ii) The valuation of the assets, which may be based, e.g., on historic values, current values or modern equivalent assets (MEA), and (iii) the distribution of joint and common costs, including the questions of which part(s) of these costs will be distributed and how. Underpinning these considerations should be robust costing systems or models to ensure, amongst other things, that pricing methodologies are effective in meeting the criteria set out in Art 13.

The LRIC approach calculates the costs of the increment the SMP undertaking has to produce in order to serve independent retail undertakings including a reasonable rate of return. The LRIC price usually also contains a mark-up allowing for the joint and common costs of the SMP operator. The LRIC-calculation may come in different forms. It may be based, for example, on current costs or MEA and may use different distribution keys to allocate joint and common costs. Calculating the LRIC-price, NRAs may use either a top-down model, starting with actual costs and correcting them for inefficiencies, or a bottom-up model, where the costs of a hypothetical efficient undertaking are reconstructed from scratch (scorched node approach). NRAs may also combine both models in their calculation. Correcting for inefficiencies, the LRIC approach is particularly suitable where concerns about the efficiency of the SMP undertaking exist.

Although LRIC is used by most regulatory authorities, some economists have pointed out that LRIC prices – in particular if based on MEA – may fail to provide the right make-or-buy incentives to the entrant and stifle investment incentives of the incumbent.[94] To what extent the allegedly missing incentives are in fact included in the LRIC 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 and earn excessive returns, and possibly promoting inefficient entry. Another issue is the distribution of joint and common costs, which is usually made by means of distribution keys (e.g. volumes) within the LRIC calculation. Although a distribution according to demand elasticities might be more optimal, it can in general be regarded as unfeasible (see discussion of Ramsey-Prices below).

With FDC, access prices are calculated based on the actual cost of the undertaking which may be evaluated at historic or at current values. Based on historic costs, an FDC calculation may

[94] see, e.g., Hausman (1997) and dotecon (2001)

allow the undertaking to earn returns on inefficient investments. This danger is reduced when assets are valued at current costs (current cost accounting), but even under this methodology, the undertaking might be compensated for inefficiencies (e.g. for spare capacity or inefficiently accrued operating expenses). Therefore, 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 only if inefficiencies are allowed for (similar to a top-down model) or if there is no (or very limited) concern about inefficiencies.

An ECPR price is calculated as the costs of the provision of the service plus the opportunity costs the dominant undertaking has from providing the service to a retail competitor. Under certain conditions, the ECPR simplifies to

$$P_A = P_R - C_R$$

where P_A is the access price, P_R the retail price, and C_R the incumbent's costs at the retail level. This rule is usually referred to as 'retail-minus', where the 'minus' are the retail cost of the incumbent, C_R. 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 (static) inefficiencies may be more than outweighed by the long-run (dynamic) advantages of competition. In such cases, the 'minus' might be set at the costs of the entrant (including unexhausted economies of scale) to avoid a margin squeeze. This issue is dealt with in depth in the Annex.

The retail-minus approach is – absent of retail price regulation – not able to 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).[95] It might be applied, however, in cases where excessive prices are not a major concern of the regulator. If circumstances are such that, for example, the market power at the wholesale level is likely to erode within a reasonable period of time, the distortions which result from excessive prices might be negligible. In cases of newly developed services ('emerging markets') a retail-minus access price may give the undertaking the possibility to appropriate returns on its investments while, at the same time, downstream competition is possible. However, ex ante regulation should be applied to emerging markets only under particular circumstances, which are discussed in section 3.3.

[95] see Economides (1997) or Armstrong (2002, p. 326)

Under a retail-minus access price, the incentives of the dominant undertaking to discriminate against retail competitors may be reduced, as rents can be extracted by setting an excessive wholesale price in some cases. 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.[96] As long as the threat of backward integration exists, or if the SMP undertaking cannot extract all rents, incentives to foreclose the retail market by means of non-price discrimination remain.

The notion of Ramsey-Prices refers to a particular method to distribute joints and common costs, whereby joint and common costs are allocated according to demand elasticities. As detailed information about total costs, marginal costs and demand elasticities is needed, Ramsey-Prices can be regarded as practically unfeasible. The suggestion of Laffont-Tirole[97] to realise Ramsey-Prices by means of a 'global price cap' including wholesale access as well as retail services is – apart from the question of its applicability – not in line with the new regulatory framework, which aims at shifting regulation from the retail to the wholesale level.

Benchmarking, finally, ties the price in one market to the price in another comparable market (sometimes in the form of an international comparison) and may be particularly useful for 'new' NRAs in the period until they have developed appropriate cost models.

In order to be able to calculate an appropriate 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. Any further information necessary for the calculation of the access price can be demanded under Art 5 of the Framework Directive (Provision of Information).[98]

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 (like LRIC) 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 are even more difficult to monitor. As long as market power at the wholesale level exists, however, the setting of a cost

[96] Sometimes, however, 'inefficient' (e.g. small-scale) entry might be desirable; see discussion above and in the Annex.
[97] cf. Laffont/Tirole (2000, pp. 170-178)
[98] This is not an SMP-obligation but a general provision.

oriented access price appears to be the only possibility to open the retail market to competitors and eliminate the incumbent's excess profits.

As mentioned above, the incentives to discriminate on non-price variables might be reduced under certain conditions if a retail-minus access price is set. The downside of this rule is, however, that prices are likely to remain at an excessive level.

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 NRF, as only the right investment incentives ensure that alternative infrastructure is built where desirable, leading to the emergence of self-sustained competition.

4.2.2.3 Incentives to invest

As stated in the introduction to this chapter, 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.

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 two 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,[99] 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.[100] Whereas a cost-oriented access price allows the incumbent just 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

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

100 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.

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.[101] 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 below costs. In particular in the presence of first mover advantages of the incumbent associated with high switching costs, entry might 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 3 – that they view some remedies as bridging a gap so that new entrants can easier make incremental investment but that market players cannot base their long-term business models on the basis of theses 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 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.

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 replicability is technically feasible and economically efficient. Whereas this is

[101] See Cave et al (2002)

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 the negative aspects are likely to prevail, NRAs may decide to adopt a more 'neutral' approach, set access prices at some measure of costs (which is consistent with static efficiency), and monitor the market outcome.

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 into high costs 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.[102] Therefore, the incentives to invest may increase over time for successful service providers without additional regulatory intervention. A cost-oriented access price including appropriate cost of capital then gives the right investment incentives to alternative operators as well as to the incumbent. It is then up to the NRA to monitor whether investment incentives are indeed self-propelling or whether additional incentives are needed.

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. 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. 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 maintain investment incentives for the incumbent in those sectors where a replication of assets is unlikely to happen. In particular in the case of innovations, NRAs have to ensure that the rate of return is sufficient to allow for the higher risk which is associated with newly introduced products.

[102] cf. Beard et al (1998 p. 319)

Text-box 1: Bitstream-access

If the market review leads to the conclusion that market no. 12 – Wholesale broadband access – is not effectively competitive, because e.g. voice telephony incumbent operators leverage their market power of the local loop into the wholesale broadband access market, the NRA has to decide on the proportionate remedy after having identified 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 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 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 interconnection available 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.'[103]

As bitstream access can be granted at various points of the network hierarchy (point of handover of traffic), the point 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

[103] ONPCOM01-18Rev1 and ONPCOM02-03, quoted in ERG Consultation Document on Bitstream Access, publ. 14 July '03

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 he can use more and more of his own infrastructure he is able to add gradually more value to the product offered to the end user. At the same time he 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. Other remedies such as Art 9, 10 and 11 AD may be required to support the obligations according to Art 12 and 13 AD.

4.2.2.4 Conclusion on refusal to deal / denial of access

To conclude, it can be said that leveraging of market power from an upstream to a downstream market by a vertically integrated undertaking can – within the boarders of the new regulatory framework – only be prevented by giving competitors access to the essential wholesale input. In order to promote competition in those parts of the market where the incumbent's assets are replicable, those assets which are – at least in the short run – not replicable have to be made available to competitors. To prevent the dominant undertaking from exploiting its market power and charging excessive prices at the wholesale level, it will usually be necessary to set the access price at a cost-oriented level.

Therefore, an access obligation according to Art 12 AD in combination with an obligation to set a cost-oriented price according to Art 13 AD seems appropriate. In order to be able to calculate a cost-oriented price, NRAs will usually also have to impose an obligation of accounting separation (Art 11 AD). Such intervention is justified in light of Art 8 FWD, as it promotes

competition on the downstream level and at the same time prevents the dominant undertaking from charging excessive prices and therefore is in the best interest of EU citizens.

Whenever upstream market power is likely to be eroded within a reasonable period of time and excessive pricing thus is not a concern to NRAs, retail-minus might be used to calculate the access price. Although in the short run excessive prices might not be eliminated in this way, the incentives of the SMP undertaking to discriminate against its downstream competitors may be reduced compared to a cost-oriented access price in some cases. If justified by exceptional circumstances (cf. section 3.3), retail-minus might also be applied to ‘emerging markets’, where it is particularly difficult to determine the ‘reasonable rate of return’ in order not to stifle incentives to invest and innovate.

An alternative to Art 13 AD may be provided by the obligation of non-discrimination according to Art 10 AD (also in combination with 11 AD). NRAs are unlikely to have the same discretion with regard to the choice of the accounting method under Art 10 AD as compared to Art 13 AD, however.

By setting the access price, NRAs are crucially influencing the incentives to invest of the SMP undertaking as well as of the alternative operators. NRAs should ensure that alternative operators have incentives to replicate the assets of the incumbent wherever this is economically sensible, taking into account aspects of static and dynamic efficiencies. In particular where the NRA is of the view that assets are not replicable given the currently available technologies, they should ensure that the access price is such that the incumbent has sufficient incentives to maintain and upgrade its network.

Text-box 2: 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. Wholesale line rental may also include ancillary services such as voicemail and 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 operators retail tariffs as it may bring service competition to an area in which competition is currently rather limited.

The main impediment to competition with the access network in fixed line telephony is that it is particularly hard to replicate the access network (or at least parts of it) 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 3 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 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, particularly in the case that retail prices for the subscriber line are cost oriented (due to regulation, in general on the basis of fully distributed costs). 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 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 either re-defined for the dominant operator, or should be part of a wholesale line rental offer to the entrant.

4.2.3 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.[104]

The following 'generic competition problems' have been identified in this context (numbering of Chapter 1):

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

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.

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

4.2.3.1 Discriminatory use or withholding of information

This refers to a situation where the SMP operator 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.

4.2.3.2 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 doing cost reductions or customer lock-in effects. Here, 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 operator'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 3 (Section 3.2.5.2 Delays in supply).

There is the danger, however, that the SMP operator offers a wholesale product which is of limited use for its competitors. Such issues are dealt with under Section 4.2.3.6. Although regulatory intervention is possible in such cases, it might be time-consuming and the SMP operator 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. It is then up to the competitors to decide if a wholesale product should be offered and in which form. To judge whether a certain wholesale product demanded is reasonable might be – in case of dispute – up to the NRA. In this context, particular care has to be taken in case of emerging markets (cf. section 3.3.).

4.2.3.3 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.

4.2.3.4 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.

4.2.3.5 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.

4.2.3.6 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 operator 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 non 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.

4.2.3.7 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.

4.2.3.8 Conclusion on non-price issues

Several ways to discriminate against rivals by means of non-price parameters thus can be addressed by Art 9 and/or Art 10 of the AD (obligation of transparency including a reference offer and obligation of non-discrimination). Some issues might also be covered by Art 12,

which allows the NRA to attach obligations of fairness, reasonableness and timeliness to an access obligation.

As discussed above, incentives to discriminate on non-price parameters will in particular exist whenever the access-price is regulated at a cost-oriented level. Therefore, obligations according to Art 9 and 10 AD will usually have to be imposed *additional* to the obligations of Art 12 and 13 AD (backed by Art 11 AD) in such cases.

With a retail-minus-based access price, non-price discrimination is more unlikely to occur. Under some circumstances, however, incentives to discriminate on non-price parameters might prevail even under this access price regime. This is in particular the case, if the dominant undertaking is faced with the threat of backward integration by downstream competitors, and if not all rents (or at least the biggest part of the rents) can be extracted from the downstream market (see discussion in section 4.2.1.). Thus it might be necessary to impose the obligations of Art 9 and 10 AD also when the access price is determined according to retail-minus.

4.2.4 Pricing-issues

In the case of a vertically integrated undertaking with SMP on the wholesale market (case 1), three 'generic competition problems' have been identified in Chapter 1 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.

4.2.4.1 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. When calculating a cost-based access price, NRAs have to make sure that the access product is sufficiently unbundled (see section 4.2.3.3.), and that the SMP operator 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 LRIC 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.

A similar conclusion can be drawn in cases where the access price is determined by means of retail-minus. Under retail-minus, a dominant undertaking is able to raise the price for its wholesale product. This does not result into 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.

In order to be able to monitor compliance, an obligation of accounting separation (Art 11 AD) may be required.

4.2.4.2 cross-subsidisation

A similar reasoning as for price discrimination can be applied to the case of cross-subsidisation. 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.

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.

4.2.4.3 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 predatory retail price. The incentives for such behaviour do not differ from the incentives in any other case of predation. As 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 operator 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.[105]

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 undertakings 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 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 practise is, for example, to require the SMP undertaking to prenotify 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 should publish guidelines according to which the effects of a certain price will be assessed.

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 into a margin squeeze.

4.2.4.4 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 to regulate the retail price by means of Art 17 USD (regulatory cost controls on retail services) ex ante.

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105 see, e.g., Martin (1994, pp. 452-489)

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 that all operators 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 operator.[106] This could be allowed for by increasing the 'minus' to the level which allows entrants to compete. In general, NRAs should take 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).

4.2.5 Conclusion on Case 1

In case 1, a situation where a vertically integrated operator has market power at the wholesale level was considered. Taking into account the likelihood that such an operator may exploit its market power by leveraging it into the potentially competitive retail market and/or by charging excessive prices, NRAs should ensure that access to the wholesale product is available at cost oriented prices (except for the cases discussed below). Therefore an access obligation according to Art 12 AD in combination with price control and cost accounting obligations (Art 13 AD) seems appropriate. In order to be able to correctly calculate the access price and for practical reasons to enable the offer to be taken up, NRAs might additionally impose obligations according to Art 9 and 11 AD (obligation of transparency including a reference offer and obligation of accounting separation).

Whenever a cost-oriented access price is set, however, the SMP undertaking is likely to have incentives to foreclose the retail market either by non-price discrimination or by exposing its downstream competitors to a margin squeeze. To prevent non-price discrimination, NRAs may impose an obligation of non-discrimination (Art 10 AD) and an obligation to publish a sufficiently unbundled reference offer according to Art 9 (2) AD. To avoid a margin squeeze resulting from below-cost pricing on the retail market, NRAs might impose retail price controls according to Art 17 USD if wholesale obligations are unlikely to solve the problem.

Although the incentives to discriminate on non-price parameters might be reduced under a retail-minus access charge in some cases, they are likely to remain as long as the SMP undertaking faces the threat of backward integration or is unable to extract all rents from the

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[106] see Beard et al (2003)

retail market by means of charging above-cost prices. Therefore, the same set of remedies as in the case of a cost-oriented access price might also have to be applied when the price is set at retail-minus. Furthermore, the dominant undertaking is likely to be able to continue charging prices above costs on the retail as well as on the wholesale market. Thus, retail-minus should only be applied if the market power on the wholesale market can be expected to vanish within a reasonable period of time. If justified by exceptional circumstances (cf. section 3.3), retail-minus might also be applied in 'emerging markets', where it is particularly difficult to calculate the 'reasonable rate of return' to guarantee the undertaking a sufficient return on investment.

By preventing the dominant undertaking to leverage its market power from the wholesale into the retail market, NRAs are promoting competition and significantly reduce the need for regulation on the downstream level. At the same time, NRAs can, by determining the level of the access price and the point(s) of access influence the investment incentives of the incumbent and the alternative operators. The access price should be set such that it provides incentives to alternative operators to replicate the incumbent's assets where this is economically sensible, which will – in the long run – reduce the need for regulation in those markets. Wherever replication is – given the state of technology – not likely to occur, NRAs should set the access price such that the SMP undertaking has sufficient incentives to maintain and upgrade its network.

4.3 Case 2: Horizontal leveraging

Case 2 as set out in Chapter 1 is dealing 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 has SMP on one of them. Two 'generic 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.

4.3.1 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 general, 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.

A bundling strategy will only be successful under certain circumstances. If there is perfect competition on the market into which market power is leveraged, for example, the dominant firm's profits are restricted to the level it would achieve by selling the monopoly good independently. Thus, some elements of imperfect competition in the second market are needed to make bundling a profitable leveraging strategy.

If this condition is fulfilled, there are two main channels for bundling to be used to sustain or establish market power:[107] (i) Bundling can commit the firm to behave more aggressively; (ii) Bundling may force entrants to simultaneously produce a wide range of components, even though they may lack the necessary experience. This requires, however, that the firm can commit to sell only bundles both now and in the future. Furthermore, economic theory suggests that bundling as a leveraging strategy is more useful if consumers' reservation values for the different components are positively correlated, potential entrants are small and single-product firms, and the goods of the SMP market are produced with high fixed costs and/or high start-up costs.

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 should be judged on a case-by-case basis. Particular concern will have to be given to situations where the dominant undertaking is bundling its monopolistically supplied product with a (potentially) competitively

[107] see, e.g., Nalebuff (2003) or Inderst (2003)

supplied product and the bundle cannot be replicated by its competitors. Some knowledge about anti-competitive tying and bundling practices may be gained in course of the market analysis.

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 4.2.4.3, 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 operator and its competitors, in particular with regard to their access to financial resources.

As prices below (average or marginal) costs are frequently part of 'innocuous' 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.

4.3.2 Bundling/Tying

A bundling decision of an SMP undertaking 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 not be imposed ex ante to all types of bundles, as this may rule out cases of welfare-enhancing bundling. Rather, the SMP undertaking might be obliged 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. The assessment of the bundle should follow clear guidelines stating when a bundle is considered to be anti-competitive. NRAs may also prohibit the SMP undertaking ex ante from bundling or tying practices which have been found to be anti-competitive in course of the market analysis.

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 4.2.3.3. 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.

4.3.3 Cross-subsidisation

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, i.e., predatory.

In all such cases, 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 market power 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.

4.4 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 attempt to 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.

4.4.1 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 'generic competition problems' of Chapter 1:

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

4.4.1.1 Relevant concepts: Incentives for entry-deterrence

As above, an undertaking will be said to have an incentive to engage in certain behaviour if it can increase its profits in this way.

According to economic analysis, switching costs allow firms to exert market power over their existing customers and thus create the potential for monopoly profits. If switching costs can be created endogenously (i.e., by the behaviour of the dominant undertaking), they can help the dominant firm to deter entrants and/or to maintain a dominant position in the market. Examples for endogenous consumer switching costs are lengthy contract duration and excessive penalties in case of premature termination, loyalty programs, special rates for closed user groups, or the strategic design of the wholesale product (e.g. compatibility with other products the rivals' products are not compatible with).

Entry may also be deterred by exclusive contracts between the dominant undertaking and either a wholesale input supplier, which provides its services only to the incumbent, or a retail undertaking obliged to buy its services only from the incumbent. Although exclusive dealing

arrangements might be efficient (and thus welfare-enhancing) in some cases, they also can be used by the dominant firm to deter efficient entry.[108]

Under certain circumstances, an incumbent may be able to deter entry by overinvestment, i.e., investment in capacity beyond the optimal point in absence of an entry-threat. If the investments are sunk, the incumbent might be able to commit itself to an aggressive entry response.[109] Under other circumstances, however, overinvestment will make the incumbent 'soft', i.e., it will accommodate entry.[110]

Incentives for predatory pricing have already been discussed in section 4.2.4.3. The same reasoning applies in the case of single market dominance (case 3).

As a conclusion, it can be said that 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 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 NRF, first attempt to address it by wholesale remedies, and only if those are insufficient may impose obligations on the relevant retail market.

4.4.1.2 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

108 see Aghion/Bolton (1987)
109 see Dixit (1981)
110 'fat cat'-behaviour, see Fudenberg/Tirole (1984)

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.

Some product characteristic issues might – independent from an SMP position – already be covered by Art 17 FWD. 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.

4.4.1.3 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).[111]

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

4.4.1.5 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 the SMP undertaking is not able to earn returns on investments which serve as a device for entry deterrence.

4.4.1.6 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 4.2.4.3. Therefore, the same reasoning as above applies.

4.4.1.7 Conclusion on entry deterrence

The main conclusion from the incentive-discussion above is that entry deterring behaviour sometimes may have to be dealt with ex post either by the NRA or by the NCA (or jointly). The

[111] These are not SMP-obligations but general provisions of the NRF.

reason for this is that incentives for such behaviour are hard to detect and thus it might be difficult to predict if and how an SMP undertaking will engage in entry deterrence. Furthermore, it might be hard for NRAs to distinguish *anti-competitive* from *efficient* behaviour in the case of entry deterrence. Therefore such issues should be judged on a case-by-case basis.

If sufficient knowledge about entry deterrence is gained in course of the market analysis, however, most issues can be addressed *ex ante* via Art 9 (2) AD at the wholesale level and Art 17 (2) USD at the retail level.

4.4.2 Exploitative behaviour

An undertaking with market power is able to set prices above costs and earn supra-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 'generic competition problems':

3.6. excessive pricing
3.7. price discrimination

4.4.2.1 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.

4.4.2.2 Excessive pricing

Excessive pricing on the wholesale market has already been discussed in Section 4.2.2. 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 NRF, 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 operator without regulation, another option would be – as for the predatory pricing problem described in Section 4.2.4.3. – 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.

4.4.2.3 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 should not be prohibited ex ante, however, but should be dealt with 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 prenotify 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 FWD. This judgement should be based on guidelines to be set out by the NRA.

4.4.3 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. Monopolies or 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 generic 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.

4.4.3.1 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.

4.4.3.2 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 an LRIC-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[112] 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 have to ensure that quality is not degraded, as the dominant operator may be able to increase its profits by saving costs on quality.[113]

4.4.3.3 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 4.2.3.5. 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 cannot directly be targeted by NRAs. Indirectly, however, quality is 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.

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112 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.

113 see, e.g., Intven (2000, Module 4 – price regulation, p. 4-30)

4.4.3.4 Conclusion on productive inefficiencies

Productive inefficiencies related to excessive costs and insufficient investment can – at least to some extent – be dealt with by calculation of an access or retail price (or price cap) based on a (hypothetical) efficient undertaking.

Quality-issues may be dealt with at the wholesale level by specifying quality parameters under an Art 9 (2) AD obligation to publish a reference offer, by attaching quality obligation to an Art 12 AD access obligation, or – to some extent under Art 10 AD. At the retail level, quality issues can – apart from the universal service provider and the provider of the minimum set of leased lines – only be dealt with indirectly via the wholesale level.

4.4.4 Conclusion on case 3

In case of single dominance on a particular market, NRAs have to be concerned about (i) entry deterrence, (ii) exploitative behaviour, and (iii) productive inefficiencies. Whereas exploitative behaviour and productive inefficiencies usually can directly be addressed by ex ante remedies of the NRF, this is not necessarily the case for entry deterrence. As there usually will be considerable uncertainty if and how an SMP undertaking will engage in entry deterrence, such cases may have to be dealt with ex post.

4.5 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.

Four ‘generic competition problems’ have been identified in such a setting (see Chapter 1):

- 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.[114]

4.5.1 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 1, the setting of reciprocal termination charges will result into 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.

4.5.2 Excessive pricing

This problem is likely to arise in a F2M termination situation. Excessive pricing of the termination service will lead to allocative inefficiencies even if the profits made are competed away on the retail market.

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

On the wholesale termination market, the problem can be targeted 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. In course of a regulatory option appraisal it should be taken into account, however, that cross-subsidisation from the termination to the retail business may increase penetration on the mobile market and thus may – to some extent – increase 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 should be taken into account when the access price is determined.

Other remedies are unlikely to solve the problem on their own: NRAs may attempt, for example, to enable fixed network customers to identify the mobile network they are calling or make prices for such calls transparent. Although such measures might bring prices down somewhat, the termination-monopoly continues to exist, and prices will still be set at the monopoly level, even under perfect transparency (without transparency, prices are likely to be even above the monopoly level).

Reciprocal F2M termination charges also seem unlikely to be optimal as the costs of termination in the two networks might be very different. Welfare-maximizing termination charges should reflect such differences in costs.

When setting the access price, NRAs should take into account that, in the short term, new entrants do not benefit from economies of scale (and possibly scope) to the same extent as the incumbent. Analogous to the point made above in the context of retail-minus, NRAs may decide to allow smaller networks to cover their (statically) inefficiently high costs wherever the dynamic advantages from competition are likely to more than outweigh the short-run disadvantages. If a short term cost oriented access price was applied to new entrants, this would lead to a price far above the average of termination prices in the market, as high initial investments in coverage are required to provide mobile services, but traffic will still be rather low, leading to high costs per minute of use, which may prohibit the commercial success of the entrant. Where price regulation is appropriate some member states already use long-range dynamic cost models. Cost based prices (irrespective of the answer to the question on which methodology they are based) are likely to be a ceiling for termination charges. 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 to horizontal externalities and the limited consequences of an increase in their termination rates on the consumers perception of tariffs for calls to mobiles. On the other hand, from a broader perspective this potential increase in market power might be levelled off in certain circumstances due to a lack of market power in other market contexts. However, as the new

entrant may still have incentives to set termination rates above what is regarded to be socially optimal, NRAs might consider to regulate the termination rates to a level that is comparable to what earlier entrants have asked for in the national market (delayed reciprocity) or according to international benchmarking. Also, NRAs may find it justified to make temporary amendments or adjustments to the general price control remedy for new players, to promote competition. These adjustments may entail the obligation to offer ‘fair/reasonable’ prices as a method of ensuring that the investment incentives of new entrants are retained.

The problem with both of these approaches is, however, the question when the ‘grace period’ should end, as NRAs will not only have to take into account the current costs of the entrant, but also have to consider whether or not the entrant is able to effectively compete in the market, to gain market shares and to bring down its average costs per minute. NRAs will have to formulate expectations about a reasonable period of time until when the price may become regulated, taking into account the competitive situation in the markets, as otherwise more efficient operators in the market might be put at a competitive disadvantage.

Text-box 3: International mobile roaming

International roaming is a service whereby a mobile phone user makes and/or receives calls when abroad. This service is generally provided as part of a bundle of mobile services at the retail level and is facilitated at the wholesale level through wholesale international roaming agreements between the host operator and operators in the visited country. The wholesale demand for roaming services is hence derived from the retail level.

Competitive concerns with respect to international roaming services refer predominantly to high and sometimes nationally uniform prices at the wholesale level, correspondingly high prices (if compared with similar services) at the retail level and a decoupled (frequently oppositional) development between these tariffs and comparable (more competitive) retail services.

International Roaming Agreements are concluded individually between MNO’s who are members of the GSMA. The contracts are based on the Standard International Roaming Agreement set up by the GSMA, which provides a standardised contractual framework. Tariffs (IOTs - Inter Operator Tariffs), are determined in an own Annex and might be differentiated according to destinations of calls (fixed or mobile), peak - off-peak, geography, etc. and are offered on a non-discriminatory basis to all other MNOs. The IOTs are not reciprocal, are posted at the GSMA-Infocenter and hence

transparent to all other MNOs (with the exception of those of the home country of the operator). Further to this, they are rather stable over time, as a change in IOTs would require changing all individual contracts with other MNOs.

However, while IOTs are offered on a non-discriminatory basis to all operators requesting international roaming services, it has been observed in the recent past, that increasingly IOTs are supplemented by individual discount schemes based on traffic, traffic growth and other factors that break the convention of non-discrimination. This is supported by technological developments (over the air programming technologies) that make it increasingly possible for MNOs to direct traffic to a particular foreign network providing thus incentives to give discounts (increasing demand elasticity). This is particularly important as currently neither the retail demand side (due to a lack of information, complex manual handling etc.) nor the wholesale demand side (despite the fact that preferred operator's were stored on the SIM-card) are able to develop sufficient competitive pressure to lowering tariffs for international roaming (with the exception of some groups of business customers in countries with fierce competition on the mobile retail market). Further to these trends, it has to be noted that international alliances and co-operations between MNOs increasingly lead to a bundling of demand in negotiations and enforce the pressure to implement traffic directing facilities.

Against this background one can conclude, that markets for international roaming are (still) overwhelmingly characterised by high barriers to entry, high horizontal market transparency, low demand elasticity due to the existing network selection mechanisms (and hence limited incentives to lower tariffs), the role of international organisations and the convention of non-discrimination on IOTs. These and further factors might lead to the conclusion of an NRA that either single or joint dominance may exist in a given market. However, in deciding about regulatory interventions, NRAs will also have to take into account recent developments of increasing transparency at the retail level (e.g. the GSM Europe Code of Conduct for Information on International roaming retail prices), the development and implementation of over the air programming facilities which may result in a larger number of discount agreements to the IOTs and the emergence of international alliances with flat rate retail tariffs (with the consequence of reduced wholesale transparency). All of these factors could strengthen the demand side and lead to increasing competition at both the wholesale and the retail level such reducing competitive concerns. However, NRAs will also have to consider the fact that these developments are sometimes ambivalent in itself, as e.g. international alliances together with traffic directing technologies may lead to concerns that MNOs which do not belong to such a group may no longer be chosen as international roaming partner even if prices are lower, for other reasons.

If NRA's in their market analysis come to the conclusion that the above trends are not likely to overcome existing problems in the foreseeable future, they may first consider mechanisms to strengthen the wholesale demand side by abolishing the non-discrimination principle for IOTs. There is some concern that this principle removes the incentives for MNOs to argue vigorously for a reduction in tariffs as any benefit they achieve will be immediately passed on to their costumers. However, such an obligation may not easily be implemented as there are not only doubts whether a formal non-discrimination clause exists but also whether the GSMA can be formally restricted by regulations of the NRF. NRAs also have to be aware that whenever an SMP position is found, a non-discrimination clause will implicitly always be in place based on antitrust rules. In general, NRAs will need to take into account the GSMA activities when considering the most appropriate regulation to impose on individual operators.

For this reason, neither wholesale transparency nor a non-discrimination obligation might be adequate to solve competition problems in wholesale International Roaming markets and NRAs may consider to impose price controls and cost accounting obligations under Art 13 AD, which may need to be supported by an obligation of accounting separation (Art 11 AD). As NRAs will only be able to impose such obligations on their national MNOs in their roles of sellers of international roaming services, the benefits of this obligation will accrue the MNOs in other countries (which may or may not pass them on to their customers) while some of the costs are potentially carried by domestic customers. For that reason, a price control intervention should be based on a mutual co-operation between NRAs of different countries.[115] The imposition of this obligation at the wholesale level may not lead to decreases in the International Roaming retail prices, since the operators can counterbalance the consequences of those actions with adjustments in the retail market. Also, the high International Roaming retail prices can result from high margins of the operators at the retail level, and not only from excessive pricing at the wholesale level. Additionally, one can argue that the imposition of price controls and cost accounting obligations could be disproportionate. In this case, and if technological developments are able to develop substantial competitive pressure, it might be sufficient to promote higher transparency of tariffs in the retail market.

[115] The competition problems concerning International Roaming are, given their nature, international and, therefore, parallel and co-ordinated action limited to few countries can significantly increase the risk of undesired distorting cross-border effects. Similar distorting effects may occur if regulatory changes are not co-ordinated in time between countries.

4.5.3 Price discrimination

Incumbents may attempt to foreclose 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 into high off-net and low on-net tariffs on the retail market which put entrants with a small customer base at a disadvantage. The problem is most likely to occur in case of M2M interconnection, where operators discriminate between on-net and off-net prices on the retail market.

Again, 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). Prices at cost-oriented levels are likely to resolve the foreclosure problem.

Alternatively, 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) might be considered. On its own, however, this obligation, even in combination with an obligation of accounting separation (Art 11), is unlikely to be sufficient to achieve the intended aim of regulation, i.e., termination tariffs at a competitive level. Although such an obligation would make the costs of terminating on-net calls visible, the SMP operator 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.

4.5.4 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 has 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.

4.5.5 Conclusion on case 4

If network operators have SMP on the markets for call termination on their individual networks, the following competition problems may emerge:

- Networks which are in competition with one another on the retail market may set interconnection charges such that tacit collusion can be maintained between separate markets;
- Networks may charge prices above costs to other networks they are not competing with on the retail market;
- Price discrimination between on-net and off-net calls may erect barriers to market entry; and
- Networks might refuse to interconnect with new entrants in order to erect barriers to market entry.

Whereas the tacit collusion result is likely to emerge only under a number of specific circumstances (symmetric networks, no market entry, etc.), operators with SMP on their call termination markets usually will have incentives to raise termination charges above costs to extract profits (monopoly rents) from the termination business and/or to increase barriers to new entrants. To prevent market entry, SMP operators usually also will have incentives to deny interconnection to new entrants.

In cases where SMP on individual call termination markets is found, therefore, an obligation to interconnect together with an obligation to set prices at cost-oriented levels appears proportionate and justified. In the case of new entrants, NRAs may decide to leave termination charges unregulated or set them by means of benchmarking, as a cost-oriented termination price is – given the small scale of the entrant – unlikely to lead to a reasonable outcome.

4.6 Joint dominance

As stated in Art 14 FWD and the SMP-Guidelines, an SMP position can either be held by a single undertaking or jointly by two or more undertakings.

Joint dominance may be the result of either explicit collusion, where undertakings enter into agreements with regard to their behaviour towards customers or competitors, or the result of tacit collusion, where explicit agreements are missing but market condition are such as to soften

competition between undertakings and support common conduct. Either form of collusion is only likely to occur under specific circumstances like market maturity, small number of equal-sized firms, etc., as specified in the SMP-Guidelines.

With joint dominance, basically all of the competition problems discussed above may emerge (although problems of excessive pricing are particularly likely to be observed in case of tight oligopolies). Therefore, the principles developed above also apply in cases of joint dominance. Wherever possible, NRAs should promote market entry into highly concentrated industries either by making available necessary inputs which cannot be replicated, by promoting – where appropriate – investments in alternative infrastructure, or by preventing the SMP undertakings from erecting endogenous barriers to entry. As soon as the number of firms increases and firms of different size exist, tacit or explicit collusion is likely to collapse. Where market entry is unlikely to occur, the adverse effects of market power (like excessive pricing or inefficiencies) will have to be dealt with directly by the NRA.

4.7 Summary

This section aimed at providing a link between the competition problems identified in Chapter 1 and the remedies available according to NRF as described in Chapter 2. Remedies have to be effective, proportionate, and justified in the light of the goals of the NRF as set out in Art 8 FWD (promote competition, contribute to the development of the internal market, and promote the interests of the EU citizens). Chapter 3 provides details on principles to be applied by regulators in choosing appropriate remedies, which are – as far as possible in a generic framework – applied in this chapter.

The imposition of remedies is the last step of the process of SMP regulation as set out in the NRF (Art 15 and 16 FWD). In the two previous steps – market definition and market analysis – NRAs will have gained knowledge about the level of competitiveness in a certain market, will have designated one or several undertakings as having SMP (if the market is not effectively competitive), and will have investigated the impediments to competition. Furthermore, as remedies are exposed ex ante, NRAs have to be aware of the incentives an SMP undertaking has to engage in a certain type of behaviour and have to consider possible changes in the incentives which may result from regulation. In practice, there is a range of other circumstances like national particularities or transnational effects, which have to be taken into account by NRAs when designing remedies as well, but as this document aimed at developing a general framework, they were not further considered in this context. The conclusions from this chapter therefore should be regarded as guidelines and do not prejudice any conclusions which NRAs may draw based on a detailed market analysis.

In Chapter 1, four relevant market constellations have been identified: (i) vertical leveraging, (ii) horizontal leveraging, (iii) single market dominance, and (iv) termination. In this framework, 27 competition problems have been identified, which may be divided into two broad groups: 'endogenous entry barriers', which is every behaviour of the SMP operator to exclude competitors from the SMP market or from a related market, and 'exploitative behaviour and inefficiencies', which is not aimed towards competitors but rather towards consumers, either by charging them above-cost prices or by inefficient production or the delivery of low quality. By preventing the SMP undertaking from the erection of endogenous barriers to entry, NRAs will promote market entry and competition in those markets where exogenous barriers to entry are limited. In order to promote sustainable competition, NRAs have to set investment incentives such that the incumbent's infrastructure is replicated wherever this is economically sensible. Where competition is unlikely to emerge either due to high exogenous barriers to entry or (at least in the short run) due to the incumbent's first mover advantages, NRAs have to protect consumers against exploitative behaviour and inefficiencies.

In case 1 (vertical leveraging, as pervasive in communications markets), an operator disposes of market power at the wholesale level and has incentives to either exploit its market power by charging an excessive price for its wholesale input, or – if this should for some reason not be possible – to foreclose the retail market and charge an excessive price there. If replication of the upstream input is unlikely to occur, e.g. due to significant economies of scale and high sunk costs, the only way to simultaneously bring down prices from an excessive level and promote competition on the downstream level is to ensure access to the input at a cost-oriented price. Therefore, an Art 12 AD access obligation in combination with an Art 13 price control and cost accounting obligation (possibly backed by an Art 11 obligation of accounting separation) appears to be appropriate and justified. Obliged to provide access at cost-oriented prices, however, a vertically integrated undertaking will usually have incentives to frustrate downstream competition by means of non-price discrimination. Therefore, obligations according to Art 9 and 10 (obligation of transparency, in particular the obligation to publish a sufficiently unbundled reference offer, and obligation of non-discrimination) will usually have to be imposed together with Art 12 and 13. Where the danger of a margin-squeeze exists, NRAs may also decide to impose retail price controls according to Art 17 USD.

Where market power on the upstream level is likely to be eroded within a reasonable period of time or where excessive prices and/or inefficiencies are not a big concern, NRAs may decide to set the access charge by means of retail-minus. This is unlikely to bring prices down from an excessive level, however, under some circumstances the incentives to discriminate against alternative operators are reduced. If justified, retail-minus might also be applied to emerging markets, where it is particularly difficult to determine a 'reasonable rate of return', in order not to stifle incentives to invest and innovate.

By the decision 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. In this context, NRAs have – in order to promote self-sustained competition – to ensure that the access obligation(s) and the access price are such that alternative operators have incentives to replicate the infrastructure of the incumbent wherever this is economically sensible. 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 are likely to prevail, NRAs should adopt a more 'neutral' approach (e.g. setting a cost-based access price) and should continue to monitor the market. If the advantages from infrastructure competition are likely to outweigh possible (static) inefficiencies from replication, NRAs may 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 up the 'ladder of investment' which will finally allow them to phase out regulation in those markets where replication has occurred. Investment incentives may also change over time due to market dynamics, leading to replication without additional regulatory intervention. 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.

An SMP undertaking might not only attempt to transfer its market power to a vertically related market, but may also try to leverage it to a horizontally related market. This might be done either by means of bundling/tying or by means of cross-subsidisation. Bundling and tying are frequently part of innocuous business strategies and therefore should not be ruled out by the regulator ex ante. NRAs could decide, however, to oblige the SMP undertaking to prenotify certain types of bundles, which are deemed to be detrimental to competition, to the NRA under Art 17 USD. Cross-subsidisation, on the other hand, should first be targeted at the market where the excessive profits are earned. Only if this is not possible or if the danger of predation prevails even in absence of excessive profits, NRAs may decide to impose price controls (e.g. an obligation to prenotify tariff-changes to the NRA under Art 17 USD) in order to prevent the SMP undertaking from charging a predatory price.

In case of SMP on a single market, three broad groups of problems can be identified: (i) entry deterrence, where the SMP undertaking attempts to erect barriers to entry, (ii) exploitative behaviour, such as excessive pricing and price discrimination, and (iii) inefficiencies. As the incentives for and the viability of entry deterrence strategies are hard to investigate ex ante, and as it might be hard to tell whether a particular type of behaviour is deterring entry or is only part of an innocuous business strategy, such issues sometimes may have to be dealt with ex post on a case-by-case basis. If sufficient knowledge about entry deterrence is gained in course of the market analysis, however, most issues can be addressed *ex ante* via Art 9 (2) AD at the

wholesale level and Art 17 (2) USD at the retail level. Incentives for exploitative behaviour and the danger of inefficiencies, on the other hand, clearly exist wherever market power is present. Where such problems exist, NRAs should first attempt to promote market entry and sustainable competition, which will usually solve such problems. Only where market entry is unlikely to occur or where the extent of competition can be expected to remain limited, the problems should be targeted directly. Whereas excessive prices and price discrimination may be dealt with by means of price controls (Art 17 USD at the retail level and Art 13 AD at the wholesale level), inefficiencies may be targeted in course of the access or retail price calculation by choosing an appropriate cost model. Quality issues can be addressed at the wholesale level by an Art 9 (2) obligation to publish a reference offer, to which provisions regarding the quality of service may be attached.

Case 4 (termination), is finally dealing with problems arising in the context of 2-way access between fixed and/or mobile networks. The problems which may emerge in such a context are tacit collusion, excessive pricing of termination services, market foreclosure by means of price discrimination, and market foreclosure by means of a denial to interconnect. The problems 1-3 of this list can all be addressed by setting the termination charge at a cost oriented level (Art 13 AD). In the case of new entrants, however, NRAs may leave prices unregulated or set prices other than cost-based, as cost-based prices are likely to be very high given the large fixed costs and the small scale of the entrant. A denial to interconnect can be dealt with by an Art 12 access obligation or – more general – by Art 5 AD.

As with joint dominance the same range of competition problems discussed in relation to single dominance are likely to emerge, the same remedies suggested above are relevant.

To conclude, while NRAs have to protect consumers against exploitative behaviour and inefficiencies wherever significant market power exists, the declared goal of the NRF is to promote self-sustaining competition and to limit regulation to 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.

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.[116]

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.[117] 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.

<u>Economies of scope</u> 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.[118] 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

116 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.

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

118 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.

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 regulator needs to be clear that the dynamic efficiency gains from competition will outweigh the short-term consumer disbenefits.

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.

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 regulator 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 regulator 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 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 actual 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 regulator.

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