

Challenges of the

EU *New* Regulatory
Framework (NRF)

in Electronic Communications:
An Economist's Perspective

ALF VANAGS

TeliaSonera Institute Discussion Paper No 3

Challenges of the EU
New Regulatory Framework (NRF)
in Electronic Communications:
An Economist's Perspective

By Alf Vanags¹

October 2005

¹ Alf Vanags is Director at the Baltic International Centre for Economic Policy Studies (BICEPS)

Contents

1 Introduction	6
2 The rationale for intervention: competition vs regulation	8
3 The NRF package	14
4 The NRF as economic engineering	15
5 Concluding remarks	27

Acknowledgements

Many thanks to Christopher Goddard who kindly proofread the text.

ISBN 9984-590-75-5

© Baltic International Centre for Economic Policy Studies (BICEPS)

Foreword

This is the third of the TeliaSonera Institute discussion paper series. The Institute, which is located at the Stockholm School of Economics in Riga and is generously supported by TeliaSonera, aims to promote applied economic research in areas such as entrepreneurship, regulation, and many other aspects of market economics. This discussion paper, on the new EU telecommunications framework in the Baltic context, was prepared by Alf Vanags for the Regulatory workshop organized by the TeliaSonera Institute in February 2005.

The first two discussions papers were on Venture Capital in Latvia and Entrepreneurship in Latvia, respectively. The themes for future discussion papers include: the market for telecommunications in Latvia and entrepreneurship in transition economies. Copies of the discussion papers can be ordered from the SSE Riga library.

Anders Paalzow
Rector, SSE Riga

Alf Vanags
Director, BICEPS

1 Introduction

The EU's new regulatory framework (NRF) for electronic communications, introduced in July 2003, is now also in the process of implementation in the New Member states (NMS) including in the three Baltic states. Underlying the NRF is the idea or principle that, where feasible, competition (and competition policy) represents the best instrument for 'regulating' the various segments of the telecommunications sector (extended under the NRF, because of the emergence of digital convergence, to include the electronic communications sector as a whole).

However, since it cannot be taken for granted that competition can prevail in all segments of the sector, the NRF envisages that 'old style regulation' (*ex ante* regulation) will continue to be applied in segments where competition and competition policy are deemed insufficient to ensure an efficient market outcome.

Thus within the NRF the national regulatory authorities (NRAs) will be expected to undertake the following tasks:

- Identify the segments or markets that may require *ex ante* intervention.
- Determine whether, in any particular market, intervention is actually needed.
- Determine the form of intervention, i.e., determine the remedies or obligations to be imposed.
- Monitor and evaluate the outcomes.

The Commission has produced a variety of recommendations, guidelines, and the like, to assist the NRAs in these tasks. The overall aim is "to establish a regulatory framework, in accordance with internal market principles, for the relationships between suppliers of networks and services that will result in sustainable competition, interoperability of electronic communications services and consumer benefits" (ERG Common Position 2004, p 57).

However, if the framework is to be properly implemented (as opposed to mechanistically applying the rules and guidelines), then these requirements represent a formidable task for the NRAs – indeed, arguably, implementing the NRF represents an unprecedented attempt at 'economic engineering'. The challenge is especially formidable in the NMS where the capacity of NRAs to undertake the required analysis is limited.

The purpose of this paper is to examine the NRF and its implications from an economic perspective (as opposed to a legal one), especially in terms of the challenges it presents for NRAs in the NMS such as the Baltic countries. Questions that arise in this context include:

- How far does the NRF offer well defined operational guidelines for NRAs?
- Does the economics profession possess the 'economic technology' to implement the NRF?

The remainder of the paper is divided as follows: the next section offers a general discussion of the relative role of competition and regulation in delivering economic efficiency in sectors characterized by scale economies on both supply and demand sides as is widely believed to be the case in telecommunications; section 3 briefly describes the NRF package; section 4 examines the operational problems in implementing the NRF in such a way as to actually and demonstrably deliver its objectives; finally there is a brief concluding section.

2 The rationale for intervention: competition vs regulation¹

In a perfectly competitive market, firms produce efficiently and sell to consumers at marginal cost with the result that the market generates a socially efficient outcome. In practice, no real world market has all the properties that are necessary for perfect competition to prevail. Such properties include the following: a homogeneous product, perfect information for all market participants, as well as price taking by all firms and consumers. In many markets, the deviation from perfect competition is sufficiently small to be dealt with by rather simple forms of public intervention, such as rules on weights and measures or labeling of contents or, in the case of services such as medicine, the licensing of practitioners. In other markets the degree of ‘market failure’ has been deemed sufficiently large to justify comprehensive regulation – encompassing licensing, surveillance, and price controls.

The electronic communications sector as a whole has a structure that is about as far away from the simple economics textbook description of a perfectly competitive industry as one can get. It has at least the following features that suggest a potential for deviation from the perfectly competitive ideal and which, needless to say, also make analysis extremely difficult:

- A typical firm (undertaking) is a multi-product producer.
- Economies of scale are often present.
- Economies of scope are also often present.
- Upstream downstream linkages (wholesale/retail).
- Bottleneck problems.
- Apparently different products or services can be close substitutes in demand.
- Demand side complementarities.
- Supply side complementarities (bundling).
- Exogenous entry barriers, e.g., technology.
- Endogenous entry barriers.
- Fixed costs are often significant (infrastructure).
- Marginal costs of particular services are often negligible.
- Network externalities.
- Markets for particular products typically sustain a small number of competitors.
- High rate of technological development.
- High rate of product innovation.

Some of these features have always been present in the sector, while some are the result of liberalization of telecommunications in the 1990s, and others are the result of technological innovation. Economic theory suggests that the presence of just some of these factors is likely to lead to market failure and hence there is a presumption of a need for intervention in the form of ex ante regulation. Thus the presence of fixed costs, economies of scale and scope, and network externalities in traditional fixed line services have pointed to an integrated monopolist as the socially efficient market structure. In turn, ex ante regulation in the form of price capping is an appropriate remedy to the monopoly problem that this generates.

Recent innovations in technology have generated both new products (e.g., mobile services) and new possibilities for entry into traditional markets for services. These developments have created the potential for competition in many segments of the telecommunications and electronic communications sector that either did not exist before or were perceived as not existing. Moreover, these developments in the marketplace have occurred in an intellectual climate where competition, rather than ex ante regulation, has been increasingly seen as a more effective instrument for securing socially desirable outcomes.

These changes of perception are well put by the ERG Common Position 2004: “Economic theory and technological development have challenged the former assumption that these services could only be delivered by a vertically integrated monopoly. It is now recognised that not only is competition feasible in many of the layers of the value chain but that this competition delivers static and dynamic benefits to consumers.” (p17).

Nevertheless, it is acknowledged that competition is not automatically feasible in all segments or markets. Indeed, within the NRF the Commission has identified no less than 18 markets where prima facie there is a presumption that competition may fail and hence ex ante regulation may be desirable.

Why might competition fail?

In economic terms, the failure of competition and the desirability or otherwise of regulation almost always depends in one form or another on the presence or absence of economies of scale. If there are no economies of scale in a particular activity, then it can be efficiently reproduced by many providers with the implication that incumbent operators do not have cost advantages over potential entrants and hence excessive prices and unusually high profits will induce competitive entry by new operators. By contrast, if there are economies of scale the market may be able to sustain just one or a few providers and the incumbent operator may have a significant cost advantage as compared with potential new entrants.

In other words, economies of scale lead to endogenous entry barriers and in the absence of economies of scale only legal or other artificial barriers to entry can prevent the emergence of competition.

In the telecommunications industry, returns to scale may be present on both the supply side and on the demand side in at least the following forms:

- Decreasing costs as the coverage of a given service expands.
- Decreasing costs as the density of a given service increases within a given location.
- Network externalities.

¹ Parts of this section rely closely on the excellent article by Bergman (2004).

The telecommunications industry typically provides a communication service between different geographical locations. Hence it is sometimes useful to distinguish between returns to scale and returns to density (or economies of density). There are returns to scale when average costs falls as the number of routes or lines served by one operator increases, or as the firm expands into a larger geographical area.

On the other hand returns to density occur when, on a given route or line or within a given geographical area, average cost falls as traffic on that route or line increases or as transactions volumes in that area grows.

Economies of density may be seen as a special case of economies of scale: economies of density appear when the scale of production increases within a given geographical area, but not when the scale of production increases by expanding that area.

An example of the implications for competition of the difference between returns to density and returns to scale may be found in mobile telephony. If there are returns to density in the provision of mobile services, then it may be efficient to have just one operator in a given area, but efficiency does not require that the area covered by each operator is large. Each mobile operator may be the monopoly provider in a relatively small area, such as a city, but the domestic market as a whole may be able to efficiently sustain several operators. Similarly, provided population density is roughly the same, the presence of returns to density, but without returns to scale, implies that mobile operators in small countries may be just as efficient as mobile operators in large countries.

On the other hand, if there are returns to scale but not returns to density in mobile telephony, then it may be efficient to have a large operator that is active in all geographical areas. Here it could be that a small country may not allow fully the exploitation of scale economies. To make matters complicated, it could be that both returns to scale and returns to density are present.

Thus in general a telecoms market must be defined in terms of at least two dimensions – one is the nature of the activity and the other is the territorial scope. These distinctions may have relevance for countries such as the Baltic states, which are both small and not very densely populated.

Matters are also complicated by the fact that telecoms provision is a multi-stage process, so that there may be economies of scale at one stage of the process but not at other stages. In particular in telecoms there is usually a distinction between retail and wholesale stages. This may lead to what is known as the bottleneck problem, whereby economies of scale at the upstream stage (wholesale) imply that the efficient market structure is a single operator. This may result in the firm that controls the infrastructure at the critical stage being unconstrained either by actual or by potential competition in that stage. Even though there is potential competition at the downstream (retail or service) stage, the upstream monopolist may be able to leverage its market power to the downstream stage. Indeed, if the other stages of the process are competitive then “the firm that controls one stage of the production will be able to earn approximately the same monopoly profit as that attainable by a vertically integrated monopoly” (Bergman 2004, p16). The structure of the bottleneck problem is shown in Figure 1 below.

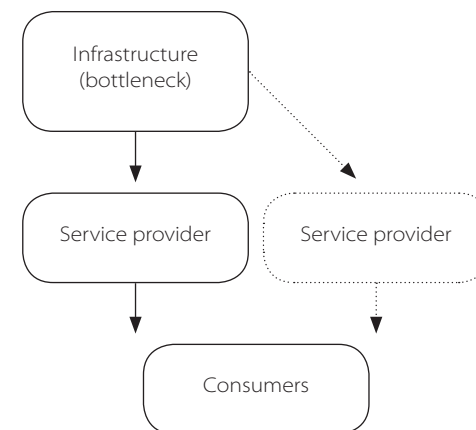


Figure 1: The bottleneck problem

Source: Bergman (2004).

An implication of the bottleneck problem is that promotion of competition in one stage of the production process may not be sufficient to achieve either an increase in efficiency or a reduction in prices to final consumers but may merely result in a shift of profits to the upstream bottleneck.

In telecoms markets there are also important returns to scale on the demand side in the form of network effects. In a market without network effects, consumers are concerned with only their own level of consumption together with the price and quality of the product. In a market with network effects, the consumer also cares about the presence of other consumers in the market. The benefit each person derives from participation in the market increases with the size of the market – the number of other consumers of the same product has a direct effect on the (marginal) utility of consuming a unit of the product. Telephones or faxes provide a good example of this effect – a given person’s utility from having a phone (or a fax) increases with the number of other people that also have phones (or faxes). In contrast to a supply side scale effect, the demand side effect comes from a higher benefit per consumer rather than from a reduction of costs.

The balance between competition and returns to scale

When there are increasing returns to scale policy, makers are likely to face a trade-off between competition and returns to scale as a means for achieving efficiency. There is a choice between the benefits of large-scale production (plus the effects of regulation) and the benefits of competition (plus possible abuses of market power). This choice is clearly relevant in the telecoms industry, which is believed to be characterised both by significant returns to scale and strong network effects. At the same time, it is evident that the introduction of competition in the process of the 1998 liberalization package has brought considerable benefits. The essence of the NRF is that it represents an attempt to address this trade-off at a very detailed microeconomic level

In textbooks, perfect competition delivers the best of all possible worlds. In the real world, lack of competition or the possession of market power on the part of one or more firms has a number of negative consequences, which include the following:

- Transfer of welfare from consumers to producers.
- Allocative inefficiency – market power means that price will exceed marginal cost and hence demand and the size of the sector will be reduced to below its optimal scale.
- Lack of competitive pressure can result in sub-optimal levels of effort and X-inefficiency with the result that costs are higher than necessary.
- The lure of a monopoly profit may generate socially costly lobbying and rent-seeking.

Traditional regulation is designed to address problems of the first and second type by price-capping or other similar measures. However, it has long been recognised that regulation may inadequately deal with the third type of problem – despite the use of price-capping schemes of the RPI-X variety or other mechanisms such as benchmarking or yardstick competition, which are aimed at inducing cost efficiency. On the other hand, real world competition (or the threat of competition) creates a direct and immediately understandable incentive to achieve cost efficiency.

The incentive to engage rent-seeking activities is an inevitable consequence of a regime in which licenses and permits represent a ‘license to print money’. Indeed, in extreme cases rent-seeking can absorb in terms of real resources an amount equal to all of the profits or rents that are competed over.

Regulation brings other problems, such as the risk that investment incentives may be reduced because of the belief that the regulator may exploit the regulated firm after it has sunk its investment cost. There are also the direct costs of regulation.

The limitations of the standard regulatory solution mean that, according to Bergman (2004):

“It may sometimes be justified to introduce competition even if an industry is a natural monopoly. Whether an industry – or a particular stage in the production chain – should be a monopoly or not depends on the benefits of competition relative to the magnitude of the economies of scale. It may simply be the case that the benefits of competition are big enough to make some duplication worthwhile. However, when an industry is a natural monopoly, the market may need a helping hand, in the form of regulation, for competition to be established at all” (p13).

This appears to correspond to the thinking behind the NRF with respect to its emphasis on the potential benefits of infrastructure competition

The evidence

In practice the policy choice between competition and returns to scale depends on the relative empirical importance of these effects. Bergman (2004) reports on the evidence in the literature on both returns to scale and on the effect of introducing competition into previously regulated markets.

Based on Bergman’s survey of the literature, it seems that evidence on supply side returns to scale in telecommunications is mixed. Sung and Gort (2000) report little sign of returns to scale from a sample of Local Exchange Carriers (LECs) in the US – in fact they report that the two largest LECs actually operate on a scale where diseconomies of scale have set in. Fuss and Waverman (2002) report that some empirical studies find positive returns to scale and others find negative returns. Falch (2001) reports some simple comparative measures of productivity for a sample of operators from countries of different sizes and finds no clear evidence of positive returns to scale. In particular telecom operators from large countries (that is operators with a large number of customers) appear to be no more efficient than operators from small countries (operators with relatively few customers).

In other sectors of the economy, there is evidence that network effects are more important than cost-side returns to scale. For example, Guibourg (2001) reports this for the market for payment cards. According to Bergman (2004):

“It is likely that this is true also for telephone markets. In fact, the necessity of interconnection is taken for granted in the telecom industry, both in fixed and mobile telephony. Fixed telephony operators have to provide interconnection both for origination and termination, while mobile telephony operators have to provide interconnection for termination. In other industries, interconnection is not always taken for granted. Manufacturing industries, for example, often prefer to use proprietary standards if they see a chance to dominate an industry” (p 12).

On the price and cost benefits of competition, Bergman (2004) reports: “the introduction of competition in previously regulated markets normally gives rise to cost savings and price reductions in the 25-75 % range (Winston, 1998, and a number of OECD studies, referred to in Gonenc and Nicoletti, 2000). Based on an extensive review of the empirical literature on deregulation, Bergman (2002) arrives at the conclusion that a more realistic prospect is savings in the 5-10 % range” (p 13).

3 The NRF package

The full package of the NRF is contained in a number of documents issued by the European Commission.

Firstly there are the following 5 directives:

- Framework Directive.
- Authorisation Directive
- Access Directive.
- Universal Service Directive.
- Data Protection Directive.

These are fleshed out firstly through the Commission Guidelines on market analysis and the assessment of significant market power (2002/C 165/03), which lays out the principles that NRAs must follow in defining dominance or significant market power (SMP) in a given market. Next, there is the Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation (2003/311/EC), which identifies a set of 18 markets which the Commission has assessed as potentially possessing operators with SMP. Finally, there is the ERG Common Position on the approach to appropriate remedies in the new regulatory framework (ERG 2004), which identifies and in detail discusses:

- 27 competition problems that may arise in markets where one or more operators possess SMP,
- 5 remedies or obligations that may be applied,
- 4 principles for imposing remedies that should be followed by NRAs.

These documents collectively define the sequence of three steps to be taken by the NRAs in implementing the NRF. These are as follows:

1. Definition of markets that prima facie may require regulatory intervention.
2. Investigation of the selected markets to assess whether they contain operators with SMP and hence require intervention.
3. In markets where there is one or more operator with SMP, apply appropriate or proportionate remedies.

4 The NRF as economic engineering

Article 8 of the Framework Directive defines the policy objectives of NRAs within the NRF. NRAs are required to:

- **Promote competition** in the provision of electronic communications networks, electronic communications services and associated facilities and services facilities. This can be achieved inter alia by ensuring the best price, choice, and quality for consumers through effective competition, efficient investment in infrastructure, and resource management.
- **Contribute to the development of the internal market.** This can be achieved inter alia by removing obstacles to pan-European networks and services and ensuring a consistent regulatory practice across the community.
- **Promote the interests of the citizens of the European Union.** This can be achieved inter alia by ensuring universal access and protecting the rights of consumers and in particular those with special needs. The Universal Service Directive sets out the powers that NRAs enjoy in order to ensure that these objectives are met.

This is further amplified in the Common Position by:

“At the heart of the framework is the welfare of consumers. Competition is the process that guarantees that markets work to deliver enhanced consumer benefits. Competition delivers greater choice, quality and lower prices to consumers, which in turn make consumers better off. It is recognised in the Access Directive that in an open and competitive market there should be no restrictions, other than normal competition rules, on normal commercial negotiations for access and interconnection.” (ERG 2004, p 57)

However,

“it is also made clear that in markets where there continue to be large differences in negotiating power between undertakings, and where some undertakings rely on infrastructure provided by others for delivery of their services, it is appropriate to establish a framework to ensure that the market functions effectively. National regulatory authorities should have the power to secure, where commercial negotiation fails, adequate access and interconnection and interoperability of services in the interest of end-users. Within the confines of these circumstances, policymakers have given NRAs a presumption that regulatory intervention is warranted in order to enhance the welfare of consumers” (ERG 2004, p 57).

So, we have firstly a ‘grand vision’ of what policy-makers aim to achieve together with the ‘welfare of consumers’ as the core criterion for action. Then there is the presumption that competition is the best means of achieving the aims of the grand vision. Finally, it is recognized that, in electronic communications, there may be circumstances where competition is either not feasible or is not desirable or both, so that in such circumstances the NRAs should act as ‘economic engineers’. That is, they correct the undesirable features of unconstrained market outcomes, in effect implementing what would be the ‘competitive outcome’ if competition were feasible.

Correcting for ‘market failure’ has always been the purpose of regulatory intervention – the difference here in the NRF is the scale and detail of potential intervention. The question arises – does the economics profession actually possess the ‘economic technology’ to do the job assigned to it in the NRF?

The remainder of this section will be devoted to examining the various stages or tasks required of the NRAs with respect to, firstly, feasibility – i.e., can the NRAs effectively deliver what is required of them? Secondly, do the guidelines, recommendations and the like provide a consistent set of principles for identifying the optimal policy?

Thus we shall consider in turn:

- Market definition.
- Market analysis.
- Emerging markets.
- Remedies.

Market Definition

This is the first stage of the process and here NRAs are required to define markets susceptible to ex ante regulation, taking into account national circumstances. However, there is a logically prior and crucial stage – namely the demarcation of markets. This is partly addressed in the Guidelines on market analysis, where it is stated:

“These guidelines specifically address the following subjects: (a) market definition; (b) assessment of SMP;(c) SMP designation; and (d) procedural issues related to all of these subjects.” (para 8, italics added).

or:

“The guidelines have been designed for NRAs to identify relevant national or sub-national product and service markets which are not listed in the Recommendation when this is justified by national circumstances” (para 9).

These statements are followed by an extensive discussion on the need for consistency between market definitions for NRF purposes and definitions for competition policy purposes and on the possible lack of such consistency in practice. Section 2 of the Guidelines on Market definition contains a discussion that in some degree conflates analysis aimed at market definition and analysis aimed at identifying SMP. However, in the end the principles for market definition or demarcation are spelt out in para 44 under the sub-head 2.2.1 The relevant product/service market, where we have:

“The relevant product/ service market comprises all those products or services that are sufficiently interchangeable or substitutable, not only in terms of their objective characteristics, by virtue of which they are particularly suitable for satisfying the constant

needs of consumers, their prices or their intended use, but also in terms of the conditions of competition and/or the structure of supply and demand on the market in question. Products or services which are only to a small, or relative degree interchangeable with each other do not form part of the same market. NRAs should thus commence the exercise of defining the relevant product or service market by grouping together products or services that are used by consumers for the same purposes (end use)” (para 44).

Supply side substitutability is also introduced into the argument, as is ‘chain substitutability’ which is defined as occurring when:

“it can be demonstrated that although products A and C are not directly substitutable, product B is a substitute for both product A and product C and therefore products A and C may be in the same product market since their pricing might be constrained by the substitutability of product B. The same reasoning also applies for defining the geographic market. Given the inherent risk of unduly widening the scope of the relevant market, findings of chain substitutability should be adequately substantiated evidence should show clear price interdependence at the extremes of the chain and the degree of substitutability between the relevant products or geographical areas should be sufficiently strong” (para 62 and footnote).

Thus the demarcation of markets is meant to be based on various substitutability concepts and this is fine. However, in practice no truly operational guidelines are offered. The best we get is the ‘so-called hypothetical monopolist test’:

“Under this test, an NRA should ask what would happen if there were a small but significant, lasting increase in the price of a given product or service, assuming that the prices of all other products or services remain constant (hereafter, ‘relative price increase’). While the significance of a price increase will depend on each individual case, in practice, NRAs should normally consider customers’ (consumers or undertakings) reactions to a permanent price increase of between 5 to 10 %. The responses by consumers or undertakings concerned will aid in determining whether substitutable products do exist and, if so, where the boundaries of the relevant product market should be delineated” (guidelines, para 40).

However, does this represent concrete guidance as to the value of cross-elasticity of substitution at which two different services should be regarded as belonging to the same market? Or – how small is the cross-elasticity of substitution at which services are regarded as “only to a small, or relative degree interchangeable”? The answer to these questions is rather crucial for step 2 of the exercise, namely the determination of SMP – the more narrowly the market is defined, the more likely it is that (ceteris paribus) the analyst will find the presence of SMP.

Thus, the markets for apples and oranges considered separately are likely to be more concentrated than the market for fruit, and the same is likely to be the case at more or less aggregated segments of the telecoms sector.

Moreover, it is precisely here that dynamic factors are particularly relevant in the electronic communications sector and also where the shortcomings of ‘economic technology’ become apparent. Thus the Guidelines require that:

“In carrying out the market analysis under the terms of Article 16 of the Framework Directive, NRAs will conduct a forward looking, structural evaluation of the relevant market, based on existing market conditions” (para 20).

or:

“relevant markets defined for the purposes of sector-specific regulation will always be assessed on a forward looking basis, as the NRA will include in its assessment an appreciation of the future development of the market” (para 27).

At the same time we have:

“Where available, an NRA should examine historical price fluctuations in potentially competing products, any records of price movements, and relevant tariff information. In such circumstances evidence showing that consumers have in the past promptly shifted to other products or services, in response to past price changes, should be given appropriate consideration. In the absence of such records, and where necessary, NRAs will have to seek and assess the likely response of consumers and suppliers to a relative price increase of the service in question” (para 49).

So NRAs are expected to be both forward-looking and to use historical evidence, too. The problem is that NRAs are unlikely to have the data to quantitatively estimate parameters such as the cross-elasticity of demand and that future developments in substitutability are not amenable to quantitative estimation.

This essentially corresponds to the deficit in ‘economic technology’, which consists of two elements:

- Firstly, NRAs are unlikely to have available the data to make quantitative estimates of key parameters needed to define a market.
- Secondly, even if it is possible to obtain reliable estimates of, say, cross-elasticities of demand, neither economic theory nor the Commission can define the exact value of the cross-elasticity at which two or more services should be regarded as part of one market.

In other words, in practice, market definition will inevitably be based on the judgment of NRAs. In the NMS it is unlikely that NRAs will choose to deviate from what they perceive as laid down by the Commission. Moreover, in the case of market definition there is a clear message running through the Commission materials that NRAs are not encouraged to engage in an extensive market definition exercise.

The ‘economic technology deficit’ problem is implicitly acknowledged in the Common Position, where it is stated:

“prospective quantification will necessarily be of a partial character and can in the best case only provide estimates of limited value e.g. indicating general trends such as the direction and in some cases the order of magnitude of expected effects. Hence, quantitative analysis where at all feasible will at best play a supportive role” (ERG, 2004, p 63).

Once markets are defined, the Commission Recommendation proposes three criteria on which the identification of markets susceptible to ex ante regulation should be based. These are:

- The presence of high and non-transitory entry barriers.
- An assessment of the dynamic state of competitiveness behind entry barriers.
- The sufficiency of competition law (absent ex ante regulation).

These criteria are cumulative in the sense that if one criterion does not apply the market should not be selected as susceptible to ex ante regulation. Thus even if there are high entry barriers but the NRA judges that behind the entry barriers there are developments that generate a tendency to effective competition, then the market should not be selected. Similarly, even if there are high entry barriers and these are not expected to be competed away, the market should not be selected if competition law is sufficient to deal with the competition problems that may arise in the market.

However, as de Stree (2004) points out:

“If this sufficiency criterion seems to follow common sense, it is difficult to apply in practice. Given its tools, competition law appears to be sufficient to deal with all problems created by every kind of market power. Therefore, it is reasonable to go from a sufficiency criterion to a relative efficiency criterion comparing the respective strengths of antitrust vs. sector specific intervention and base market selection on such a generic efficiency criterion” (p 8).

Nonetheless, the Commission does not appear to be enthusiastic about following this route with respect to the market selection stage of the process. This, despite the fact that the Common Position suggests that, when considering remedies, NRAs should consider alternative options and “in order to make the choices involved more transparent, NRAs may carry out an assessment of the regulatory options available, including a qualitative assessment of the anticipated benefits and potential costs of the option selected (“regulatory options assessment”)” (ERG, 2004, p 63).

If regulatory options assessment (ROA) is desirable at the level of remedies, then why not at the higher level of choice between ex ante regulation vs competition law?

Finally, there are some issues concerning the 18 pre-selected markets and what can be expected in the next Recommendation (anticipated for the end of 2005). In the Common Position, the ERG has claimed that the 18 pre-selected markets have been chosen on the basis of the three criteria (ERG, 2004, p 20). However, according to de Stree:

“The Commission was bound to include all the markets listed in the Annex I of the Framework Directive and there is no guarantee whatsoever that these markets would meet the selection criteria. Indeed the Annex I was not drawn on the basis of the three criteria (which even did not exist at the time of the drafting of the Framework Directive), but included all markets regulated under the 1998 framework plus one additional market (international roaming) inserted under the political pressure of the European Parliament. Thus, the Recommendation might have counted fewer markets where the criteria had been fully applied” (de Streel 2004, p 20).

Moreover, it is likely that the next Recommendation will contain fewer markets. According to de Streel:

“Fundamentally, the Commission will need to assess if there is facilities-based competition, i.e. if different networks compete against each other (being fixed telecom, fixed cable TV, mobile 2G or 3G, ...), or in other words if the much discussed convergence (fixed and mobile as well as telecom and broadcasting) is really taking place in the market. Thus, if the Commission were to conclude that there is substitution between fixed and mobile for narrowband and broadband services, then many markets should probably be removed from the next Recommendation. Similarly, if the Commission was to conclude there is substitution between telecom, cable and say powerline networks, much of the fixed markets may be removed” (de Streel, 2004, p20).

In fact, de Streel predicts that no less than 10 markets will be removed in the next Recommendation, while two will be added and another redefined². The problem for NRAs in the Baltics and other NMS is which list to go for – there is clearly an advantage in waiting for the new Recommendation before engaging in a time-consuming and difficult market analysis that may prove to be unnecessary.

Market analysis

For the markets selected as susceptible to ex ante regulation, the NRAs are required to undertake analysis to determine the presence of significant market power (SMP). Here, in contrast to the 1998 regime where a market share of more than 25% defined the presence of SMP, a more complex procedure based on competition policy principles is envisaged.

In the NRF the basic definition of the presence of SMP is:

“an undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors customers and ultimately consumers” (Guidelines, para 70).

Market share per se is explicitly ruled out as a criterion for SMP, thus it is stated:

“It is important to stress that the existence of a dominant position cannot be established on the sole basis of large market shares. As mentioned above, the existence of high market shares simply means that the operator concerned might be in a dominant position. Therefore, NRAs should undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power. In that regard, the following criteria can also be used to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers.

- overall size of the undertaking,
- control of infrastructure not easily duplicated,
- technological advantages or superiority,
- absence of or low countervailing buying power,
- easy or privileged access to capital markets/financial resources,
- product/services diversification (e.g. bundled products or services),
- economies of scale,
- economies of scope,
- vertical integration,
- a highly developed distribution and sales network,
- absence of potential competition,
- barriers to expansion.” (Guidelines, para 78).

It is then suggested that dominance “can derive from a combination of the above criteria, which taken separately may not necessarily be determinative” (Guidelines para 79). Moreover, an operator in one market may “be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking” (Guidelines, para 83).

It is also possible for the NRAs to find a position of collective dominance where:

“two or more undertakings can be found to be in a joint dominant position within the meaning of Article 14 if, even in the absence of structural or other links between them, they operate in a market, the structure of which is considered to be conducive to coordinated effects. Without prejudice to the case-law of the Court of Justice on joint dominance, this is likely to be the case where the market satisfies a number of appropriate characteristics, in particular in terms of market concentration, transparency and other characteristics mentioned below:

- mature market,
- stagnant or moderate growth on the demand side,
- low elasticity of demand,
- homogeneous product,
- similar cost structures,
- similar market shares,

² See the table on p. 22 of de Streel (2004).

- lack of technical innovation, mature technology,
- absence of excess capacity,
- high barriers to entry,
- lack of countervailing buying power,
- lack of potential competition,
- various kind of informal or other links between the undertakings concerned,
- retaliatory mechanisms,
- lack or reduced scope for price competition” (Guidelines, para 97).

It is stressed that the list is not exhaustive, nor is it cumulative. “Rather, the list is intended to illustrate the sorts of evidence that could be used to support assertions concerning the existence of a collective (oligopolistic) dominance in the form of tacit coordination” (Guidelines, para 98).

Moreover, according to the Common Position: “Where markets meet the 3 criteria test and qualify for ex ante regulation, NRAs do not need to show that an abuse of market power has actually occurred, but may impose remedies based on an SMP undertaking’s underlying incentives to exploit its market power” (ERG, 2004, p77).

Examination of these lists and the supporting arguments suggests that NRAs will not find it difficult to detect SMP if they are disposed to do so.

Also, the lack of precision in what constitutes SMP means that in practice decision-making on SMP will be dominated by legal arguments with only limited reference to the underlying economic principles.

Here, it may also be mentioned that efficient and equitable working of the NRF requires collaboration between NRAs and National Competition Authorities (NCAs). This is recognized in the Guidelines with the statement that “As the NRAs conduct their market analyses in accordance with the methodologies of competition law, the views of NCAs in respect of the assessment of competition are highly relevant. Cooperation between NRAs and NCAs will be essential, but NRAs remain legally responsible for conducting the relevant analysis” (Guidelines, para 135).

These are fine words but it is not hard to imagine that cases will emerge where apparently similar circumstances are dealt with differently by NRAs and NCAs. Of course, markets that can be dealt with by competition policy should not be under the jurisdiction of the NRA but the lack of precision in the guidelines means that in practice similar markets may end up on different sides of the divide.

Emerging markets

There is a special regime for emerging markets. From the Guidelines we have:

“As far as emerging markets are concerned, recital 27 of the Framework Directive notes that emerging markets, where de facto the market leader is likely to have a substantial market

share, should not be subject to inappropriate ex-ante regulation. This is because 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 such emerging markets by the leading undertaking should be prevented. Without prejudice to the appropriateness of intervention by the competition authorities in individual cases, NRAs should ensure that they can fully justify any form of early, ex-ante intervention in an emerging market, in particular since they retain the ability to intervene at a later stage, in the context of the periodic re-assessment of the relevant markets” (Guidelines par 32).

In addition, from the Common Position we have:

“The distinguishing feature of an emerging market is that the market is immature. This implies that on an emerging market it is not possible to make definitive findings on whether or not the three criteria [for susceptibility to ex ante regulation] are met.(ERG, 2004, pp 20-21).

The softer position adopted for emerging markets is justified on the grounds that the ‘true’ market situation may not be identifiable in the short run and that regulation can always be imposed later when the market situation is clarified. Other arguments that have been used include the following:

- premature regulation may distort technological progress;
- emerging markets may in practice be ‘contestable’ even though apparently dominated by one or a few operators;
- there is a need for innovative entrants to recoup their investments.

Of course all of these arguments can be applied to some degree to all markets. So, in practice the ‘emerging markets safeguard’ perhaps offers NRAs just another dimension for discretion.

Remedies

If the market analysis identifies the presence of SMP in a given market, the NRA is obliged to apply at least one of five standard remedies in the case of wholesale markets, and in the case of retail markets from a non-exhaustive list of retail remedies which include price caps and individual price controls. In the case of retail services, regulatory obligations can only be applied if measures applied at the wholesale level are insufficient to ensure effective competition.

The five standard remedies are:

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

Given that there is dominance in a particular market, the Common Position (ERG 2004) has identified 27 possible “standard competition problems” that might arise in such a market. These are grouped under four headings:

- Vertical leveraging – this is where an upstream operator attempts to transfer its market power to a downstream market. Examples range from refusal to deal, to withholding of information, to quality discrimination, to price discrimination and predatory pricing.
- Horizontal leveraging – here examples include bundling or tying, cross-subsidization.
- Single market dominance – here the problems range from various kinds of entry deterrence, to exploitative pricing, and to productive inefficiencies such as inadequate investment and low quality
- Termination – here, typical problems may take the form of excessive or discriminatory access pricing or a refusal to deal.

The application of remedies is linked to the theoretical problems that have been identified in the market analysis. That is, problems and remedies should be matched. For example, if an operator is practicing price discrimination then the imposition of the obligation of transparency may help. Or if prices are regarded as excessive, then cost-oriented prices may be the appropriate remedy.

This approach is fine in principle. However, as is made plain enough in the Common Position, “NRAs do not need to show that an abuse of market power has actually occurred, but may impose remedies based on an SMP undertaking’s underlying incentives to exploit its market power. The degree to which such incentives exist, and therefore the likelihood of an SMP undertaking exploiting its market power, should be inferred from the NRA’s market analysis” (ERG, 2004, p 77). This places much reliance on the competence and judgment of the NRA analysts. Moreover, as is discussed in section 5.2.2.2 of the Common Position on Setting the wholesale access price, there is no unique methodology for setting access prices.

As well as matching remedies to competition problems, the Common Position identifies four “Principles to guide regulators in choosing appropriate remedies”. These are:

- *Reasoned decisions*: “the NRA must produce reasoned decisions in line with their obligations under the Directives. This incorporates the need that the remedy selected be based on the nature of the problem identified. The problem(s) in the market will have already been identified in the market analysis procedure. Decisions must include a discussion on the proportionality of the remedy. These decisions should include, for any given problem, consideration of alternative remedies where possible, so that the least burdensome effective remedy can be selected. The decisions should also take into account the potential effect of the proposed remedies on related markets” (ERG, 2004, p 58).
- *Protection of consumers where infrastructure competition is infeasible*: “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” (ERG, 2004, p 59).

- *Promotion of infrastructure replication*: “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 ... when referring to replication ... 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” (ERG, 2004, p 59 and footnote).
- *Incentive compatibility*: “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” (ERG, 2004, p 59).

Principles 1 and 2 introduce nothing new and are clearly part of good regulation practice, as is the principle of incentive compatibility. However, principle number 3 hits the eye and introduces a quite different kind of intervention, especially as it is elaborated in the form of “bridging remedies enabling new entrants to progressively rollout their own infrastructure” (ERG, 2004, p 69).

Thus in section 5.2.2.3 of the Common Position on Incentives to invest it is stated: “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)”. (ERG, 2004, p 86)

This is certainly true and indeed it is followed by a discussion which suggests that too high an access price will generate inefficient duplication of an incumbent’s facilities, while “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” (ERG, 2004, p 87).

The immediate question is – how do we identify the ‘right’ access price? Without explicitly addressing this question, the Common Position goes on to elaborate the doctrine of ‘bridging remedies’:

“In order to promote investment into alternative infrastructure, NRAs may have to signal in their Reviews that they view some remedies as bridging a gap so that new entrants can more easily make incremental investment but that market players cannot base their long-term business models on the basis of these remedies alone. 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 as well as general investment conditions”. (ERG, 2004, p 87)

This in effect requires the NRAs to solve a complex dynamic optimization problem, which in practice is just is not feasible with the data available to them. The Common Position cites empirical evidence supporting the ‘ladder of investment’ entry strategy in the Netherlands. But this simply demonstrates that this is how some markets develop and not that NRAs should intervene to accelerate such development.

As is admitted in the Common Position:

“Wherever the incumbent’s network is opened to competitors at more than one level (e.g. local loop unbundling, carrier pre-selection and wholesale line rental), NRAs have to be careful to correctly design the relative prices of the different options in relation to one another and in relation to the retail prices prevailing in the market. Too low a price on one level may inhibit investment on another level, where replication may be desirable. If a new possibility of market entry is opened up by the regulator, therefore, it has to take into account the options which already exist and ensure consistency between them. NRAs should further make sure that frictionless switching from one access service to another, after additional infrastructure investments have been taken (migration), is possible, in particular with regard to the consumer’s perceptionFrom a dynamic perspective it is also particularly important to ensure investment incentives for the incumbent to maintain and upgrade its network in those sectors where a replication of assets is unlikely to happen.” (ERG, 2004, p 89)

Again this begs the question – how to determine the ‘correct relative prices’? The answer is, as before, that the economic profession cannot deliver a precise answer³, even in countries with much expertise and experience of the sector. In the NMS, with fledgling regulatory institutions, the prospects are very nearly hopeless and the risk is high of decisions that distort investment incentives.

³ This is in effect admitted in the ERG Opinion on Proposed Changes to Commission Recommendation of 1998 (ERG (04) 15rev1) where in the Annex in the section on Long Run Incremental Cost (LRIC) methodology it is stated in para 17 “The economic rationale behind this methodology is that it identifies the range (between the incremental cost ‘floor’ and stand-alone ‘ceiling’) between which a pricing signal could be considered rational assuming common costs are also fully recovered. It therefore helps NRAs in setting prices that neither encourages inefficient investment nor discourages efficient investment” (Italics added). In other words the LRIC identifies a range for efficient pricing and not a precise price. It should be added that calculation of LRIC in any given situation is itself subject to much uncertainty and judgment.

5 Concluding remarks

This paper has aimed at investigating from an economic perspective the ‘doability’ of implementing the NRF in electronic communications. The NRF aims to re-focus regulation “on areas where it is actually required” (ERG, 2004, p 9). However, examination of the materials offered to support the NRAs in their implementation of the NRF suggests that they have been set a task that is beyond the capability of current ‘economic technology’. The tools available to the economics profession are in most cases insufficient to generate reliable estimates of even quite simple parameters such as cross-price elasticities of demand. Moreover, even if such estimates are available, economic theory frequently fails to offer unequivocal guidance on how to characterize optimal policies.

These inadequacies add up to what has been termed here the ‘deficit in economic technology’ – essentially we have a situation where there is quite extensive theory but our ability to empirically implement it is limited. Indeed, the Common Position reads much like a textbook on the economics of regulation. The result of this is that the quality of regulatory policy will depend much on the judgment of NRA analysts.

Under regulation designed to correct static market failures, e.g., correction of excessive prices charged by a ‘natural monopolist’, the cost of regulatory mistakes is likely to be relatively limited. However, when it comes to dynamic issues as are involved in the proposed dynamic access pricing as part of the doctrine of ‘bridging remedies’, then the cost of mistakes may be very large. We know that even the private sector can make serious miscalculations, as it did in the auctions for 3G in a number of European countries, so what chance for the NRAs?

Here, it might be mentioned that in addition to the risk of making ‘regulatory mistakes’ there are also risks that, given the value of what is at stake in the regulatory game, NRAs may be subject to efforts to influence their decisions. The fact that there is much uncertainty about correct relative prices makes the judgment of NRAs especially vulnerable to such pressures.

Finally, there is in the materials of the NRF a vision of a universal “sunset” for sector-based telecom regulation in which facilities-based competition has evolved so far that general competition rules will be sufficient to ensure efficiency and fairness in all sectors. However, this seems unlikely – in practice, the continued presence of bottlenecks on the supply side, as well as network effects on the demand side, means that effective competition may never evolve in some sectors despite the encouragement of infrastructure-based competition. If this is so, then it may be necessary to maintain a regulatory regime (albeit an imperfect one) at least for two-way access and possibly also for one-way access.

References

Bergman, M. (2004), "Competition in services or infrastructure-based competition?" mimeo 16th September, 2004.

Bergman, M. (2002), "Lärobok för regelnissar. En ESO-rapport om regelhantering vid Avreglering" Ds 2002:21, Stockholm.

de Stree, A. (2004), "A New Regulatory Paradigm for European Electronic Communications: On the Fallacy of the 'Less Regulation' Rhetoric" Draft paper ITS-Europe regional conference Berlin, September 2004.

ERG (2004), "ERG Common position on the approach to appropriate remedies in the new regulatory framework".

Falch, Morten (2001), "Cost and Demand Characteristics of Telecom Networks" in *Telecom Reform: Principles, Policies and Regulatory Practices*, Ed. William H. Melody, available at <http://www.lirne.net/resources/books/books.htm>.

Fuss, Melvyn A. and Leonard Waverman (2002) "Econometric Cost Functions" in Martin E.Cave, Sumit K. Majumdar and Ingo Vogelsang (Eds.), *Handbook of Telecommunications Economics*, Vol. 1, North-Holland, Amsterdam.

Gonec, Rauf and Giuseppe Nicoletti (2000), *Regulation, Market Structure and Performance in Air Passenger Transportation*, OECD, Economics Department Working Paper No. 254.

Guibourg, Gabriela, 2001, *Interoperability and Network Externalities in Electronic Payments*, Sveriges Riksbank Working Paper Series, No.126, Stockholm.

European Commission (2002), "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).

European Commission (2003), "Commission recommendation on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation" (2003/311/EC).

Sung, Nakil and Michael Gort (2000), "Economies of Scale and Natural Monopoly in the US Local Telephone Industry" *Review of Economics and Statistics*, 82, 694-97.

Winston, Clifford (1998), "US Industry Adjustment to Economic Deregulation" *Journal of Economic Perspectives*, 12, 89-110.



EU *New* Regulatory
Framework (NRF)
in Electronic Communications:
An Economist's Perspective

TeliaSonera Institute

Strēlnieku iela 4a, Rīga, LV-1010, Latvia

Baltic International Centre for Economic Policy Studies (BICEPS)

Alberta iela 13, Rīga, LV-1010, Latvia

www.biceps.org

Stockholm School of Economics in Riga

Strēlnieku iela 4a, Rīga, LV-1010, Latvia

www.sseriga.edu.lv