



FACULTY OF LAW
University of Lund

Ola Nilsson

Access Regulation in the Electronic Communications Directives

- Incentive Structures in UMTS-network Governance

Master thesis
20 points

Hans-Henrik Lidgard

Law & Economics

Spring 2001

Contents

ABBREVIATIONS	5
SUMMARY	7
1. INTRODUCTION	8
1.1 Objectives	8
1.2 Method	8
1.3 Disposition	10
1.4 Demarcation	11
2. BACKGROUND	12
2.1 An expanding market	12
2.2 From GSM to UMTS	13
2.3 Licensing	14
2.4 Characteristics of the telecom industry	15
2.5 Players	20
2.5.1 Network owners	20
2.5.2 Service providers and specifically Virtual Operators	20
3. ECONOMIC THEORY	21
3.1 Perfect competition	21
3.2 Market failures	22
3.2.1 Monopoly	23
3.2.2 Oligopoly	24
3.3 Pricing and access decision	24
4. INCENTIVE STRUCTURES	27
4.1 Operator incentives	28
4.1.1 Shadow of the license allocation	28

4.1.2 Possible anti-competitive practices	30
4.1.3 Concentration and collusion in the telecom market	31
4.1.5 Empirics	32
4.1.5.1 The GSM experience:	32
4.1.5.2 Strategic choices	34
4.2 Government Incentives	35
4.2.1 The Information Society	35
4.2.2 Limited number of licenses	36
4.2.3 The dual situation of legislators	37
4.2.4 Finding the balance in pro-competitive intervention against governmentally awarded oligopolies	38
5. LEGAL BACKGROUND	39
5.1 General framework	39
5.2 History	40
6. APPLICABILITY	44
6.1 Sector specific regulation	45
6.2 Competition rules	46
6.2.1 Determining relevant markets	47
6.2.2 Dominance	48
6.2.2.1 Joint dominance	49
6.2.3 Abuse of dominant position	50
6.2.3.1 Refusal to grant access	51
6.2.3.2 Anti-competitive pricing	53
6.2.3.3 Other forms of abuse	55
6.2.4 Objective justification	56
6.2.5 Article 81 issues	56
6.2.5.1 Access agreements	56
6.2.5.2 Joint ventures	57
6.3 New rules	58
6.3.1 Procedure	59
7. REMEDIES	60
7.1 Competition rules	61
7.2 Sector specific rules	62
7.2.1 Fixed	62
7.2.2 Mobile	64
7.3 Soft law	66
7.4 New regulation	67
Art 8 Access and Interconnection Directives	67
7.4.1 Mandatory Access	68
7.4.2 Pricing regulation	69
7.4.2.1 Determining fair pricing	70

8. ANALYSIS	72
8.1 License allocation	72
8.2 The new regulation	74
8.2.1 Applicability	75
8.2.2 Remedies	77
8.3 Legislative predictability	80
8.4 Next steps	82
ANNEX 1	84
BIBLIOGRAPHY	85
TABLE OF CASES	94

Abbreviations

CEPT	Conférence Européenne des Postes et Télécommunications
CFI	Court of First Instance
CMLR	Common Market Law Report
ECJ	European Court of Justice
ECR	European Court Reports
EDGE	Enhanced Data for GSM Evolution
ETSI	European telecommunications standards Institute
EU	European Union
GDP	Gross Domestic Product
GPRS	General Package Radio Services
GSA	Global mobile Suppliers Association
GSM	Global System for Mobile communications
HSCSD	High-Speed Circuit-Switched Data
ITU	International Telecommunications Union
JV	Joint Venture
LRAIC	Long Run Average Incremental Cost
NGO	Non-governmental Organization
MB	Megabyte
NRA	National Regulating Authority
OJ	Official Journal
ONP	Open Network Provision

SFS	Svensk Författnings Samling
SMP	Significant Market Power
RnD	Research and Development
UMTS	Universal mobile telecommunication standard
VO	Virtual Operator
WLAN	Wireless Local Area Networks
WTO	World Trade Organization
3G	Third generation mobile telephony systems

Summary

The development within mobile telecommunications has been very rapid during the last decade. The next step will be the introduction of so-called 3G services distributed over networks utilizing the UMTS standard. In order to facilitate the development of this new infrastructure the national governments has allocated a certain portion of the frequency spectrum to this traffic. The Member States of the EU have distributed licenses that give the highest bidders the right to utilize this scarce resource. The winners of the licenses have expected to be able to use the revenues created by the oligopoly-like market situation to finance both the necessary construction of heavy infrastructure and the price of the licenses. The Member States on the other hand want competition between the licensees to result in pricing structures oriented towards marginal cost. They have thus come into a situation where their behavior is governed by two contradictory incentive structures. They want licensed operators to extract enough revenue to finance the building of new networks and the purchase of the expensive licenses but they do not want them to use their exclusive rights to take advantage of the limited competition to raise prices or threaten public interests.

Just after the auctions were completed in all Member States a new regulatory framework for telecommunications was adopted. This new framework was based both on the Community competition rules and the old complex pattern of telecommunications Directives. The applicability rules of the new framework are taken from the competition rules as defined by the Commission and by the ECJ. The remedies against anti-competitive behavior are taken from the old regulation of fixed telephony. The resulting regulation has become potentially very intrusive against the network owners. If the regulation is found to apply to them they can be subject to both obligations to provide access to their networks and to various forms of price control. This potentially affects the networks owners' profitability to such a degree that they may hesitate to investment in building the networks.

This thesis analyzes the difficult weighing of interests that the Member States must make in order to control the competitive situation and still give incentives to invest. In order to do this the thesis studies what incentives guide the behavior and strategies of the telecommunication operators and of the legislators. It further examines how the Member States through Community legislation are attempting to achieve their goals and how operators are affected by this.

1. Introduction

1.1 Objectives

This thesis will try to study what incentive structures govern the behavior of the legislator and the actors on the market. It will further analyze how these incentive structures have induced behavior and legislation that have led to the present difficult situation on the telecommunication market.

Initially, the following questions will be asked:

- By what means is the new regulation trying to create competition in the UMTS market?
- By what means are the Licensees trying to receive maximum payoff from their Licenses?

The answer to both of these questions will pinpoint the issue of shared ownership and shared utilization of networks as pivotal in the new regulatory framework. This leads to a host of secondary questions such as: How does the EU regulatory framework regulate access to networks? Under what circumstances are discriminatory pricing and exclusionary behavior by the network owners unlawful? How does the regulator react to a market characterized by strong interdependence and integrated ownership and incentive structures?

In summary, the objective of this thesis is to study how the issue of access to the UMTS networks will be dealt with in the new regulatory framework. The study will throughout the be thesis put into its legal, economic and political context.

1.2 Method

This thesis will use economic theory and methodology to describe the incentive structures that govern the behavior of the actors on the telecommunications markets. The basic principle of this so-called “Law and Economics” methodology is an application of economic principles to legal instruments, questions and procedures. This theoretical approach has gained much ground over the last decade in both the US and the European legal research.

Most legal-economic theories take advantage of the fact that economics provides a theoretical approach that can be used to predict the effects of legal sanctions on behavior. According to economic theory sanctions work in much the same way as prices: when sanctions increase the sanctioned activity decrease. However, this thesis will attempt to approach to the use of economics in legal analysis in a slightly different way. The methodology in this thesis will instead be based on the fact that economic theory is also the most efficient scientific approach when trying to determine what incentives guide the behavior of the companies on the market. Economic theory will also be useful when establishing what incentive structures governs the behavior of the regulators and how they should act to pursue their goals in the most efficient way. Finally, economic theory allows one to study what incentives are created by the legislation in a particular market and to who's needs they cater.

The aims that regulators claim to have when enacting new legislation can be compared to the behavior that economic theory predicts will be the effect of a particular law. Using economic theory in this way can hopefully determine whether legislation will effectively achieve the legislator's objectives or not. In cases such as this, where legislators are weighing contradictory interests, an application of economic theory can help determine which of these interests the laws will cater to.

Much of the Law and Economics research using the price/sanction methodology has been focused on finding/creating the most efficient legal rules. Thus, much discussion has dealt with issues surrounding how to define efficiency and what criteria to use when evaluating the consequences of a certain rule. This discussion often leads to much more problematic philosophical questions mainly considering whether simple wealth maximization criteria can be used or if some more difficult-to-define criteria such as fairness should be used. This thesis will avoid this discussion as much as possible and focus on studying the incentive structures of the actors in the market.

A large part of this thesis contains a more traditional legal analysis. The analysis will describe the outlines of both the old and the new regulatory system for telecommunications, including some competition law aspects. The study focuses on the regulation of the issues that the economic analysis pinpoints as potential problems: access to the network infrastructure and conditions under which access is given. In these parts of the thesis standard legal research method has been used: official documents and cases of the Commission, the Council, the ECJ and the national legislators and courts have been analyzed. The focus lies upon the documents that are published before and during the recent consolidation of the telecommunications regulation. The complexity of the old telecommunication framework has made the list of Directives studied fairly extensive. To help the reader when reading this part of the thesis Annex 1 provides a stylized description of the consolidation procedure.

Since the Directives studied are newly enacted there is no available doctrine on the subject and therefore this thesis relies heavily on primary sources. The documents of the preparatory work, various policy documents and speeches published by the Commission have been important sources when studying the regulatory reform. In addition to this, the web sites of various NGOs and articles in newspapers and magazines have provided material that is less influenced by politics (or, in some cases, influenced by other political interests). The same sources have provided material for some of the more descriptive parts of the thesis.

1.3 Disposition

After the first introductory Chapter 2 will entail a description of the telecommunications business, the actors on the market and the technological data necessary for the subsequent analysis. The chapter will start with a brief introduction to the market and relevant technology. After this a description of the various ways that the exclusive rights to build the UMTS-networks are distributed to interested companies is made. The distribution of the licenses forms a background that is essential for understanding the incentive structures that governs the behavior of both the regulators and the actors on the market. After this brief introduction a number of characteristics of the telecommunication industry is listed. These characteristics form the background to the legislative process and describe some of the regulatory issues that the new legal framework must deal with. The last part of the chapter describes the different actors that can be expected on the UMTS market.

Chapter 3 contains a short description of some basic economic theory that is necessary to understand the subsequent analysis. The chapter first provides an explanation of some of the economic mechanisms that affects the behavior of companies in different market situations. It then continues to describe how market failures in certain circumstances allow companies to collude and raise prices. The last part of the chapter describes the different models that are used in order to explain the pricing and access decision of colluding companies.

Chapter 4 explores the incentives of both the governments and the operators in connection both with the distribution of the exclusive rights licenses and when acting on the market. The analysis will describe the incentives created by the auctions and how this will affect the behavior of the licensees given the economic theories described in the Chapter 3, the specifics of the UMTS market described in the Chapter 2 and the experiences from the GSM market.

Chapter 5 will describe the background of the regulation governing the telecommunication business. First, a primer on the European, national and international context of the regulation is given. Then a background of the telecom regulation up to today is given together with an outline of the new Directives. This

chapter forms a background for the subsequent studies of specific aspects of regulation

Chapter 6 gives a description of the Community regulation governing applicability of the legal remedies for colluding and dominant companies is made. First the old sector specific and competition law regulation is described. Thereafter an analysis of the new regulation and it's relation to the old system is conducted.

Following this Chapter 7 deals with the remedies that can be enacted upon dominant and colluding companies. Just as in the previous chapter the old regulation is first discussed and then the new. The legal analysis focuses on the regulation of the areas pinpointed by the economic analysis as problematic issues; pricing and access.

The final chapter will analyze how the new regulation is related to, and affected by, the incentive structures described in the previous chapters. What are the main intents of the regulators when constructing the regulation in this particular manner? Will it help them achieve their objectives? How does it affect the licensees? What is next?

1.4 Demarcation

Due to the size of the area to be studied a clear demarcation is necessary. First, the thesis will not address issues of national legislation. The national legislation on how to deal with telecommunication issues is important for the individual operator but for this analysis national legislation is only a source from which examples can be gathered. The Swedish legislation on mandatory access to the GSM networks will for example be used as a source from which empirical evidence on the effects of such legislation can be gathered. Further, the thesis will not examine the specifics of the NRAs licenses and authorization conditions. Also, these provisions affect the specific operator greatly but are not within the scope of this analysis.

The international telecommunications regulations of the WTO will also be left outside the scope of this thesis. These rules do put some limitations on what can be enacted in the Directives of the European Council. However, this does not affect the specific aspects of the telecommunication regulation that will be discussed in this thesis.

Thus, the thesis will be limited to the European level of regulation and in particular the new Sector Specific regulation of the telecommunications industry. The new Directives on Electronic Communication cover an enormous amount of areas, such as Data and privacy protection, licensing of operators, Universal services and so on. However, this analysis will be limited to the part of the regulation concerned with how to stop anti-competitive practices by the UMTS license holders. This mainly entails rules concerning how the license holder must or can

deal with access and pricing issues in situations where competitors want to lease capacity in their networks. This small but vital part of the new Directives is thus the scope of this thesis.

As will be explained below the new Directives use some concepts from the Community Competition law. These concepts are explained to the extent that it is necessary. Competition law will thus only be addressed in so far as it is interesting in regards to the new Directives. For example Art 81 is highly interesting in this case, but operators violating that Article will not risk being subject to the remedies of the sector specific regulation. Article 81 issues, such as JV regulation, are therefore outside the scope of the thesis. In the future there may be interesting clinches between on one side Article 81 decisions of the Commission and on the other the sector specific regulation and related Article 82 issues.

With regards to Economic theory, the scope and length of this study makes it necessary to limit it to be quite rudimentary. However, basic Economics may offer significant explanatory value.

2. Background

2.1 An expanding market

The main features of the telecommunications industry are its dynamism and rapid expansion. In particular the use of mobile communications is predicted to continue to increase rapidly. Over the next few years 3G mobile services will be deployed, offering communication at speeds that will enable users to access the internet and corporate intranets fast enough (2 MB/s) to allow use of a multitude of interactive high bandwidth applications. The high speed UMTS network infrastructure is predicted to be the driving force in the accelerated penetration of mobile Internet for business and residential use. Also mobile voice telephony is predicted to increase and around 2005 the number of mobile subscribers will surpass the number of fixed subscriptions. The use of interactive services will increase and the Internet penetration will in 2007 bypass the traditional telephone.¹ These developments have led companies, investors and governments to expect high demand for mobile Internet services. This large future market attracts many companies offering both infrastructure and services.

¹ Ungerer, Herbert, *The Regulatory Challenges in the emerging Competition in the EU*, Speech in Budapest, 5th of July 1999, IV/C1/HU/rdu.

2.2 From GSM to UMTS²

Up until now the GSM has been the system relied upon by the mobile telecommunication operators in Europe and parts of rest of the world. The GSM networks cover 95% of Europe's population and 90% of the land area³. Competition in the European mobile sector has increased throughout the 1990's and prices have gone down. However, prices have decreased at different rates in different countries and since 1996 the decrease has slowed down and in some countries come to a standstill.⁴ For consumers the many innovative pricing schemes adopted by the mobile operators⁵ has made it difficult to compare between suppliers even though they in reality often have a very similar price⁶.

UMTS is the standard for the next generation of mobile communication and the system on which the mobile Internet infrastructure will rely. The uniform UMTS standard will be utilized globally and thereby help clear up some of the confusion that characterizes today's maze of different standards. This will enable users to undertake seamless international travels and at the same time give manufactures a possibility to achieve much better economies of scale.

The European success in GSM was based on a delicate interplay between harmonization and competition. The original GSM system developed in harmony between the national telecommunication monopolies (incumbents) while the actual rapid market introduction was based on new operators (new entrants) entering a deregulated market. Further, the global success of GSM was promoted by the rapidly expanding European market that provided a mass consumer base in combination with the lack of credible Japanese and American alternatives at the time. With the introduction of UMTS Europe will have a more difficult situation. UMTS is based on a European/Japanese cooperation and the first market introduction has already been made in Japan. Therefore the system will mark the reentry of Japan into the mobile communications market, particularly in the pacific market. This makes a rapid replacement of the old GSM technology with new UMTS technology important for Europe. In this race the competitive pressure is one of the most important components. Competition will force European operators to switch technology and thereby stay ahead in the race. Thus, the pro-

² Most of this chapter is based on: Ungerer, Herbert, *The Impact of European Liberalization and the WTO*. Speech at CommEd Conference 11th of February 1998, Brussels and Ungerer, Herbert, *The Regulatory Challenges in the emerging Competition in the EU*, Speech in Budapest, 5th of July 1999 and Verrue, Robert, *Telecom Liberalization – Future Key Issues from the European Point of View*, Speech at Verband Alternativer Telekom-Netzbetreiber Third Forum in, Vienna, 27th January 1999.

³ Analysys and Squire, Sanders & Dempsey, Study for EC DGXII; Consumer Demand for Telecommunication Services and the Implications of the Convergence of Fixed and Mobile Networks for the Regulatory Framework for a Liberalized EU Market, p. 10.

⁴ Analysys and Squire, Sanders & Dempsey, p. 16 and Proposition 1999/2000:57 p. 10 f.

⁵ For examples see Analysys and Squire, Sanders & Dempsey p.18.

⁶ Proposition 1999/2000:57 p. 10 f.

competitive mechanisms in the regulatory frame work and the application of Competition law is of utmost importance.

2.3 Licensing

The international telecommunications community and the EU have decided on a bandwidth spectrum that is to be allocated for UMTS traffic⁷. This limitation of the number of available frequencies has led to a restriction of the number of networks that can be built. All the Member States have decided to distribute the frequencies via a licensing scheme. Since the telecom markets in Europe are generally organized on a national basis, licenses to build UMTS networks are distributed in each Member State separately. In most countries three, four or five licenses are awarded.

In principle there are three different ways to distribute licenses:

- *First come, first served*

This is the most longstanding and widespread method of selecting licensees. It is not very efficient and can easily lead to various efficiency⁸ problems. Further, the distribution method will not award the license to the undertaking that values it the most. No Member State has used this approach to distribute UMTS licenses.

- *Comparative bidding.*

Comparative bidding is sometimes called a "beauty contest". It involves the Member States authorities selecting the best applicants according to pre-defined criteria. In this case the applicants are competing with commitments of building the heaviest infrastructure, setting up the largest maintenance staff, providing the most universal services, rolling out the system the fastest and so on. The governmental agencies responsible for the distribution of licenses are determining whether the commitments are credible. This way of distributing licenses might lead to over commitment.⁹ Further, there might be wasteful investments in lobbying and various

⁷Decision 128/1999/EC of the European Parliament and of the Council of 14 December 1998 on the coordinated introduction of a third-generation mobile and wireless communication system (Universal Mobile Telecommunications System) in the Community (1999) OJ L 17/1. The technical details of the UMTS standard has been set up in cooperation with international organizations representing consumers and the industry such as ITU, CEPT and the UMTS-Forum.

⁸ A non-efficient use of the resource would in this case mean that a company would get the license to operate the frequency even if it was not the most efficient operator. Economic theory in these cases implies that the company would sell the license to a more efficient operator. This would mean that the first company derives the economic benefit for the license rather than the original owner (the Member State) or the most efficient operator (the buyer). This causes transaction costs and incentive problems that can lead to that the frequencies are not used in an efficient way.

⁹ According to "Telia håller fast vid Norden Strategi" in *Finanstidningen* 19 December 2000 p. 6 The average cost for infrastructure in Europe is 60 Euro per user. However, in Sweden, a country that has chosen the comparative bidding approach, the average cost is 228 Euro. Even if this partly can be explained by geographical conditions there still seems to be a clear

media activities. In the countries that have decided on a comparative bidding approach there are mechanisms that threaten the licensees with billion Euro damages if they do not fulfill their commitment¹⁰.

- *Competitive bidding.*

In its purest form competitive bidding is simply an auction in which the governmental agencies award the license to the highest bidder. The winner gets full ownership of the license and can without any restriction utilize it (or not utilize it) any way they want. Using competitive bidding as a way to distribute exclusive rights awards the license to the undertaking that values it the most and thereby promotes efficient use of the licenses¹¹. However, in these cases it is not possible for governments to ensure universal coverage or a rapid rollout.

The member States have in the distribution process tried to appropriate the revenues from an auction and at the same time ensure the interests of its entire population to get UMTS access rapidly. Therefore, most of them have not chosen a pure form of competitive or comparative bidding. Instead, almost all countries included requirements of certain coverage within a certain time incorporated in their auctions. For example, in France there was a comparative bidding between competitors offering a certain amount of money. Austria and Belgium tried to ensure that they had certain guaranteed revenue from the auctions and therefore let their pre-qualifications include minimum bids. Generally, however, for example Germany, UK and Switzerland chose a competitive bidding approach while Sweden, Ireland, France and Finland chose a comparative bidding approach.¹²

2.4 Characteristics of the telecom industry

The telecommunications industry has several characteristics that are important to keep in mind during analysis of industry regulations.

1. Increased number of players in the market

As a result of the deregulation of the telecommunications market in the mid-nineties the structure of the industry has changed dramatically. Many small operators have surfaced in most European countries at the same time as many of the established operators are divesting their mobile-operators. This has created a very dynamic and fast changing player structure in the market. The number of

over investment in infrastructure. Swedish incumbent Telia (having much experience in building mobile networks) was in the country's comparative bidding confident that it would be enough to build 4100 base stations but found themselves overbid by other operators offering to build between 8635 and 20144 base stations.

¹⁰ According to Nils Gunnar Billinger of the Swedish NRA Post och Telestyrelsen quoted in "Netcom tar full pott i Norden" Dagens industri 18 dec 2000 p.7: The licensees fines will be set based on the savings the licensees get by not building.

¹¹ Dnes Antony, *The Economics of Law*, Thomson Business press, 1996, Oxford p. 13 emphasizes that this approach also prevents the companies interested in the license from spending resources on lobbying.

¹² UMTS Forum, IMT-2000 Licensing Conditions & Status, 1 October 2000.

licensed telecommunication operators in Europe is increasing rapidly. At the end of 1997 Europe had 100 operators authorized to offer national public voice telephony. This increased to 300 by the end of 1998¹³. The increased number of operators has been facilitated partly by the harmonized and simplified authorization procedures adopted as a part of the EU deregulation package¹⁴.

However, this increase has only been seen in the number of operators not in the amount of infrastructure. There is still only one fixed telephony network in each country and at most three or four GSM networks.

2. Bigger players in the market

At the same time as many new telecommunication operators are emerging the big ones are getting bigger. Many incumbents are acquiring other operators and telecom companies in an attempt to expand their current activities. Examples are the merger between Vodaphone and Airtouch and the merger between British Telecom and AT&T, the former in mobile- and the latter in fixed telephony. These mega-mergers make traditional trading relationships, as well as the regulatory systems which have grown up around them, seem increasingly outdated. These mergers are testing the limits of both sector specific and competition regulation.

3. Convergence

Previously separated operations are now becoming integrated. It is becoming increasingly difficult to separate Internet, telephony, television, radio and other media. The Internet based services will, and in some cases already do, encompass text and image based services (e-mail, file-transfer), traditional telecommunication services (voice telephony) and audio-visual services (live broadcasting). At the same time the digital television platform will be used for interactive multimedia services such as tele shopping, tele-banking and video-on-demand. Telecommunication operators that deliver audiovisual services such as Video-on-demand are due to this development competing with cable-TV and Internet suppliers. Telephone companies, cable broadcasters and computer companies are all coming together in the same markets.¹⁵

¹³Verrue, Robert, *Telecom Liberalization – Future Key Issues from the European Point of View*, Speech at Verband Alternativer Telekom-Netzbetreiber Third Forum in, Vienna, 27th January 1999.

¹⁴ The key elements of the legislation in force up until the new Directives are the prohibition of any limitation in the number of new entrants (except to the extent required to ensure an efficient use of radio frequencies), priority given to general authorizations (as opposed to individual licenses) and the definition of harmonized principles (including an exhaustive list of licensing conditions). The new Directives further limits the number of conditions which may be imposed on service providers and requires a strict separation between conditions under general law, applicable to all undertakings, conditions under general authorization and conditions attached to rights of use for radio frequencies and numbers.

¹⁵ Examples of new products and services being delivered include:

- Home-banking over the Internet
- Voice over the Internet

Within competition law it is important to be able to distinguish between different markets. The commission has declared that the substitutability of products is the most important element in determining a relevant market¹⁶.

The boundaries of the present markets and the degree of substitutability of products or services involved are as described above rapidly changing. It is therefore vital for competition law assessment to understand these changes.

4. Fragmented regulation

The current legislation is fragmented into different media. Fixed telephony is governed by one regulation, mobile by another, television by a third and printed media by a fourth. This creates regulatory uncertainty that will be worse the further the process of convergence continues. One example of this was seen in the French election campaign where certain rules prohibit publishing of opinion polls in the week prior to the election. However, this rule only applied to off-line media, but not to polls published on the Internet. A number of editors in these circumstances ignored the ban that placed traditional media at a disadvantage.¹⁷ This fragmentation has made the regulatory framework ineffective in regulating the media, IT and telecommunications sectors. Regulation focuses too much on definition issues such as what a certain concept means when applied to several kinds of media-technologies and what media should fall under what regulation.

5. Integrated and complex relationships

The convergence in combination with the complex and dynamic ownership structures creates integrated relations between the companies both within the telecommunication sector and between the telecommunication, media and IT sectors. The new market structure allows for one company to own the infrastructure while another is the operator and a third provides the services and so on.

At the same time there is a restructuring of the market where many mergers and strategic alliances are formed. The latter has been especially accentuated by the many JVs formed in the quest for the UMTS licenses. Due to the large investments that are needed to buy a license and build a network several of the licensees are JVs between several undertakings.

-
- E-mail, data and World Wide Web access over mobile phone networks, and the use of wireless links to homes and businesses to connect them to the fixed telecommunication networks.
 - Data services over digital broadcasting platforms
 - On-line services combined with television via systems such as Web-TV as well as delivery via digital satellites and cable modems.
 - Webcasting of sports, concerts and other audiovisual services.

¹⁶Commission notice on the definition of relevant market for the purpose of Community competition law, [1997] OJ 372/5, paragraph 13.

¹⁷Commission of the European Communities, Green Paper on convergence between telecommunication, media and information technology, Implications for regulation, COM(1997)623 final of 3 December 1997 p. 16.

JVs and strategic alliances are also formed at a later stage in the process. Several UMTS operators with licenses will often jointly own network infrastructure such as radio masts and radio equipment. This “facility sharing” can be beneficial in for example scarcely populated areas where it would not be economically justified to build four different networks. The regulators even promote facility sharing: “[it] can be of benefit for town planning, environmental, economic or other reasons and should be encouraged”¹⁸. However, one obvious aspect is that it can put restraints on competition since it invites the companies involved in this structure to cooperate. There are several examples of situations where problems may arise:

Example 1: The Swedish based operator Netcom holds (itself and through its subsidiary Tele2) UMTS licenses in Sweden, Norway and Finland. Swedish incumbent Telia for their part holds licenses in Norway and Finland. However, in Sweden Telia has formed a strategic alliance with Tele2 to build and operate a joint UMTS network. This means that the companies that in Norway and Finland are supposed to be competitors are strategic partners in Sweden.

Example 2: Due to the geographical conditions in Sweden with large scarcely populated areas the NRA has allowed the operators to build jointly owned infrastructure to decrease the investment cost. The NRA only demands that 30% of the network is built and operated by a particular licensee by itself, the remaining 70% could well be jointly owned and operated¹⁹. This means that only the major cities can expect to see four competing operators with their own infrastructure²⁰. In most parts of the country there will only be two or possibly even one available infrastructure that all operators use. This means that the operators will cooperate in building the infrastructure and running the network but compete in pricing of the content.

Example 3: There is a small number of operators that hold licenses in many of the European markets Orange, Vodaphone (who owns Europolitan), Telephonica and so on. This handful of operators hold licenses (themselves or in joint ventures with each other or a local player) in most European countries. Their business is highly intertwined which creates a complex competitive situation. For example Swedish UMTS licensees Europolitan and HI3G are building most of their Swedish UMTS networks together. However, Hutchinson (who owns half of HI3G) is a competitor to Vodaphone (who owns Europolitan) on the UK market.

¹⁸ Directive 97/33/EC on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32 p.3.

¹⁹ Zackrisson, Michael, ”Orange öppnar för delat 3G-nät” Vision 13 November 2000.

²⁰ Augustsson, Thomas, ”Mobilföretag öppnar för nya allianser” Svenska Dagbladet Näringsliv 24 jan 2001 p 4-5.

All of these developments in combination have created a very complex owner and stakeholder structure that makes regulation difficult. The different strategic alliances and joint ventures may necessitate more sophisticated kinds of economic analysis in the normal competition law assessments.²¹

6. Anti-competitive reactions of the incumbents

The deregulation of the former national monopolies creates a great need for different forms of competition regulation. The remains of the old monopolies, that still hold a large part of the customer base in both fixed and mobile telephony, create a situation where they can use their power to distort competition through for example over-pricing or cross subsidies.

7. Internationalization

Large investments are being made in telecommunication licenses, infrastructure, services and RnD. Financing for these enormous operations must be collected outside of the domestic capital market. This leads to an increased internationalization of the ownership structure and an increased dependence on the stock markets.

Further, as described above, all major operators are expanding their activity outside the domestic market. These trends pave the way for a consolidation of the market in the years to come.

8. Many competing technologies

As an alternative to UMTS several new technologies are being developed to increase the capacity of the GSM networks. Three technologies are becoming available prior to the introduction of 3G networks: HSCSD (56 kbit/s), GPRS (115 kbit/s), EDGE (384 kbit/s).²² Building networks that operate with these technologies is almost as expensive as building a UMTS network. However, the operators can ignore regulators demand for universal coverage and focus on the high margin major cities. This would make it a cheaper alternative to UMTS.

²¹ For example if a dominant telecommunications company joins with a satellite television company to go into the cable business to promote interactive services, such a market movement requires a more complex analysis than merely the classic "potential competition" or "barriers to entry".

²²Analysys and Squire, Sanders & Dempsey p. 28 ff gives the following data: HSCSD allows speeds up to 56 kbit/s by increasing the data rate per channel and increasing the number of channels used per message. GPRS: the packet switched services takes advantage of the fact that most data applications tend to generate electronic traffic in short bursts. Despite of this, today's techniques keep the channels open continuously which makes the channels unavailable to other users. GPRS instead sends the data in packages allowing several users to use the same channels simultaneously. This system will allow speeds up to 115 kbit/s. EDGE increases spectral efficiency and will be offered from 2001. It will allow for speeds up to 384 kbit/s.

Other threats to the development of the UMTS networks are so called "hot spots" of short-range wireless communications protocols such as Bluetooth and WLAN. In areas such as airports or business centers these technologies can be used as alternatives to the UMTS technology. A site can establish a so-called "hot spot" by installing nodes for short-range wireless communication. The hotspot nodes are in turn connected to the Internet via high-speed fiber. Hot spot solutions can provide fast and cheap mobile access to Internet services in competition with UMTS.

2.5 Players

The telecommunications industry has gone through rapid changes over the last ten years. In the early 1990's governmental monopolies controlled both infrastructure and services in an industry dominated by fixed telephony. As described above there are now a large number of operators operating both on their own networks and leasing space in the infrastructure of the net owning companies. In the UMTS market the following players can be expected.

2.5.1 Network owners

Network owners are those who have been awarded licenses and who will build, manage and operate their own UMTS-network. The network owners have three potential strategies:

1. **Capacity Wholesaler Operator.** Provide network capacity to other companies who will provide services to the end customers.
2. **Vertically Integrated Operator.** Provide services or public network services.
3. **Both.** Be a Vertically Integrated Operator who also sells capacity to operators that do not own their own network (Virtual Operators).

Providing services on their UMTS network (strategy 2 or 3) instead of being a pure wholesaler of capacity seems to be the strategy that almost all licensees have chosen.

2.5.2 Service providers and specifically Virtual Operators

Service providers are operators that offer telecommunication services using mainly third party networks. They manage, control and sell leased capacity and for this purpose hold agreement with both consumers and network owners. They can thus provide services without rolling out their own infrastructure and thereby avoid establishing costs. Internet service providers are the most well known group of service providers.

The service providers that this thesis will focus on are the so-called Virtual operators (VOs). VOs are a form of service providers that provide mobile voice telephony and Internet services. Just like other service providers a VO will buy capacity from UMTS network owners at wholesale rates, which it then sells to

end users at retail rates.²³ The VOs are distinguished from other service providers by the fact that they themselves own a limited amount of network infrastructure that allows them to have their own billing and customer service system²⁴. The VO thereby can provide the user with a telephone number and a normal billing scheme. This means that to the end-user it does not matter whether he uses a VO or a traditional operator. In many cases the consumer probably will not even know whether it is a VO or a network owning operator from whom he buys his mobile services.

The EC licensing Directive²⁵ issued in 1997 mandates a system based on the use of general authorization to authorize all service providers. This means that an aspiring VO only needs to fulfill the general demands that are required from an operator and do not have to go through an individual trial. This deregulation has simplified the authorization procedure and helped facilitate a rapid increase in the number of service providers and VOs.

3. Economic theory

This chapter will use basic economic theory to create a conceptual framework that will be useful when studying the incentive structures created by legislation.

3.1 Perfect competition

The starting point for most theoretical description of the functioning of markets is perfect competition. Perfect competition requires:

- Many producers operating in the market.
- Many customers buying the product produced.
- No entry restrictions.
- No advantage for established businesses.
- Perfect information.
- The goods produced by different companies are perfect substitutes.

In a perfectly competitive market no individual firm can influence the price at which it sells its output and profits are only possible in the short run. In the long run the market will clear, through competitors entering or developing new

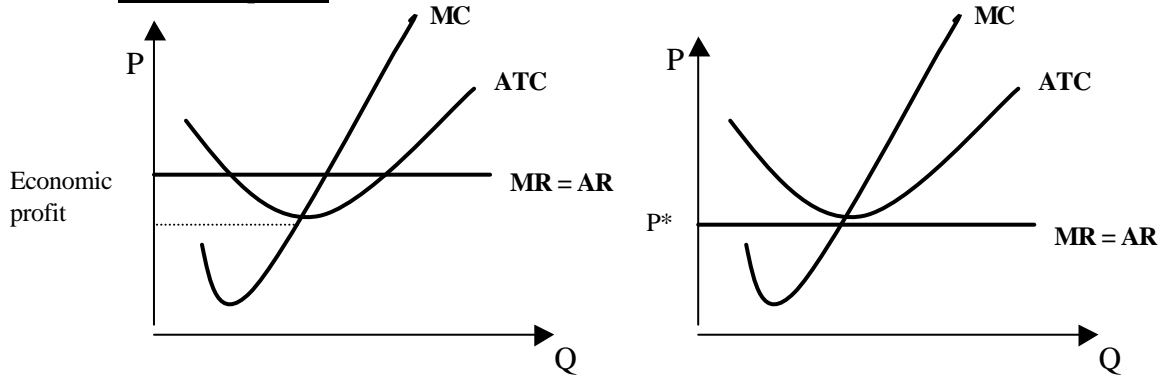
²³ This should be distinguished from indirect access to mobile networks, whereby an operator obtains indirect access to another mobile operators customers, providing them with the ability to select, on a call by call basis, which operators carry their calls for them. By dialing a short “access code” they can divert calls to their chosen indirect access operators’ system, by passing the arrangement made by their network operator for the onward delivery of calls.

²⁴ Cooke, p. 15.

²⁵ Directive 97/13 on a common framework for general authorizations and individual licenses in the field of telecommunications, (1997) OJ L 117/7.

production techniques or services, and no profits will be possible. A market in perfect competition delivers an efficiency that ensures that no resources in the economy are wasted.

Perfect competition



P= Price, Q= Quantity, MR= Marginal Revenue, MC= Marginal Cost, ATC= Average Total Cost, AR= Average Revenue. In the short run it is possible for companies to make an economic profit as shown in the left graph. However, in the long run the markets clear as more competitors enter: The price is driven down towards the competitive price (P*) and profits fall towards zero (MR=ATC).

It is obvious that no part of the telecommunications market operates under conditions similar to perfect competition. There are forces hindering full competition, maintaining high prices and profits. The explanation is different types of market failures.

3.2 Market failures

Perfect competition is a theoretical construction used mostly for analytical purposes. In practice market failures will cause the market to allocate resources in inefficient ways.

Main reasons why markets fail to deliver the optimal result are:

- | |
|--|
| <ul style="list-style-type: none"> • Limited information (uncertainty) • Poor definition of property rights • Externalities • Monopoly power • Public goods |
|--|

In the case of the market for UMTS services several of these problems are present. For example the governments awarding the licenses has viewed the UMTS systems as a public good and therefore obliged the licensees to build networks also in the less densely populated areas where it would not normally be profitable to invest. The loss caused by this has to be recouped in more attractive markets. This has created both inefficient investments and a distortion in pricing. However, the main reasons for distortion is the limitation of the number of suppliers allowed to enter the market. This is likely to prevent competition from arising.

3.2.1 Monopoly

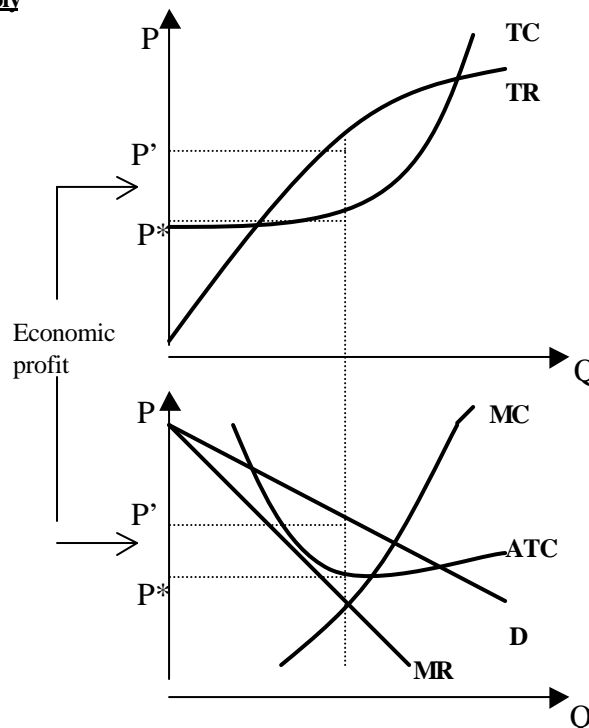
Monopoly power is created when there are barriers to entry into a market or no close substitutes to the product produced.

Barriers to entry can be:

- Financial (Heavy investments in marketing or start-up cost in relation to the value of the market.)
- Legal (patents, copyrights or licenses)
- Natural (limited possibilities to accommodate another enterprise e.g. scarce frequencies)

In this case there is at first glance both a natural and a legal barrier to entry. However, regarding the natural barrier to entry there is from a technological point of view a large amount of frequencies that could be used for the UMTS spectra. The problem was rather to create unanimity around what frequencies to be allocated to this activity. The Member States' hesitation about alteration of their existing allocation led to a political compromise. Thus, there is more of a political barrier to entry than a natural. The political barrier (which of course in official documents is referred to as the natural barrier) to entry has caused the Member States to introduce a legal barrier in the form of a licensing system. Principally, licensing need not create a monopoly but it does restrict competition since it is not possible to enter the market after the licenses are distributed.

Monopoly



P= Price, Q= Quantity, D= demand, MR= Marginal Revenue, MC= Marginal Cost, TC= Total Cost, TR= Total Revenue. ATC= Average Total Cost, AR= Average Revenue. Instead of producing at the intersection of the demand and the supply curve a monopolist maximizes

profits by producing at an output at which marginal cost equals marginal revenue. This production level allows monopolists to charge a higher price (p') than what is possible under competition (p^*). A monopoly can thus make a positive economic profit even in the long run because barriers prevent the entry of new firms. The result of a monopoly is inefficiencies in the economic system that are costly to the consumer.

3.2.2 Oligopoly

Oligopoly is a market structure in which a small number of producers compete with each other. The quantity sold by any one producer depends on that producer's price and the prices and the quantities sold by the other producers. The main feature of an oligopoly is that each firm must take into account the effects of its own actions on the actions of other firms.

In the oligopoly situation an action from one of the competitors can be expected to cause reactions from the other competitors. If one company lowers prices in order to get more customers its competitors will see its quantity sold drop. This will cause them to lower their prices too and the companies will thus end up with the same amount of customers but lower prices. So before deciding on a price, the companies should try to predict how the other firms will react and attempt to calculate the effects of those reactions on their own profit.

3.3 Pricing and access decision

In an oligopoly situation it is possible for the limited number of companies to collude, thereby restricting competition. This allows them jointly act as one single monopolist and charge monopoly prices (p') as seen in the model above, then splitting the profits or the "monopoly rent". Whether a profit is to be made all depends on whether the oligopolists manage to make a collusive agreement and keep it. It has proved difficult to explain the mechanisms that determine whether the actors will charge the competitive price (p^*) or the collusive price (p'). Several models have been developed to explain the determination of prices and quantity in oligopoly markets but no single model can be said to explain all observable behaviors. The models fall into two groups: traditional models and game theory. A traditional so-called kinked demand curve model predicts that if each firm believes:

1. If it raises its price, other firms will not, and
2. If it cuts its price, so will all other firms,

oligopolists will collude to maintain a joint monopoly. The kinked demand curve model does however, not give any information about how the price is set or how high the profit (if there is one at all) will be.

The use of game theoretical concepts can give us some more detailed predictions about the pricing in oligopolies. The basic notion here is that it is possible to make

a collusive agreement²⁶ that will allow the companies to charge a monopoly price (in the model below 5) at an output level that is the same as a monopolist would choose (in the model below 10). However, the party that chooses to cheat on the agreement and charge a slightly lower price will get the customers and thus reap the profits. The other company will in this case get no customers and make a zero result due to the fact that they keep the agreement. A so-called Bertrand model can illustrate this situation.

		II				
		1	2	3	4	5
I	1	0, 0	0, 0	0, 0	0, 0	0, 0
	2	0, 0	5, 5	10, 0	10, 0	10, 0
	3	0, 0	0, 10	10, 10	20, 0	20, 0
	4	0, 0	0, 10	0, 20	15, 15	30, 0
	5	0, 0	0, 10	0, 20	0, 30	20, 20

This model shows two oligopolists (I and II) that produce identical products. The only thing that determines what supplier the customers will choose is the price. The supplier with the lowest price will get all the customers and the other will get none. When prices charged are the same the companies get half of the customers each. Regardless of the price there are 10 customers who buy one unit each. The cost of producing one unit of the product is 1 and the possible prices are 1,2,3,4 and 5. The pricing choices for Player I is shown on the left. His payoffs given the action of player II is given on the left in each box. The options of player II is shown above the matrix. His payoffs are shown on the right in each box

This model is a version of the famous prisoner's dilemma model. This, the "oligopolists" dilemma, shows us that the companies always have an incentive to deviate from any collusive agreement and charge a slightly lower price to win market shares. Company II for example always gets as high or a higher payoff from charging 4 than from charging 5. Since the oligopolists have symmetric payoff functions they now both know that the other will never charge 5. When player II then looks at the remaining 16 (4x4) possible outcomes he realizes that he will always get as high or higher payoff from setting the price at 3 instead of 4. Player I will make the same realization and thus none of them will ever charge 4. This model predicts that the oligopolists will continue to charge lower and lower prices up until the price is driven down to just above the level where it is not profitable to produce. In this case the oligopolists will end up charging 2 per unit.

This model thus predicts that collusion between two oligopolists will unavoidably break down and prices will fall to a competitive level (earlier denoted P*). To be noted is that this model is not only applicable to situations with two players but even more so to collusion games with several players where incentives to deviate are even stronger.

²⁶ The agreement does not have to be formal. Rather, it is normally just implied given the situation.

To explain the existence of collusive pricing one has to take the analysis one step further and introduce repeated games. Most real-world oligopolists get the opportunity to play repeatedly against each other. If the game is repeated several times incentives to cooperate can arise since the players can influence the behavior of the others by threats and promises. A Collusive agreement in the above model would result in the players agreeing on both charging 5. This would result in both receiving profits of 20 each round.

The threat is that if either of the players cheat on the agreement in round 1 the other Player will cheat the next and so on. This will bring the Players down to a profit of 5. However, if the Players both know that the other will strike back with a lowered price in the case of a breach this will be calculated into their estimates of future profits.

<p style="margin: 0;">Breach: $30 + \frac{5}{\delta} + \frac{5}{\delta^2} + \frac{5}{\delta^3} + \dots + \frac{5}{\delta^n}$</p> <p style="margin: 0;">Collusion: $20 + \frac{20}{d} + \frac{20}{d^2} + \frac{20}{d^3} + \dots + \frac{20}{d^n}$</p>
--

If the player breaches the collusive agreement the profits that round will be 30. However, the breach will start a price war that will force the profits down to 5 in all the following rounds. However, if the collusive agreement is kept the players will both be able to charge 20 in all rounds. The discount factor (d) illustrates the fact that a profit today is worth less than a profit tomorrow due to uncertainty, inflation, etc. The larger the discount factor the more the value of future profits are discounted. In this case the discount factor illustrates the decrease in value of the profits for the player from one round to the next.

This payoff schedule is symmetric to both the Players. Given a low enough discount factor each firm makes a larger profit by sticking with the collusive agreement. If both firms do this calculation the monopoly price, quantity and profit prevail in the industry. This collusive behavior can be referred to as a cooperative equilibrium. The equilibrium results from each player responding rationally to the credible threat of the other player to inflict damage if the agreement is broken.

The licensees do not only make decisions on what prices to charge. They must also decide whether they should give access to Vos and service providers. Also when analyzing this decision game theoretical concepts can be used.

Once again this is a game played between two oligopolists. They can in this case either choose to give access or not to give access.

	II	
	Access	No access
Access	$P^*+X/2, P^*+X/2$	P^*+X, P^*
No access	P^*, P^*+X	P', P'

The choices for Player I is shown as the two options on the left. His payoffs given the action of player II is given on the left in each box. The options of player II is shown above the matrix. His payoffs are shown on the right in each box

If both players give access the market becomes competitive and the market price becomes p^* . In addition to this they will share the incomes generated by leasing capacity to the VO in the matrix above denoted X. This means low profitability for both. If both players decide not to give access prices are maintained at the oligopoly level p' . If only one of the oligopolists gives access while the other says no the market becomes competitive but the one who said yes will in addition to p^* get the benefits (X) generated by the VO.

If the game is played only once there is no dominant strategy. That is, there is no decision that can be predicted as an outcome. However, in a repeated game the answer can be determined using the following calculation.

$\text{Access: } P^* + X + \frac{P^*}{\delta} + \frac{P^*}{\delta^2} + \frac{P^*}{\delta^3} + \dots + \frac{P^*}{\delta^n}$ $\text{No access: } P' + \frac{P'}{\delta} + \frac{P'}{\delta^2} + \frac{P'}{\delta^3} + \dots + \frac{P'}{\delta^n}$

Depending on how much higher P' is than P^* and depending on the size of the discount factor the licensees make their choice of whether to give access or not.

4. Incentive structures

Given the market structure described in chapter 2 and the economic models described in chapter 3 this chapter will more closely examine the incentive structures of the operators and the regulators. This will provide a description of the many interests that must be taken into account when developing the new regulatory system.

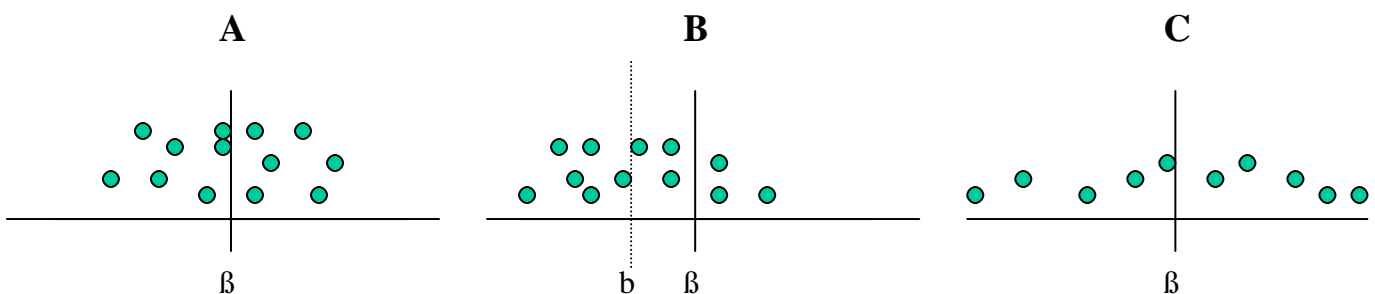
4.1 Operator incentives

4.1.1 Shadow of the license allocation

Via the licensing procedure the operators have tried to gain access to an environment of limited competition in which an economic profit can be made. This activity is called rent seeking. The rent seeker hopes that the exclusive rights can be bought at a price lower than the expected profit to be made from the non-competitive market. However, buying a monopoly right does not assure an economic profit. The reason for this is that there is freedom of entry into the activity of rent seeking. Rent seeking is much like perfect competition. If a profit is available the players in the market will all try to appropriate this profit. Competition among rent seekers pushes the price that must be paid for a monopoly right up to the point at which no profit can be made by operating the monopoly. In such case, the economic profit that can be expected to be derived from the monopoly is transferred to the original owner of the monopoly rights. In the UMTS case the owners of the monopoly rights are the national governments. Channeling rent seeking through an auction thus transfers wealth from the buyers (licensees) to the seller of the monopoly rights (government).

However, the problem for operators applying for a license is not only that according to economic theory the license will cost as much as the monopoly rents. Since ex ante the value of a license is unknown, each bidder must make an estimation of its value based on the limited information available. The highly uncertain size of the profits to be made from an UMTS license has made the valuation of the licenses very difficult.

The winner's curse concept of bidding theory predicts that companies often overpay in a bidding contest. The concept is based on the fact that even if the company managers estimate the value of a UMTS license accurately on average, they win the bidding primarily when they overestimate the true value. On average the winner of a competitive bidding therefore tend to overpay.



The A figure shows a situation where the operators on average make a correct valuation (β)²⁷. The uncertainty will cause some of the bidders to overestimate the value of the license and make a bid that is higher than β . C shows that if uncertainty is high the variance of the bids increase. That is, the more uncertain the value of the license the larger the overpayment (even if the estimation continues to be correct on average). The response to this from the bidders would be to take the more conservative approach of offering less than its best estimate (in figure B shown as b)²⁸. However, as shown in B the bidders will still overpay, in cases where uncertainty is high enough.

The representatives of the industry quickly recognized the risk for overpayment and were therefore opposing the idea of auctions during the decision-making procedure. They feared that high up-front license charges would lead to that strategic choices would be “driven by short-term focus on recovery of up-front fees rather than a long-term focus on overall growth of the industry”²⁹.

The obvious goal for operators is to make a profit. However, in the case of the UMTS operators the incentive to recoup the costs incurred during the licensing auction makes the need for revenues extra acute. To finance the licenses and the building of the UMTS systems operators has been forced into heavy debt. The telecommunication operators in Europe have a debt load exceeding 240 billion Euros, mostly relating to costs associated with the UMTS licenses³⁰. In addition to this they will have expenses that are at least as big for building the infrastructure. Considering these enormous amount there is serious concern³¹ that the operators will not have enough time to recoup their enormous investments before the 4G systems are launched in 2010³². Given this and the fact that the value of these companies stocks is largely dependent on their ability to recoup³³ the costs incurred for the UMTS-systems the operators will have massive

²⁷ For the purpose of this thesis β is defined as: “the correct valuation of the license”. β in this case does not entail the variance and covariance properties normally associated with it in economic and statistical theory.

²⁸ Some theorists claim that the fear of winners curse problems (especially in situations where one of the players have an advantaged position) can cause the number of players to decrease and lower the bids very substantially. See for example Klemper, Paul, “What really matters in auction design – revised and extended version” p. 7.

²⁹ UMTS-Forum report 3. Executive summary p. 6-7.

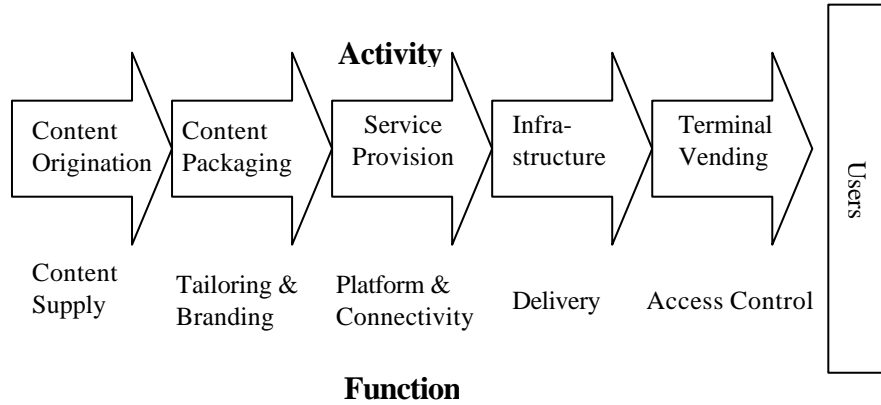
³⁰ Dagens nyheter, 18 April 2001, *EU skyndar på nya 3G-nät*.

³¹ Independent financial analysts have been gradually lowering the credibility of the European telecommunication operators due to their balance sheet deterioration and their heavy risk exposure. “Falling Credit Quality Among European Telecoms Operators Examined at investor forum.”

³² Analysys and Squire, Sanders & Dempsey p. 2.

³³ Regarding the recouping of costs the article “Lönsamhet för 3G kan dröja fyra år” in Svenska Dagbladet Näringsliv 8 March 2001 reports that Östen Mäkitalo - Telecom Guru and strategic director of Swedish Telia - claims that it can take up to ten years before the UMTS networks become profitable. The same article reveals that Ericsson’s experts believe in a 20 year recouping process.

incentive to make the UMTS networks as profitable as possible as soon as possible. However, as described above profitability is theoretically impossible on a competitive market. Therefore the licensees must take full advantage of the ways in which this market does not function perfectly. To analyze how profits will be achieved it is useful to study the value chain of the telecommunication operator market.



This model of the telecommunications value chain further enhances the notion that the traditional simple value chain based on a limited number of products is evolving into a complex and highly intertwined set of commercial relationships between companies-operators, service providers, content providers and advertisers – delivering an ever-growing variety of services to users.

The profits in the UMTS market are predicted to be made at the low end of the value-chain, at the service-level. Operators and service providers will develop new services that can produce a profit in the short term before competition catches up.

For the network owning companies, as well as any other, there are generally two strategies to improve profit: increase revenues or cut costs. In this case the costs consists mainly of the fixed costs of building the networks. The main way of cutting these costs is to cooperate with others when building the networks in the way discussed above. The possibilities of cooperation are limited through regulation of the NRA. This means that in increasing profitability the focus must be on increased revenue.

If the network owners are to increase their profits it will mean that they must get revenues exceeding MC and at the same time maximize the number of customers. An attempt to win customers through lowering prices and thereby starting a Bertrand price war ending at a price of MC is the natural development on a competitive market. The way to avoid this development is as we have seen above to collude and take advantage of the market failures.

4.1.2 Possible anti-competitive practices

The prediction that the main revenues will come from the lower end of the value chain, and thus being appropriated by all operators offering services to the end-

users, is dependent on the prediction that there will be effective competition in the infrastructural networks. However, as seen in the access game above vertically integrated players who control bottleneck facilities can limit competition at the service level by colluding. Collusion in the UMTS market mean that the licensees collude in order to both maintain prices charged to VOs at a non-competitive level and hindering VOs and other service providers from entering the market through leased capacity. High prices charged to VOs who are given access will both give the licensees' own services an advantage compared to the service providers' and make it difficult for competitors to maintain profitability.

Keeping competition down in this way would be very effective considering that VOs need to access network infrastructure in order to reach their customers. The owner of the communications infrastructure thus stands in a critical position, as the profitability of service providers is largely determined by the price squeeze between the wholesale and the retail price of UMTS capacity, while at the same time there is a grave imbalance in the bargaining power of the two negotiating parties.

There are many ways in which the network owners can use their dominant position to hinder competition from emerging offering lower prices:

- **Refusal to grant access.** Completely or in practice (not making available to other service suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide service) deny access to the networks, thereby maintaining prices at a high level.
- **Pricing.** Both excessive (extorting rent from the license by charging an unduly high price) and predatory (engaging in anti-competitive cross-subsidization)
- **Using information obtained from competitors in their role as infrastructure providers with anti-competitive results.** Information regarding such things as subscribers' usage patterns, necessary to target specific groups of users and on price elasticity on demand in each market segment and region of the country.
- **Bundling** of two or more products or services in such a way that competition is distorted or technical progress hindered.

4.1.3 Concentration and collusion in the telecom market

In order to tell whether an industry will be competitive or oligopolistic economists use measures of industrial concentration. One of the most commonly used is the five-firm concentration ratio. This ratio measures the proportion of the total output accounted for by the top five firms on a particular market. It is regarded to be a useful indicator of the likelihood of collusion among the firms in an oligopoly.

Economists say that if the ratio exceeds 60 percent it is likely that the firms on that market will collude and behave like a monopolist³⁴.

In the UMTS case the three, four or five licensees will have one hundred percent of the market. This gives the regulators all reason to expect collusion. However, when analyzing the likeliness of collusive behavior in the industry the concentration ratio must be supplemented by other factors.

- The Geographical scope of the market
- Barriers to entry and firm turnover
- The correspondence between a market and an industry.

When considering the geographical scope of the market as a supplement to the five firm ratio it seems as if the competition problems of the UMTS systems seems even more severe. The licenses limits the scope of the UMTS markets to a single Member State. Further, firm turnover is likely to be non-existing and there is, as thoroughly discussed above, a licensing barrier to entry. However, the last parameter, market and industry correspondence, indicates that there might be some competition. The UMTS networks are, as described in 2.4 p.8, not the only available technique to facilitate mobile communications. In addition to this most of the traffic will for the next few years be low intensity voice traffic for which both GSM and UMTS are available³⁵.

When analyzing the likeliness of collusive behavior it must be taken into account that the risk of such behavior arising seems to be greater when one considers the very integrated relationship between the licensees described in 2.1.3 p.4. Due to that a small number of operators who themselves or through subsidiaries hold licenses in almost all markets, and due to the fact that the licensees on the national market cooperate in building infrastructure, the market players have close ties to each other. This makes it easier to maintain a collusive agreement as there is much informal communication at the same time as the close connection will enable them with ample opportunity to, with a game theoretical term, “punish” the licensee that breaches the collusive agreement.

4.1.5 Empirics

4.1.5.1 The GSM experience:

To get an idea of what can be expected from the UMTS market we can study the GSM market that have many of the same features. VOs and thereby the access problems have been an issue in the GSM networks in mainly in the UK³⁶,

³⁴ Parkin Michael, *Economics*, 4th edition, 2000 Addison-Wesley Publishing p. 322.

³⁵ UMTS-Forum report 5. Executive summary p. 10.

³⁶ Cooke p.14 describes how the UK is the country in Europe where the market for VOs is most developed. When the GSM market was opened there the fixed operators were not

Germany and in the Nordic Countries. Lets once again use the Swedish market as an example. The market holds three GSM network-owning operators. However, despite hopes for price pressure due to competition there was no change of the pricing between 1995 and 1999.³⁷ During this time several VOs had been trying to make access agreements with the three operators wanting to offer mobile services to their own customers. The most well known case is the VO “Sense Communication” who sought to establish a regional footprint already in 1998 but was consistently denied the possibility to lease capacity by mobile operators on the Nordic market. In 1999 the Swedish government therefore initiated a legislation mandating access to the mobile networks. In the legislative proposal, under the heading “The lack of frequency capacity means oligopoly on the market for mobile communication”, the Swedish government claimed that the vertical integration of the mobile operators had led to that only the three operators that owned GSM networks had so far had the possibility to offer mobile services. Service providers had been having difficulties making access agreements under that regulatory framework. The government therefore concluded that this likely depended on a limited interest from the network owners to on a voluntary basis negotiate for access with VOs and thereby letting new competitors into the market. The result of the situation was that the limitations on the network market were transferred to the service markets.

Following the enactment of the new regulation³⁸ Sense communications became the first VO to make an access agreement with Telia in November of 1999. However, Sense Communications soon ran into another problem; they found the pricing charged by Telia for the access to be so high that they were almost price squeezed out of the market, and at least prevented from giving their customers a competitive offer. The new Swedish access regulation did entail a pricing regulation saying that access prices should be set at a market price level. However, this rule turned out to be unenforceable due to the governmental agencies’ inability to monitor the costing structure of the access provider.

Experience from the other European countries confirms that problems in connection with access for service providers to dominant operators facilities will often revolve around excessive pricing³⁹. In the absence of another viable alternative to the facility to which service providers are seeking access, the dominant or monopolistic operator may be inclined to charge excessive prices.

allowed to have end-customers of their own. This led to a large market for VOs. The market has now however consolidated through heavy M&A activity. Two VOs that are on increasing their market shares most rapidly are Record company Virgin and food company Tesco.

³⁷ Proposition 1999/2000:57 p. 10-11.

³⁸ SFS 2000:210.

³⁹ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p.17.

4.1.5.2 Strategic choices

When analyzing the strategic choices available to network owners the Swedish GSM market will be continue to be used as an example. Despite the initial difficulties on the Swedish market there have been several access agreements made subsequent to the new legislation. Currently nine VOs have signed contracts for access to the GSM market. Most of them are niche-players that are focused towards a specific group of customers⁴⁰. Together they currently account for less than 2.5% of the market. Most of these VOs are characterized by their possession of large customer bases. Their incentives for starting an operation as a VO is often more related to their wish to create a closer connection with their customers rather than make money as a VO. All of these, and two more companies geared towards consumer (IKEA and KF), have reported an interest in leasing UMTS capacity from the licensees.⁴¹

VO ⁴²	Access provider	Business	Target group
ICA	Europolitan	Groceries	Consumers
Hemel	Europolitan	Electricity	Consumers
Mobyson	Europolitan	Operator	Youth
Lunarstorm	Europolitan	Internet portal	Youth
Glocalnet	Europolitan	Operator	Consumers
Sense	Telia	Operator	Consumers
Tele1	Telia	Operator	Companies
Wireless maingate	Telia	M2M-solutions	M2M Customers
Dial n smile	Tele 2	Operator	Consumers/ Companies

The access agreements can of course be explained by the legislation mandating access. However, to which VOs and under what conditions access is provided can be explained by the strategic choices of the network owners⁴³. The starting point when analyzing these choices is that the established GSM network owners will all target the highly profitable business customers. Further it is expected that a lot of the value in the value chain of a market where VOs have been given access to the networks is produced in content production, packaging and service provisions. In order to create profitability network owners will promote their own activities in this higher value business area. That is; they need to be the ones providing the new interactive services to the business users themselves. It is not enough to be retailers at the low end of the value-chain.

⁴⁰ Törnwall Mikael "Nivert utesluter inte strukturaffär med Orange eller Investor" in Finanstidningen 19 December 2000 p 6 quotes telcommunication analyst at Gartner Dataquest as saying: "Dagens virtuella operatörer är oftast hårt nischade mot en speciell kundgrupp och det är en helt annan sak att som Telia försöka vara markandledare och teknikledare utan ett eget nät."

⁴¹ Cooke, p. 14.

⁴² This table is a version of the table presented in Cooke, p.12.

⁴³ Especially since the NRA, as described above, has been unable to enforce the pricing regulation.

The strategic choice of the Swedish GSM network owners seems to have been to divide the market in two parts, business and consumers. The consumer market requires the network owner to handle the heavy transaction cost direct contact with the end user. One solution to this is to utilize the VOs who are backed by companies with a large group of established private customers. This allows the network owners to sell capacity to a large group of end users without having to deal directly with them and without marketing costs. The efficient strategy seems to be to allow these “consumer VOs” access while denying “business VOs” the same privilege. In these cases there are two issues that the license holder needs to focus on. The first is that this strategy requires that the VOs that are let into the networks do not start to compete with the network owner for the business customers. This is most easily assured by only signing access deals with consumer VOs who will assuredly not target business customers (example of this sort of VO would be ICA). Secondly, the network owners must maximize the access prices paid by the VOs without price squeezing them out of business. The best way to do this is to deal with VOs who mostly uses the mobile services as a bonding complement to their core business. These VOs are as described above as less sensitive to a price squeeze since achieving a profit is not their main reason for being in the telecommunications business. This allows the operators to charge a price higher than what it would be the case with other VOs.

This combination of strategies can be exemplified by looking at the Swedish market where the nine VOs that has been able to get GSM access agreements all have target groups that are mainly private customers. At the same time VO Telenordia, who has a more general target group, has consistently been denied access agreement. Representatives for Europolitan confirm this anti-competitive strategy: ”We focus on corporate customers. By giving access to for example ICA we can get volumes from private customers, who are not our primary target group”⁴⁴.

It seems as if the prices of access, despite the entrance of as many as nine VOs, are consistently high. The price squeeze leaves such little room for the VO that no price war at the GSM market will start.⁴⁵ This strategy has been successful due to the avoidance of a price war between the network owners and the NRA’s inability to enforce rules of cost oriented pricing.

4.2 Government Incentives

4.2.1 The Information Society

The Lisbon summit stated that the creation of the information society was one of the prioritized issues on the EU-agenda. The access to the Internet and the new

⁴⁴ Interview with Anders Sjöholm of Europolitan in Cooke p. 12.

⁴⁵ Interview with Magnus Sjölander of Netcom Consultants in Cooke p. 14.

communication structures for the people is of fundamental importance for the possibility of a country (or of the EU) to stay competitive.

“If Europe can embrace these changes by creating an environment which supports rather than holds back the process of change we will have created a powerful motor for job creation and growth, increasing consumer choice and promoting cultural diversity. If Europe fails to do so rapidly enough there are real risks that our businesses and citizens will be left to travel in the slow lane of an information revolution which is being embraced by businesses, users and governments around the world”⁴⁶

“The ability of the European community to use convergence, whilst tailoring it to the European version of the information Society, will be at the heart of growth, competitiveness and job creation in the years to come. The danger is that if Europe fails to take advantage of the opportunities provided by convergence it could be left behind as other major trading blocks reaps the benefits of a more positive approach”.⁴⁷

“The Lisbon European Council of 23-24 March 2000 has highlighted the potential for growth, competitiveness and job creation of the shift to a digital knowledge based economy. In particular, it emphasized the importance for Europe’s businesses and citizens of access to an inexpensive, world class communications infrastructure and a wide range of services.”⁴⁸

The infrastructure of telecommunications is of vital importance in the introduction of this envisioned information society. The objective for the Member States is a rapid development of the next generation of infrastructure for mobile communication. This development should preferably be facilitated by private companies. Further, it is of vital importance that prices to consumers are kept low so that the new techniques will be available to everyone. This cost oriented pricing is most efficiently achieved by a competitive market where no monopoly/oligopoly power exists. Therefore, the main thought of the European telecom regulation has during the last decade been that the market should be geared towards free competition. Effective Competition drives down prices to their efficient level and spurs innovation in the development of new products and services. Therefore any company exhibiting too much market power must be regulated. Despite of this flair for competition the national governments supported by the commission allocates only a small and limited number radio frequencies to UMTS traffic.

4.2.2 Limited number of licenses

When studying how and why the allocation and distribution of licenses was done in the way it was several interesting issues arise. Simple market theory predicts that an auction will allocate the licenses to those who value it the most and thus

⁴⁶ Commission of the European Communities, Green Paper on convergence between telecommunication, media and information technology, Implications for regulation, COM(1997)623 final of 3 December 1997 p.iii.

⁴⁷ Commission of the European Communities, Green Paper on convergence between telecommunication, media and information technology, Implications for regulation, COM(1997)623 final of 3 December 1997 p.13.

⁴⁸ Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, COM(2000)393 final of 12 July 2000 p. 3.

will make the most efficient use of it. This is the economic-theoretical explanation for why a government should use competitive bidding to distribute UMTS licenses.

When studying the limited number of licenses from a more incentive creating point of view it becomes obvious that it may be necessary for regulators to limit the number of networks built. In order for anyone company to make the enormous investments required to buy a UMTS license and then build the UMTS networks covering an entire country they would need assurances of a certain time to recoup their costs. As have been described above there are small or no profits to be made on a competitive market. Further, the Member States have a second interest in giving the prospective licensees the impression that there will be limited competition: according to economic theory they are the ones who, through an auction, will appropriate the monopoly rent. The more oligopolistic the bidders of the auction thinks that the market will be the higher the expected monopoly rent and the larger the revenue from the auctions.

If the companies are given the right to operate in an oligopoly situation it will both give them the proper incentives to incur the investment of building the networks and pay the expected (but highly uncertain) monopoly rent to the Member States. Understanding this economic rational for limiting the number of licenses is important in analyzing what incentives the government has for interfering in the market.

4.2.3 The dual situation of legislators

The regulators want companies to invest in UMTS-networks and therefore guarantee them a certain payoff on their investment by giving them an assured market power. Legislators further want large companies based in Europe to be able to enjoy the benefits of concentration such as scale effects. Indeed getting a more concentrated corporate structure that creates competitive businesses based on scale effects is one of the main economic points of the common market⁴⁹. However, the regulators do not want these large companies and their potential monopoly power to hurt consumers, VOs or smaller competitors by excessive pricing or other anti-competitive behavior. This creates an obvious dilemma for the regulators: they have strong incentives to give exclusive rights to some operators in order to facilitate a fast and complete rollout of UMTS networks and to reap the monopoly rent. At the same time they do want to maintain full competition. Finding relevant and appropriate control mechanisms that balances these interests is indeed a difficult task.

⁴⁹ Brown, Wilson and Hogendorn Jan, *International Economics*, Addison-Wesley Publishing, 1994, USA, p 323.

4.2.4 Finding the balance in pro-competitive intervention against governmentally awarded oligopolies

As described above the Member States have facilitated an oligopolistic market structure. On the other hand they have strong incentives to enforce competition law that per definition is opposed to non-competitive market structures. Enforcing non-discriminatory pricing and cost orientation⁵⁰ in the fixed telephony markets has given Europe local interconnection rates that are some of the lowest in the world. It has substantially facilitated competitive entry and has led to immediate consumer benefit. However, the price pressure caused by competition may deprive operators of the incentives to invest in infrastructure and may cause them to look for regulators to get them cheap entry. Networks may not be built at the speed needed because the infrastructure owners will have to give away access at what their shareholders consider a low return. Since one of the EU's strategic goals in the telecommunication market is "creating a climate for investment and deployment of UMTS and fostering Europe's competitiveness"⁵¹ the legislators is in a tricky situation.

The Swedish government faced the same issue when they were contemplating a regulation mandating access to the GSM networks. They were of the view that development of the mobile service market was impeded by the limited competition on the network market. The pace of innovation and development of new services was impeded by the uncertainty of whether a market for the new services would develop. However, the government was also aware of the problem of the decreased incentive to invest in infrastructure that the regulation might cause. A report was therefore ordered from "Centrum för transportekonomi vid högskolan i Dalarna" that investigated what effects a mandatory access regulation upon the willingness to invest⁵².

The authors distinguishes between two ways of creating competition on the mobile market:

1. Infrastructural competition: i.e. competition between different infrastructures whose owners are offering access to VOs and/or selling the capacity to end-users themselves which ever is more efficient.
2. Service-based competition: i.e. where service providers compete with applications and services leasing space in open access networks.

The authors draw the conclusion that the first regulatory system gives incentives for both new and established companies to invest in infrastructure. Conversely, regulation that gives service providers opportunity to lease unbundled components

⁵⁰ Mainly under the ONP rules.

⁵¹ Commission Communication, Strategy and policy orientation with regard to the further development of mobile and wireless communications UMTS COM (97) 513 final p. 19.

⁵² "Reglering av mobil telefon marknaden; open access till nätkapacitet?" Available at <http://www.du.se/~jen>.

has the opposite effect. The Swedish government did not take the viewpoints of the report into account and instead emphasized that the proposed legislation only entailed an obligation for network owners sell excess network capacity. This rule would minimize the negative effects. The legislation also entailed a pricing regulation that said that the price for the capacity should be determined by the “market price.” This would guarantee a reasonable return on investments made in infrastructure. Some of the respondents in the public consultation points out the difficulties of determining if there is excess capacity. The governments responds to this by clarifying that in the cases where the network owner made the investments in infrastructure with the intention of meeting increased demand from its own customers it is not reasonable that this capacity should be leased to others since there probably is only a temporary excess of capacity. This also means that a reasonable amount of capacity for future needs should be taken into consideration. In the end the NRA must make an assessment of the demand for capacity that should be facilitated. The legal review of the proposed legislation (Lagrådet) questioned the ability of any authority to determine whether there was in fact any access capacity in the networks of a network owner. This is even more so since the operator only needs to make plausible that there is no excess capacity. As it later turned out the suspicions of the Lagrådet was correct and as described above the regulation has not been used due difficulties in proving that there in fact is excess capacity, what the price of such capacity should be and so on.

Another problem that the expert report pointed to is that the investors may get the impression that the legislation is unpredictable. This would increase their risk-premium and decrease the willingness to invest. The Swedish government responds to this by pointing out the need to find a balance between the need for stable regulation and regulatory predictability on one hand and the need to adapt legislation on the other. On the rapidly developing telecommunications market they find it reasonable to assume that the actors have calculated with the possibility of an altered regulation when they made their investment.

5. Legal background

5.1 General framework

The telecommunication market is regulated by a multitude of different frameworks: national competition and sector specific laws, EC competition and sector specific regulation, and WTO rules.

At the world level WTO has established basic principles of free telecommunication markets. This work aiming at global regulatory and technical standards have been supported and facilitated by a multitude of different groups

such as ITU, UMTS-Forum, CEPT, GSA and ETSI representing consumers, manufacturers and other stakeholders. These groups have also worked close to the EU in their work towards a European common regulation for telecommunications. At the national level licensing and authorization conditions imposed by the NRA is important, to in addition to the national laws, determine the environment in which the operators work.

The global, the European and the national regulations together form a complex web of rules to which the telecommunication companies must adhere. Bearing this multi-layered structure in mind, this thesis will focus on the European level of regulation.

5.2 History

Up until 1987 telecommunication in Europe was organized in much the same way as in the rest of the world: through national monopolies. These companies were both owners of the infrastructure and service providers. Based on this the European regulation was very simple: each Member State was responsible for its own telecommunication networks and the connections between the national structures were regulated by agreements.

In 1987 the Commission decided on a total overhaul of the regulation of the telecommunications sector. This overhaul resulted in a green paper⁵³ that recognized the growing importance of telecommunication and suggested that the market except voice telephony should be put under free competition. This was recognized by the Council in a resolution 1988⁵⁴ and decided by the Commission in two Directives two years later. One of these Directives, the so-called Service⁵⁵ Directive, was a liberalization act that established the introduction of free competition for all traffic except for voice telephony in the fixed networks of the European market and called for the abolition of special or exclusive rights. The other was the so-called Open Network provision (ONP)⁵⁶ that was aimed to help facilitate the introduction of competition by establishing the rules for a deregulated market. The ONP framework established a working process under which the Commission could develop common regulation on standards, conditions of access, provisions of services and tariff principles.

⁵³Commission of the European Communities, "Toward a dynamic European economy – Green Paper on the development of the common market for telecommunications services and equipment, COM(87) 290, final of 30 June 1987.

⁵⁴ Council resolution on the development of the common market for telecommunications and services and equipment up to 1992, [1988] OJ C 257/1.

⁵⁵ Directive 90/388 on competition on the markets for telecommunication services, [1990] OJ L 192/10.

⁵⁶ Directive 90/387 on the establishment of the internal market for telecommunication services through the implementation of open network provision (ONP) [1990] OJ L 192/1.

The first ONP-based Directive was the so-called Leased Lines Directive⁵⁷ that harmonized the basic principles with regard to the problems of interconnection and access to the networks of the incumbent that arose when starting deregulating. New entrants could not feasibly build their own networks and therefore leased capacity in the network of the incumbent. The Leased Lines Directive helped these transactions by giving the conditions for when regulators could intervene in the market to prevent the incumbent from hindering competition from arising. At this point the deregulation was limited to the market for other traffic than voice telephony, mainly data and telex traffic.

In 1995 and 1996 the full liberalization of the EU telecommunications market including the fixed voice telephony and telecommunication networks was initiated. The Service Directive was extended into a Full Competition Directive⁵⁸ that mandated complete deregulation of fixed telephony on the European market from the beginning of 1998⁵⁹. The same year as the Service Directive was amended to include mobile telephony⁶⁰.

The liberalization also led to an adaptation of the ONP framework to the new multi-operator environment with liberalized market conditions. It established rules for the liberalized fixed voice telephony⁶¹ and a regulatory framework for interconnection to services and networks⁶². Also the leased line Directive was amended to apply to the new environment.⁶³ The ONP thereby became the natural framework for the basic definitions of access to telecommunications infrastructure and facilities. The corner stone of the ONP rules became the so-called asymmetric regulation of regulation of market actors by reference to the test of SMP (significant market power). After the complete deregulation in 1998 the ONP Voice telephony Directive was amended to include further obligations

⁵⁷Directive 92/44 on the application of open network provision to leased lines, (1992) OJ L 165/27.

⁵⁸Directive 96/19 amending Directive 90/388 with regard to the implementation of full competition in the telecommunication markets, [1996] OJ L 74/13.

⁵⁹ Ungerer "managing the strategic impact of Competition law in Telecoms" p.2 says that this was only completed on time in ten Member States. Spain and Ireland was a year late, Portugal two and Greece three.

⁶⁰Directive 96/2 amending Directive 90/388 with regard to mobile and personal telecommunications, (1996) OJ L 20/59. The prescript to the Directive says: "The exclusive rights that currently exists in the field of mobile communication were generally granted to organizations which already enjoyed a dominant position in creating the terrestrial networks, or to one of their subsidiaries. In such a situation, these rights have the effect of extending the dominant position enjoyed by those organizations and therefore strengthening that position which, according to the case-law of the Court of Justice, constitutes an abuse of the dominant position which is contrary to Article 86 of the treaty."

⁶¹ Directive 95/62/EC application of a Open Network Provision to Voice telephony, (1995) OJ L 321/6.

⁶²Directive 97/33 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32.

⁶³Directive 97/51/EC amending Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications. OJ L (1997) 295/23.

for the incumbents who were still trying to obstruct competition in the fixed networks.⁶⁴

The regulatory development between 1987 and 1998 was a liberalization and deregulation of the telecommunications market based on non-discrimination, transparency and interconnectivity of networks. The central issues were to create a common framework for authorization and licensing of operators, to establish independent national regulatory agencies and to liberalize the market for telecommunication services. However, the deregulation framework's very success in unleashing competition and innovation has led to a need for a new framework. At the same time the technological development had facilitated the change in the market created by the convergence of the media, IT and telecommunication (described in chapter 2.4 point 3 above). The liberalization process has further created a need for a common European regulation on the areas that still remain unregulated such as for example access to the network of mobile operators. The increased competition, the convergence and the complex jurisdictional issues required a new regulatory framework for the telecom sector.

In 1997 the commission made an effort to consider the changes of regulation that was needed to control the new market. This effort resulted in the 1997 green paper on convergence⁶⁵ that created a wide-ranging debate on the future regulatory system. After the green paper the commission published a series of communications to get input to the regulatory process. The preparatory work culminated with the 1999 telecommunication review⁶⁶. The review proposed a regulatory framework that was intended to consolidate the EU's regulatory framework and at the same time facilitate both the needs of the mature and slow growing fixed sector and the growth and investment intense mobile sector. The new regulation had to make it possible to maintain an open market, fair prices and a favorable investment climate in line with the difficult considerations described above⁶⁷.

⁶⁴ Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment, (1998) OJ 101/24.

⁶⁵ "Green paper on the convergence of the telecommunication, media and information technology sectors and the implications for regulation" COM (1997) 623.

⁶⁶ Towards a new Framework for electronic communications infrastructure and associated services: the 1999 Communications review. COM (1999) 539.

⁶⁷ Commission Communication, Review of the telecommunication regulatory framework – a new framework for electronic communications infrastructure and associated services, the 1999 Communications review, COM(1999) 539 final of 10 November 1999 identifies the main policy objectives that underpin the regulatory framework as being:

- To promote an open and competitive European market for communications of services ensuring low prices, universal service and a wide variety of different services.
- To consolidate the market in a converging environment ensuring non-discrimination, effective management of scarce resources and establishment of trans-European networks and seamless interoperability.

In July of 2000 the Commission presented its proposals for a new Directives governing the telecommunication sectors. The new regulatory framework was suggested to be composed of a framework Directive together with four specific Directives covering licensing and authorization, access and interconnection, universal service consumers and users rights, and telecom data protection. The Lisbon European Council called for the new regulation to be adopted as soon as possible in the course of 2001.

- Directive on a common regulatory framework for electronic communications networks and services⁶⁸
- Directive on universal services and users rights relating to electronic communications networks and services⁶⁹
- Directive on access to, and interconnection of, electronic communications networks and associated facilities⁷⁰
- Directive on the processing of personal data and the protection of privacy in the electronic communications sector⁷¹
- Directive on the authorization of electronic communications networks and services⁷²
- Regulation on unbundled access to the local loop.⁷³

This new regulatory framework aims to avoid that different forms of audiovisual communication ends up being subject to different regulations by encompassing them all. The answer to the problem of convergence⁷⁴ is thus uniformity in the regulation for all forms of “electronic communication”.. This term thus

⁶⁸Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, COM(2000)393 final of 12 July 2000. This Directive contains a number of horizontal provisions common to more than one measure in the package. This Directive sets out a number of principles and objectives for regulators to follow, as well as a series of tasks in respect of management of scarce resources, such as radio spectrum and numbering.

⁶⁹ Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on universal services and users rights relating to electronic communication networks and services, COM(2000) 392 final of 12 July 2000.

⁷⁰ Commission of the European Communities, Proposal for a Directive of the European Parliament and the Council on access to, and interconnection of, electronic communications networks and associated facilities, COM(2000) 384 final of 12 July 2000.

⁷¹ Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector, COM(2000) 385 final of 12 July 2000.

⁷² Commission of the European Communities, Proposal for a Directive of the European Parliament and the Council on the authorization of electronic communications networks and services, COM(2000) 386 final of 12 July 2000.

⁷³ Commission of the European Communities, Proposal for a regulation of the European Parliament and of the Council on unbundled access to the local loop, COM(2000)394 final of 12 July 2000.

⁷⁴ Some of the issues surrounding definitions that is necessary to examine more closely in order to deal with the convergence:

- Whether definitions are sustainable in light of technological development.
- Whether definitions result in the same services falling under more than one regulatory regime, and where it does, whether it is justified.
- Whether definitions lead to discrimination by allowing similar networks or services to be regulated differently.

encompasses the fixed lines of the incumbent, mobile networks (such as GSM and UMTS), cable television networks, satellite networks and broadband fiber cables.

The new regulation was accepted by the Council on the fourth of April 2001 with some minor adjustments.⁷⁵

6. Applicability

It cannot be considered to be an anti-competitive practice if a network owner on a competitive market refuse to give access to a VO or if it maintains excessive prices. On a competitive market another network owner would in such a case provide capacity at a competitive price. From a regulatory point of view the issue of access should in these cases principally be a matter for commercial negotiations and thus lead to a hands-off approach from the regulator. However, on a market where one player (or several players jointly) control the access to the end-customer through control of access technologies such as infrastructure and these players can discriminate in favor of its own products regulators could have reason to step in to maintain (or create) competition.

As can be seen above there is reason to believe that the UMTS capacity market will not be fully competitive. The first issue that needs to be addressed by the new regulation is then; to whom is the regulation applicable? That is; in what situations can a network owner (or several network owners jointly) be regarded as so dominant that a commercial negotiation between two equal parties is not possible? What acts and features distinguishes such a network owner from other network owners? Another relevant issue in this context is how a lasting definition of when regulation should be applicable can be created in the fast moving and complex market structure of telecommunications where technological development makes market definitions rapidly obsolete?

One of the problems when it comes to analyzing these issues in the context of telecommunications is that many different regulations are applicable to the market⁷⁶. A service provider faced with an access problem can therefore

⁷⁵ Augustsson, Thomas, Avreglering enar telebolag, Svenska Dagbladet Näringsliv p.19, 5 April 2001 and Ola Hellblom, EU ministrar avvisar gemensamma teleregler, Dagens Industri 5 April 2001.

⁷⁶ There are a number of areas where access agreements will be subject to both the competition rules and national or European sector specific measures, most notably in the internal market measures. In the telecommunications sector, the ONP Directives aim at establishing a regulatory regime for access agreements. Given the detailed nature of ONP rules and the fact that they may go beyond the requirements in Article 86, undertakings in the telecommunications sector should be aware that compliance with the Community competition rules does not absolve them of their duty to abide by the obligations imposed in the ONP context, and vice versa.

contemplate a number of routes to seek remedy. First, at a national level, the applicant has two main choices namely (A) specific national regulatory procedures established in accordance with community law and harmonized under ONP and (B) an action under national and/or Community law before the national court or the national competition authority. Secondly, the aggrieved part can make a complaint to the commission. In these two situations different legal rules governs. In the first case the sector specific telecommunications framework is applicable while in the second the Community competition rules apply.

This chapter will first analyze the applicability of sector specific regulation to these situations. Secondly, the rules on applicability in the competition law will be studied. Finally, the new regulation and its relation to the old framework and the competition law rule will be discussed.

6.1 Sector specific regulation

As briefly described above the telecommunication sector specific regulation consists of two sets of Directives. First, there are a number of liberalization Directives based in Article 90. Secondly there are the ONP harmonization Directives based in Article 82.⁷⁷ The ONP framework was originally only targeted against the incumbent operator. However, when the ONP regulation was adapted to the multi-operator environment the term SMP was adopted to describe an operator that can threaten free competition.

The term SMP was first adopted for use in the interconnection Directive⁷⁸. The definition is based on an estimation of the market share of the players on the market.

“An organization shall be presumed to have significant market power when it has a share of more than 25% of a particular telecommunications market in the geographical area in a Member State within which it is authorized to operate. National regulatory authorities may nevertheless determine that an organization with a market share of less than 25% in the relevant market has significant market power. They may also determine that an organization with a market share of more than 25% in the relevant market does not have significant market power. In either case, the determination shall take into account the organizations ability to influence market conditions, its turnover relative to the size of the market, its control over the access to end-users, its access to financial resources and its experience in providing products and services in the market”⁷⁹

This SMP definition was adopted as a result of the legislator’s attempts to maintain the incumbent from engaging in anti-competitive behavior. Since the incumbents do not have any private investors and already had a well-established

⁷⁷ See Annex 1 for more details

⁷⁸ Directive 97/51/EC amending Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications. OJ L (1997) 295/23

⁷⁹ Directive 97/33 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32 Article 4 paragraph 3.

infrastructure the legislators did not have any difficulties in regards of maintaining investment incentives when deciding on applicability rule. Another reason for adopting the straightforward 25% rule was that it should be fairly simple for the NRAs to apply it uniformly throughout the Community.

The regulatory framework does not very clearly define what “relevant markets” mean and it becomes up to the NRAs to determine the meaning of the term. The NRAs are helped by the Commission recommendation on how to define a relevant market⁸⁰. However, since this document is rather abstract the task of defining a relevant market became more and more difficult as the convergence between technologies and markets increased. The result was that different NRAs all had different definitions of relevant markets.

6.2 Competition rules

EU Competition law entail screening under primarily Article 81 (anti competitive agreements, including market sharing) and Article 82 (abuse of dominant position, including issues of unfair pricing and refusal of access and interconnection).

Competition law is, unlike the sector specific rules, mainly enforced ex post. That is, competition rules cannot always be used to prevent changes or events on the market. Despite this they set the basic ground rules for the sector that are of course valid also ex ante. The Commission is for example notified about concentrations and agreements that may restrict competition in the internal market. The notification allows the Commission to give their view on whether the agreement is in accordance with Community competition law. As the telecommunication market has shifted from monopoly to competition, there has been increasing involvement of the competition authorities in the telecommunications sector. This is a trend that is evident not just in Europe but also on a global basis⁸¹.

The Competition law term for market power that is sufficient to threaten competition is dominance. Even though the concept of dominance has generally been addressed in cases concerning mergers⁸² the Commission found that there was a need for a special notice that describes how competition rules apply to cases involving the refusal to grant access to networks or to apply unfavorable

⁸⁰ Commission recommendation... Commission recommendation 98/195/EC of 8 January 1998 on interconnection in a liberalized telecommunications market; Commission recommendation 98/511/EC amending recommendation 98/195/EC with regard to Interconnection pricing (1998 OJ L 228/30).

⁸¹ OECD, Telecommunications Regulations: Institutional Structures and Responsibilities, DSTI/ICCP/TISP(99)15/FINAL, 1999 p. 22.

⁸² Access agreements are generally outside the scope of the merger regulation. Council regulation (EEC) No 4064/89 of 21 of December 1989 on the control of concentration between undertakings (OJ L 395, 30.12.1989, p.1); corrected version (OJ L 257, 21.9.1990, p.13).

terms. This so-called Access notice⁸³ (hereinafter “the notice”) summarizes the main principles that has evolved in cases and communications from the Commission and the ECJ in regard of access issues⁸⁴. It lists the main potential abuses against Article 82 and sets a clear doctrine concerning the balance between application of sector specific regulation –mainly the ONP Directives- and the general application of competition law. The principles set out in the notice apply to both fixed and mobile communications.

According to the notice, the first issue in application of competition law to access cases is to determine what constitutes the relevant market in the case at hand. Once this is determined the next step is to analyze whether the operator has a dominant position on that market. Finally the behavior of the network owner must be studied to decide whether it has abused its dominant position. Only if all of these prerequisites are filled competition law remedies are applicable. The disposition of chapter 6.2 will initially follow this three-step procedure: 6.2.1 will deal with the definition of relevant markets, 6.2.2 further analyzes the dominance concept in the context of access issues, 6.2.3 examines different abusive behaviors. The last two chapters discuss objective justifications, which might exempt a licensee from being subject to the rules of the notice, and certain Article 81 issues.

6.2.1 Determining relevant markets

To identify relevant markets the Commission use the definition of relevant markets set out in the Commissions notice on “the definition of the relevant market for the purpose of Community competition law”⁸⁵. According to this recommendation firms are subject to three constraints; demand substitutability, supply substitutability and potential competition. The first constraint constitutes the most immediate and effective disciplinary force and is therefore the main tool used in Article 82 cases to define relevant markets. Different telecommunication services are considered substitutable if they show a sufficient degree of interchangeability for the end user. This substitutability would mean that effective competition could take place between the different providers of these services⁸⁶.

⁸³ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2.

⁸⁴ The Access notice is based on a multitude of cases and studies concerning the application of competition law to access: Commission Decision 91/562/EEC of 18 October 1991, Eirpage (OJ L 306, 7.11.1991, p. 22); Commission Decision 96/546/EC and 96/547/EC of 17 July 1996, Atlas and Phoenix (OJ L 239, 19.9.1996 p. 23 and p. 57); Commission Decision 97/780/EC of 29 of October 1997 Unisource (OJ L 318, 20.11.1997 p. 1); Competition aspects of interconnection agreements in the telecommunications sector, June 1995; Competition aspects of access by service providers to the resources of telecommunications operators, December 1995; Competition aspects of Access pricing, December 1995.

⁸⁵ Commission notice on the definition of relevant market for the purpose of Community competition law, [1997] OJ 372/5, para 13.

⁸⁶ When the Commission will use the test of a relevant market, which is made by asking whether, if all the suppliers of the service would raise their price by 5-10% their collective

In the notice the Commission foresees a telecommunications market with at least two types of relevant markets- that of service provided to the end user and that of access to facilities necessary to provide that service. This thesis focuses on the latter of these markets. The notice indicates that access to those facilities necessary to provide a particular service to end-users (physical network, information etc) can be considered a relevant market. It thus seems as if the first condition of the applicability definition is fulfilled.

6.2.2 Dominance

The consensus in Economic seems to be that a firm possesses market power if it can raise prices above their competitive level for a non-transitory period without losing sales to such a degree as to make this unprofitable. A number of factors can indicate that a firm has such market power. The ECJ has determined⁸⁷ that according to competition rules a company holding a dominant position is characterized by a strong economic position that enables it to hinder effective competition on a market by acting independently from competitors (and consumers). Dominant position is determined using a multitude of criteria, mainly the size of the companies market share in comparison to the market shares of the competitors.

“Market power for a given undertaking will be measured partly by the number of subscribers who are connected to termination points of the telecommunications network of that undertaking expressed as a percentage of the total number of subscribers connected to termination points in the relevant geographical area”⁸⁸

What regards the relationship between SMP and dominance in terms of required market power the notice says that “It is clear /.../ that the notion of SMP generally describes a position of economic power on a market less than that of dominance”⁸⁹. The notice further emphasizes that it is necessary to take into account other advantages or disadvantages such as barriers to entry, technological expertise, large R&D spending, large amounts of patents or know-how and so on.

“A market share of over 50% is usually sufficient to demonstrate dominance although other factors will be examined. For example the Commission will examine the existence of other network providers in the geographical area to determine whether such alternative

profits would rise. According to this test, if their profits would rise the market considered is a separate relevant market.

⁸⁷ This approach stems from the United Brands case 27/76, [1978] 1 CMLR 429, 487-8 and was approved and added in Case 85/76 Hoffmann-La Roche and Co. Ag v. Commission [1979] ECR 461, 3 CMLR 211 paragraph 39.

⁸⁸ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p.72.

⁸⁹ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 footnote 57.

infrastructure is sufficiently dense to provide competition/.../ and the extent to which it would be possible for new access providers to enter the market.”⁹⁰

Presently the number of access providers will be limited to the approved licensees. What regards the question whether the denseness of the alternative infrastructure is sufficient to provide competition, the answer depends on whether the network owners collude or compete. This issue is further analyzed in 6.2.2.1

6.2.2.1 Joint dominance

Treaty of Rome Article 82

“Any abuse by one or more undertakings of a dominant position/.../shall be prohibited as incompatible with the common market”

The wording of Article 82 makes it clear that the article also applies when more than one company shares a dominant position. According to the most important case on the subject, the Italian Flat glass case⁹¹, the CFI concludes that the concept of joint dominance describes a situation where a number of independent firms operate in a parallel manner. The joint dominance is separate from the normal control of oligopolies covered by Article 81 (anti-competitive agreements). Instead it covers parallel pricing, refusal to supply and discrimination. The ECJ has later endorsed the use of a joint dominance concept in the *IJM*⁹² and in the *DIP* case⁹³. In the latter of these cases the Court has elaborated on the links that is necessary between the companies in order for them to be seen as joint dominant saying: it is necessary for the undertakings to be linked in such a way that they adopt the same conduct on the market.⁹⁴

The Commission dealt with the same question in the *Gencor/Lohnro* decision and there stated that: “Similar negative effects which arise from a dominant position held by one firm can arise from a dominant position held by an oligopoly. Such a situation can occur where a mere adoption of the members of the oligopoly to the market conditions causes anti-competitive parallel behavior whereby the oligopoly becomes dominant”⁹⁵. Active collusion would therefore not be required for the members of the oligopoly to become dominant.

⁹⁰ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p. 73.

⁹¹ Case T-68, 77-78/89, Re Italiana Flat glas: Società Italiana Vetro v. Commission [1992] 5 CMLR 302.

⁹² Case C-393/92 Municipality of Alemo v. NV Energiebedrijf Ijsselmij [1994] ECR I-1477.

⁹³ Cases C-140-142/94, DIP SsA v. Commune di Bassano del Grappa [1995] ECR I-3257 para 25-6.

⁹⁴ Commission decision No. 97/26/EC OJ L (1997).

⁹⁵ Commission decision 97/26/EC, Gencor/Lohnro.

In the *Compagnie Maritime Belge* case⁹⁶ the CFI applied the joint dominance concept to a shipping line conference that tried to eliminate their main independent competitor. The court deemed the close relationship between the companies in the shipping line conference a strong enough requisite link between the companies to apply joint dominance.

In brief the regulation seems to say that for two or more companies to be jointly dominant they must be in the same geographical market and together has the same position vis-à-vis their customers as a single dominant company. In addition there must not be any significant price competition between the companies. If those prerequisites are filled the companies are subject to the same regulations as a single dominant company. In regard to this concept's application on the telecommunications market the notice says:

“ For two companies to be jointly dominant it is necessary, though not sufficient, for there to be no effective competition between the companies in the relevant market. This lack of competition may in practice be due to the fact that the companies have links such as agreements for cooperation, or interconnection agreements. The Commission does not, however, consider that either economic theory or community law implies that such links are legally necessary⁹⁷ It is a sufficient economic link if there is a kind of interdependence which often comes about in oligopolistic situations. There does not seem to be any reason in law or in economic theory to require any other economic link between jointly dominant companies. This having been said, in practice such links will often exist in the telecommunications sector where national [telecommunication operators] nearly inevitably have links of various kinds with one another.⁹⁸

In a case where a VO has been denied access from all network owners and where there is no objective justification for this it is not possible to claim a defense based on that the dominant companies are acting independently of each other. Network owners cannot avoid being labeled as dominant merely by saying that the others might have given access. In the case of joint dominance behavior by one of several jointly dominant companies may be abusive even if other are not behaving in the same way.⁹⁹

6.2.3 Abuse of dominant position

As described above it is not sufficient that a network owner is dominant or jointly dominant on a relevant market. He must also abuse this dominance. The following paragraphs will discuss different forms of abuse. The discussion will focus on refusal of access and anti-competitive pricing practices. However, as a primer to

⁹⁶ Cases T-24-6 and 28/93, *Compagnie Maritime Belge Transport SA v. Commission* [1997] 4 CMLR 273.

⁹⁷ Commission decision 92/533/EEC of 22 July 1992, *Nestlé/Perrier* (OJ L 356, 5.12.1992, p.1).

⁹⁸ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p. 13.

⁹⁹ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p.21.

other possible anti-competitive behaviors that can be expected to occur on the UMTS market brief descriptions of other abuses and how they are perceived by the notice will be done.

6.2.3.1 Refusal to grant access

According to the notice a refusal to give access will only be abusive if it has exploitative or anti-competitive effects. The notice continues to say that since service markets in the telecommunication sector have few competitive players a refusal will generally affect competition on those markets.

For competition law purposes there are three different situations in which the access refusal can become relevant. In the first situation other service providers has been granted access to the same downstream market but one is refused. The second situation is characterized by that no one is using that down-stream market and no one is allowed access. In the third situation access is withdrawn from a service provider that has already been granted access.

6.2.3.1.1 Discrimination

The first of the above situation, a refusal of a dominant facility owner to give access for the purpose of a service where another operator has been given access, would constitute discriminatory treatment. In the absence of any objective justification (6.2.4 below), discriminatory treatment that restricts competition in a downstream market constitutes an abuse.

6.2.3.1.2 Essential facilities

The second of the situations described above refers to a refusal of the network owner to grant access to a new downstream market. In these cases the question arises as to whether the network owner should be obliged to provide capacity to facilitate services that has not earlier been provided, either by the network owners own downstream arm or by any other company.

These issues have been dealt with earlier in the context of Community competition law both by the Commission and by the ECJ. In a number of cases ECJ has established a so-called essential facilities doctrine¹⁰⁰. The doctrine relates to the situation where a company has a dominant position in the provision of facilities that are essential to other firms to supply goods or services and where those facilities cannot be replicated in an economically efficient manner. The court has put a high threshold in these rulings –such as in the *Bronner/Mediaprint* judgement¹⁰¹. In the transport field the Commission has ruled that a firm

¹⁰⁰ According to Case C-7/97 Oscar Bronner GmbH & Company. KG. v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG and others Opinion of Advocate General Jacobs, Paragraph 34 , a company which has a dominant position in the provision of facilities which are essential for the supply of a goods or service on another market abuses its position where, without objective justification, it refuses access to those facilities.

¹⁰¹The threshold for application of this rule must be set so that a balance between the competition interests and the interest of protecting the ability to use one's own investment for one's own benefit is addressed by the court in this acse. The general Advocate

controlling an essential facility must give access in certain circumstances.¹⁰² The same principles apply to the telecommunications sector. If there were no commercially feasible alternatives to the access being requested, then unless access is granted, the party requesting access would not be able to operate on the service market. Refusal in this case would therefore limit the development of new markets or new products on those markets, contrary to the intentions of the internal market. A refusal having these effects is likely to be abusive in the sense of the notice.

The essential facilities concept has proved useful in dealing with access issues in other markets. The concept has however found its most explicit formulation in the access notice:

“In order to determine whether access should be ordered under the competition rules, account will be taken of breach by the dominant company of its duty not to discriminate or of the following elements taken cumulatively:

1. access to the facility in question is generally essential in order for companies to compete on that related market.

The key issue here is therefore what is essential. It will not be sufficient that the position of the company requesting access would be more advantageous if access were granted – but refusal of access must lead to the proposed activities being made either impossible or seriously and unavoidably uneconomic.

2. there is sufficient capacity available to provide access

3. the facility owner fails to satisfy demand on an existing service or product market, blocks the emergence of a potential new service or product, or impedes competition on an existing or potential service or product market.

4. the company seeking access is prepared to pay the reasonable and non-discriminatory price and will otherwise in all respects accept non-discriminatory access terms and conditions.

5. there is no objective justification for refusing to provide access¹⁰³.

6.2.3.1.3 Withdrawal of supply

What regards the third situation referred to above, a withdrawal of access from existing access providers, this might also constitute an abuse. In the case of Commercial Solvents, the court held that “an undertaking which has a dominant position on the market in raw materials and which, with the objective of reserving such raw material for manufacturing its own derivatives, refuses to supply a customer, which itself is a manufacturer of such derivatives, and therefore risks eliminating all competition on the part of this customer is abusing its dominant

emphasizes the right for every business to choose their partners and the right to freely dispose of one’s own property. He then continues to claim that in the long run this favors competition and is in the interest of the consumers to allow investors to benefit fully from their own investments. Companies in dominant positions would simply not have any incentives to invest in efficient new facilities if competitors upon request were allowed to share the advantages of the new facility.

¹⁰² Case 6/72 Continental Can [1973] ECR 215.

¹⁰³ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p. 81.

position within the meaning of article 86 [now Article 82]¹⁰⁴ Although this case dealt with the withdrawal of a product, there is no difference in principle between this case and the withdrawal of access.

6.2.3.2 Anti-competitive pricing

There are many ways in which pricing can be used in an anti competitive manner. Competition law deals with them in different ways

6.2.3.2.1 Excessive

The prohibition of excessive prices is one of the foundations of Article 82. An excessive price has been defined by the ECJ as “being excessive in relation to the economic value of the service provided”¹⁰⁵. The ECJ has made it clear that “this excess could, inter alia, be determined objectively if it were possible for it to be calculated by making a comparison between the selling price of the product in question and the cost of production¹⁰⁶”. In these cases it is necessary for the regulator to determine what the actual costs for the relevant product are.

Appropriate cost allocation is therefore fundamental to determine whether a price is excessive. For example, where a company is engaged in a number of activities, it will be necessary to allocate relevant costs to the various activities, together with an appropriate contribution towards common costs.¹⁰⁷

Another way to determine whether a price is excessive is a comparison with other geographic areas. The court has held that if possible a comparison could be made between the prices charged by a dominant company, and those charged on market that are open to competition¹⁰⁸. The court has further said that “when an undertaking holding a dominant position imposes scales of fees for its services which are appreciably higher than those charged in other Member States and where comparison of the fee levels has been made on a consistent basis, that difference must be regarded as an indicative of an abuse of a dominant position. In such a case it is for the dominant undertaking to justify the difference by reference to objective dissimilarities between the Member States in question and the situations prevailing in all the other Member States”¹⁰⁹.

This method that has been extended into the “best practice” approach for access pricing that has been adopted by the Commission in a recommendation on

¹⁰⁴ Cases 6 and 7/73, *Commercial Solvents* [1974] ECR 223.

¹⁰⁵ Case 26/75 *General Motors Continental v. Commission* [1975] ECR 1367, at paragraph 12.

¹⁰⁶ Case 27/76 *United Brands Company and United Brands Continental BV v. Commission* [1978] ECR 207.

¹⁰⁷ When accounting separation is needed the notice recommends that the regulator can take advantage of the ONP rules that in some cases mandate accounting separation see 6.2.1 below.

¹⁰⁸ Case 30-87, *Corinne Bodson v. Pompes funébres des régions libérées* [1988] ECR 2479

¹⁰⁹ *Société des auteurs, compositeurs, éditeurs de musique (SACEM)*; joined cases 110/88; 241/88 and 242/88 [1989] ECR 2811.

interconnection and accounting separation¹¹⁰. Any pricing that considerably exceeds best practice will be examined very closely with regard to the competition rules (Article 82)¹¹¹.

Where no competitive market data are available the regulatory agencies may have to try to determine what the price would be on such a market. This can be done by various forms of analytical cost models. For example the German NRA has devised complex models for how to calculate the long run incremental cost on which pricing can be based¹¹².

6.2.3.2.2 Predatory

Predatory pricing occurs, where a dominant firm sells a good or a service below cost 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. Such unfairly low prices are in breach of Art 82 (a). A dominant undertaking has no interest in applying such prices except that of eliminating competitors so as to enable it subsequently to raise its prices by taking advantage of its dominant position, since each sale generates a loss.

Predatory pricing is unlawful if it infringes one of the two *AKZO* judgment tests¹¹³. The Access notice makes a reference to the *AKZO* doctrine that "a price is abusive if it is below the dominant companies average variable cost or if it is below the average cost and part of a competitive plan". However, this type of cost calculations does not work very well with network services where fixed costs are high but variable cost low. What kind of behavior is predatory if the marginal cost of production is close to zero but the fixed costs enormous?

It is clear that in cases of access to telecommunication networks a simple application of the above rule would not reflect the economic reality. Instead a price that equates the variable cost of a service may be substantially lower than the price the operator needs in order to cover the cost of providing the service. The notice continues: "to apply the *AKZO* test to prices which are to be applied over time by an operator, and which will form the basis of the operator's decision to invest, the costs considered should include the total cost which are incremental to the provision of the service. In analyzing the situation, consideration will have to be given to the appropriate time frame over which costs should be analyzed. /.../ It will therefore be necessary to examine the average incremental cost of providing a service, and to examine average incremental costs of a longer period

¹¹⁰ Commission recommendation 98/195/EC of 8 January 1998 on interconnection in a liberalized telecommunications market; Commission recommendation 98/511/EC amending recommendation 98/195/EC with regard to Interconnection pricing (1998 OJ L 228/30).

¹¹¹ Commission of the European Community, 28th report on Competition policy 1998 p.42 f. reports how the Commission has surveyed the market for interconnection comparing actual pricing with best practice.

¹¹² Analytical cost model. Drafted by the German NRA "Die Regulierungsbehörde für Telekommunikation und Post".

¹¹³ Case C-62/86, *Akzo Chemie BV v. Commission* [1991] ECR I-3359, (1993) 5 CMLR 215.

then one year.’¹¹⁴ However, a cross-subsidy is only unlawful if it has a substantial exclusionary effect and if it cannot be justified by e.g. start-up costs.

6.2.3.2.3 Price squeeze

As described above (under excessive pricing) it has in the past been notoriously difficult to establish, under the conditions of Article 82, when a price was unfairly high. In cases brought before the Commission, a dominant company selling both raw material (in this case access to the network) and end product (in this case telecommunication services) at a price that are so close that a competitor buying the raw material cannot make a reasonable profit has determined to be contrary to Article 82. Where the operator is dominant in the product or service market, a price squeeze could constitute an abuse. A defense is that the dominant company’s down stream operations are exceptionally competitive is permissible¹¹⁵, but exceptionally clear cost accounts would be essential to prove it.

6.2.3.2.4 Discrimination

Any differentiations based on the use of which is to be made of the access rather than differences between the transactions for the access provider itself, if the discrimination is sufficiently likely to restrict or distort actual or potential competition would be contrary to Article 82. This discrimination could take the form of imposing different conditions, including charging different prices, or otherwise differentiating between access agreements, except where such discrimination would be objectively justified, for example on the basis of cost or technical considerations. Such discrimination could be likely to restrict competition in the down stream markets on which the company requesting access was seeking to operate, in that it might limit the possibility for that operator to enter the market or expand its operations on that market. In such a case discrimination would constitute an abuse.

6.2.3.3 Other forms of abuse

One of the more common problems in regard of access is that network owners who do grant access are in different ways obstructing the service provider from using its access efficiently. Dominant network owners have a duty to deal with request for access efficiently: undue and inexplicable or unjustified delays in responding to a request may constitute an abuse.

The answer to the question what the necessary quality and nature of the service is, is that the network owner seems to be free to alter the nature of its product or service if the alteration is made in order to improve his own product or service, and not primarily with the effect of making it difficult for his competitors.

¹¹⁴Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p. 18.

¹¹⁵ Commission Decision 88/518/EEC of 18 July 1988, Napier Brown/British Sugar (OJ L 284 19.10.1998, p.41).

However, the proportionality principle indicate that a dominant company is not free to cause substantial inconvenience to its competitors to achieve minimal improvement of its service or product.¹¹⁶

By the same token the proportionality principle obliges the network owners to minimize the inconvenience to virtual operators and service providers when doing technical alterations. They also need to disclose the changes to their downstream competitors in line with the *IBM* case¹¹⁷ and the *Decca*¹¹⁸ decision.

6.2.3.3.1 Network configuration

The notice just shortly addresses this issue by saying: “Network configuration which makes access objectively more difficult for service providers could constitute an abuse unless it were objectively justifiable”¹¹⁹.

6.2.3.3.2 Tying

A company that is “tying” product or services for which they have a dominant position with other products that are normally sold at a competitive market may also be acting unlawfully. In the UMTS case one can imagine that an operator that is very dominant on the fixed telephony market can tie the fixed subscription to the that of the UMTS services and thereby effectively hindering competition from entering large parts of the market.

6.2.4 Objective justification

Competition law accepts certain justifications for refusal to grant access or for giving different conditions to different service providers. One example of when refusing access is acceptable is when the service provider represents a potential credit risk. Further, objective justification could for example be an overriding difficulty of providing access to the requesting company, or the need for a facility owner which has undertaken investment aimed at the introduction of a new product or service to have sufficient time and opportunity to use the facility in order to place that new product or service at the market. It must be decided whether these difficulties are enough to outweigh the damage done to competition if access is refused or made more difficult.

6.2.5 Article 81 issues

6.2.5.1 Access agreements

¹¹⁶ Lang p.772

¹¹⁷ International Business Machine Corp. v. Commission, Case 60/81, [1981] ECR 2639, [1981] 3 CMLR 635

¹¹⁸ Decca Commission Decision No. 89/113/EEC, OJ L 43/27 (1989)

¹¹⁹ Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2 p.17

One aspect of the access agreements that are elaborated on in the notice is their potential anti-competitive effects vis-à-vis third parties.

Access agreements may, for example:

- serve as a mean of coordinating prices
- serve as a mean of market sharing
- have exclusionary effects on third parties¹²⁰
- lead to an exchange of commercially sensitive information between the parties.

Agreements between two parties that have this kind of effects are contrary to Art 81 of the treaty. Both the Commission and the NRAs should therefore in certain cases investigate the possible anti-competitive effects of access agreements.

What regards the exchange of information it is in the telecommunications sector inherent that parties will obtain certain customer and traffic information about their competitors. This information exchange could in certain cases influence the competitive behavior of the undertakings concerned, and could easily be used by the parties for collusive practices such as market sharing.¹²¹ In order to comply with the competition rules operators must introduce safeguards to ensure that confidential information is only disclosed to those parts of the companies involved in making the interconnection agreement.

6.2.5.2 Joint ventures

Joint venture regulation is interesting in this case since many of the license holders around Europe are in fact JVs between major national GSM and fixed operators. As has been described above this has created a situation where companies that cooperate in a JV in one country are competitors in another. This is indeed not an ideal situation in which to create competition.

Joint ventures have for a long time been a notorious cause of problems under EC competition law¹²². The phenomenon has been regulated both directly by a special merger regulation and by Article 81(1). The Commission in 1987 made the statement that their approach to joint ventures was "to ensure that the right balance is struck between the need for coordination of the industrial efforts in order to increase the competitiveness of the European industry and to create a single market, and the necessity of ensuring that competition in the common market is not distorted and allowed to fulfill its function of bringing about a more

¹²⁰ Commission Decision 94/633/EC of 21 September 1994, Night Service (OJ L259, 7.10.1994 p.20)

¹²¹ See for example Case T-34/92 Fiatragri UK and New Holland Ford v. Commission [1994] ECR II-905; Case T-35/92 John Deere v. Commission [1994] ECR II-957;

¹²² See Xiong Tao and Kirkbride James, *The European Control of Joint Venture: An Historic Opportunity or a Mere Continuation of Existing practice?*, European Law Review volume 23 No.1 February 1998, Sweet & Maxwell.

efficient allocation of resources”¹²³. The regulation of Joint ventures is quite complex and outside the scope of this thesis. It is therefore enough to note that neither the Commission nor NRAs has stopped any of the Joint ventures that have been formed in the quest for UMTS-licenses.

6.3 New rules

By the end of 1999, the ONP and the derived national sector specific regimes had become highly dependent on definitions. The question of who should be designated an SMP operator (and therefore become subject to substantial regulatory scrutiny and to regulatory rate approval) had become central.¹²⁴ This focus on definitions created a situation with high potential for legal conflict. In fact there was at this time threats of major conflicts concerning the interpretations of the SMP concept in a number of Member States. The debate that preceded the new regulation identified this as a major problem and it was decided that the approach needed to be altered in the new regulatory framework. During the preparatory work it was further demanded that the divergence between the sector specific regulation term SMP and the Competition law term dominance was removed in order to reduce the risk of making wrong business decisions or delaying business activities because of conflicting jurisdiction of regulatory bodies.

The 1999-review suggested a two-tire legislation using both concepts. The idea was that companies with SMP would have an obligation to negotiate for access while dominant companies would have the obligation to grant access to all reasonable requests for access. However, after criticism from NRAs and new entrants in the public consultation the suggestion was altered¹²⁵. The rules deciding which companies the new regulation will be applicable to will now be set out in the new Framework Directive. This Directive defines all the criteria that have to be filled for regulatory intervention on the market. The Directive establishes the continued use of the SMP concept as a condition for when the authorities can intervene. However, the new system will entail a modification of the SMP concept to base it in the competition law concept of dominant position¹²⁶. That is, the name will still be SMP but the content of the concept will be the same as that of

¹²³Commission of the European Communities, 16th report on Competition Policy 1987, p. 43.

¹²⁴ Ungerer Herbert, *Access issues under EU regulation and Anti-trustlaw – the case of the telecommunications and Internet markets*, p. 19-20.

¹²⁵ Commission communication, The result of public consultation of the 1999 Communications review and orientation for the new regulatory framework COM (2000) 239 of 26 April 2000 p. 22.

¹²⁶ Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, COM (2000) 393 final of 12 July 2000 p. 11 says that: “the definition of significant market power in Directive 97/33/EC/.../ as amended by 98/61/EC (OJ L 268/37)/.../ has proved effective in the initial stages of marketing opening as the threshold for ex ante obligations, but now needs to be adapted to suit more complex and dynamic markets, and for this reason is modified to be based in the concept of dominance as defined in the case law of the Court of Justice”.

dominance. This means that the three-step procedure of the notice will be used in the new regulation. This will create conformity between the previously differentiated concepts and make the competition law concepts applicable in the sector specific regulation. The new definition of SMP is stipulated in Article 13.1:

Art 13 Framework Directive:

An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers

The Commission in the public consultation somewhat crudely summarizes the extensive material upon which the dominance concept is based with that NRAs will designate undertakings as having SMP where:

- “the undertaking has financed infrastructure partly or wholly on the basis of special or exclusive rights which have been abolished, and there are major legal, technical or economic barriers to market entry, in particular for construction of network infrastructure; and/or
- the undertaking is a vertically integrated entity and its competitors necessarily require access to some of its facilities to compete with it in a downstream market

and where national and EU competition law does not suffice to ensure effective competition and choice in the market concerned”¹²⁷

The definition in the new framework will thus not differ from the competition rules definition of a dominant position. It however seems as if SMP must mean something other than the competition rules since it otherwise would be pointless. The answer to this enigma is that the market definition in the competition rules is based on the circumstances and business areas of a specific company and its competitors while under the telecom regulation the commission can choose a market independently of the companies operating on the market. This procedure is further elaborated on in 6.3.1

6.3.1 Procedure

One of the most important aims when constructing the new regulation was (as has been pointed out above) that it must be flexible and able to adapt to new market altering technologies. This means that the definitions of markets and products must be able to identify new market situations or new bottlenecks linked to new technologies. For these purposes the ONP procedure, where markets were defined in the legislative text, was insufficient. In the new procedure the Commission identifies a market that they suspect are suffering from lacking competitive structures. The market defined by the Commission is then investigated

¹²⁷ Commission communication, The result of public consultation of the 1999 Communications review and orientation for the new regulatory framework COM (2000) 239 of 26 April 2000 p. 22-23.

in all Member States by the NRAs. This procedure provides a framework of principles for the NRAs to deal with access issues. The actual decision making is left to the individual NRAs, acting in light of their specific market conditions.¹²⁸

The market analysis procedure that is used when identifying SMP-companies is described in article 14.

Art 14 Framework Directive

The Commission shall issue a decision on Relevant Product and Service Markets (hereinafter “the Decision”), addressed to the Member States. The Decision shall identify those product and service markets within the electronic communications sector, the characteristics of which may be such as to justify the imposition of regulatory obligations set out in the Specific Measures, without prejudice to markets that may be defined in specific cases under competition law.

/.../

Where national regulatory authorities are required under Articles 16, 25 or 27 of Directive on universal service and users rights relating to electronic communication networks and services or Articles 7 or 8 of Directive on access to and interconnection of electronic communication networks and associated facilities to determine whether to impose, maintain or withdraw obligations on undertakings, it shall determine /.../whether a market identified in the Decision is effectively competitive in a specific geographic area.

/.../

Where a national regulatory authority determines that a market identified in the Decision is not effectively competitive in a geographic area /.../ it shall impose sector specific regulatory obligations set out in the [other four Directives], or maintain such obligation where they already exist.

The Commissions guidelines for how SMP should be calculated are seen as necessary since regulation must have a strong co-ordination procedure at a European level to safeguard the single market and to ensure that the regulation is applied conformably through out Europe. The guidelines will also address the issue of newly emerging markets, where de facto the market leader is likely to have a substantial market share but should not be subject to inappropriate obligations. Within two months after the decision the NRAs must analyze the national markets using the definition in the decision. If the market is found to be non-competitive the measures described in the next chapter can be applicable.

7. Remedies

The framework that has been applied up until the enactment of the new regulation contains a dual system of remedies in situations where a company network owner has been found to threaten competition. Within the sector specific realm NRAs can mandate ex ante access provisions concerning pricing, accounting and

¹²⁸Commission Communication, Review of the telecommunication regulatory framework – a new framework for electronic communications infrastructure and associated services, the 1999 Communications review, COM(1999) 539 final of 10 November 1999.

technical details through the licensing and authorizations of the operators. Using Competition law abuses of dominant position can be dealt with ex post.

7.1 Competition rules

Access and its relation to Competition law came in to focus as early as *British Telecommunications* in 1982¹²⁹. Already here the Commission hinted at a number of issues that would be pivotal in the legal discourse: the key role of access to the network of the incumbent, the issue of non-discriminatory access and the issue of promoting new technology. Since this case there has been a number of complaints concerning the refusal of access or the conditions attached to it. Most of these complaints have been settled by action of the national regulator.

As described above the notice defines to what extent Article 82, regarding abuse of dominant positions to access issues. It also makes a brief description of the possible remedies available under competition law. The Commission's main remedy against companies breaching Art 81 or 82 is their ability to impose fines of up to 10% of the annual worldwide turnover of the undertaking. In addition to this the Commission can potentially grant interim measures during proceedings if there is a risk of serious and irreparable harm. This thesis will not further elaborate on the procedural technicalities of the complex interplay between national and competition law procedures. Further, it will not elaborate on the specifics of the Competition law fining system. It is enough to note that network owners committing an abuse against Art 81 or 82 are risking heavy fines under competition law. One of the most interesting observations is the possibility that these remedies can be directed not only against a single company but also towards several companies that are jointly dominant.

What regards the Joint ventures issue briefly described above, regulatory decisions tend to mean that competition law is enforced through a dialog and negotiations between the EU competition authorities and the involved parties. In the case of *Vodafone Airtouch / Mannesmann*¹³⁰ merger for example the Commission requested that the company should enable a third party non-discriminatory access to the merged entities' integrated network. Another example is the *Telia/Telenor*¹³¹ merger that was approved on condition that part of their communications network was divested.

¹²⁹ Case 41/83 Re *British Telecommunications: Italy v. EC Commission* (United Kingdom intervening), [1985] 2 CMLR 386.

¹³⁰ Commission decision, *Vodafone Airtouch/ Mannesmann* 12 April 2000, not yet published in OJ but notification of the merger can be found (2000) OJ C 19/3 and the case itself in Celex with celex number 32000m1795.

¹³¹ Commission decision 2001/98/EC *Telia/Telenor* 2001 OJ L 40/1.

7.2 Sector specific rules

The policy documents of the Community claim that the degree of regulatory intervention will be determined by the degree of competition in a market. The more competitive the market the less the regulator will intervene. The differing competitive situations in the mobile and the fixed telephony markets have in line with this reasoning been given different remedy structures in the regulatory framework.

7.2.1 Fixed

In the 1990 Service Directive Member States are mandated to withdraw all special or exclusive rights for the supply of telecommunication services other than voice telephony. This meant that the fixed lines for “packet- and circuit switched data services” and “telex services” were to be opened up for competition. The way to achieve this was to force the incumbents owning the fixed networks to lease capacity to competitors. Other operators were thus allowed to enter the network trying to achieve a lower price.

However, legislators soon realized that the leasing out of capacity would need to be regulated if competition was to be achieved. This regulation was created under the framework of the ONP Directive¹³². The first ONP based Directive regarding access for competitors to the fixed lines of the incumbent was the 1992 leased lines Directive¹³³. First, this Directive mandates for all Member States to abolish any restrictions that they might still have imposed on the ability to lease lines for this sort of traffic from the national fixed network. Further, principles on how to control the leasing of lines were established. The principles were meant to ensure that the competitors were given fair access agreements with the incumbent.

-A minimum set of leased telex and data lines must be offered by all incumbents. This rule prevents the incumbents from further delaying the availability of capacity.

-The principles of non-discrimination as laid down in the treaty should be applied to, availability of technical access, tariffs, quality of service, provision time, fair distribution in case of scarcity, repair time and availability of network information¹³⁴. This allows the competitors to operate on the same conditions as the incumbent.

-The Member States are obligated to ensure that their NRAs to set up procedures that allows them to on a case-by-case basis decide whether an

¹³² Directive 90/387/EEC on the establishment of the internal market for telecommunications services through the implementation of open network provision, (1990) OJ L 192/1.

¹³³ Directive 92/44/EEC on the application of open network provision to leased lines, (1992) OJ L 165/27.

¹³⁴ This should according to Article 8 be monitored by the NRA.

incumbent's refusal to supply or interruption of provision of leased lines is in compliance with regulations. NRAs (who are completely independent from the Member State) were seen as more appropriate to ensure competition than the Member States themselves.

- Cost-oriented pricing for the provision of leased lines are mandated.

“In accordance with Directive 90/387/EEC¹³⁵, the tariffs for leased lines must be based on the following principles; they must be based on objective criteria and must follow the principle of cost-orientation, taking into account a reasonable time for rebalancing; they must be transparent and properly published; they must be sufficiently unbundled in accordance with the competition rules of the treaty and they must be non-discriminatory and guarantee equality of treatment”¹³⁶

- Cost accounting is made mandatory for the incumbent in order to allow monitoring of the cost structure and thus the compliance with the mandatory cost-oriented pricing.

In 1995 a time schedule for the complete abandoning of exclusive and special rights to provide fixed voice telephony was adopted through the first Voice Telephony Directive¹³⁷. This meant that the principles of the leased lines Directive became applicable to fixed voice telephony.

Via the 1997 Interconnection Directive¹³⁸ the ONP framework was adapted to the new multi-operator environment. The role of the monopoly operator was replaced by the concept of public network operators acting in competition, with a number of rights and duties. The rights concern the right to interconnect with network operators of the same category. The duties concern the obligation to offer interconnection to others but also the guarantee of universal service. The Interconnection Directive established principles similar to those of the Leased Lines Directive: interconnection was to be given on non-discriminatory conditions to service providers and other network owners based on cost oriented pricing. The Directive also entailed rules of transparency and accounting separation.

Later the same year also the leased lines Directive was adapted to the multi-operator environment of the liberalized telecommunications market¹³⁹. This meant the introduction of the SMP concept to the leased lines Directive. The Directive

¹³⁵ This refers to Annex II of Directive 90/387 on the establishment of the internal market for telecommunications services through the implementation of open network provision, (1990) OJ L 192/1 where tariff principles are described.

¹³⁶ Directive 92/44/EC on the application of open network provision to leased lines, (1992) OJ L 165/27 preamble paragraph 17.

¹³⁷ Directive 95/62/EC application of an Open Network Provision to voice telephony, (1995) OJ L 321/6.

¹³⁸ Directive 97/33 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32.

¹³⁹ Directive 97/51/EC amending Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications. OJ L (1997) 295/23.

made the principles of non-discrimination, cost oriented pricing and cost accounting referred to above applicable to the operators holding SMP.

In 1998 the liberalization process had come so far that the European Council was able to reach an agreement on mandating access to the fixed lines of the incumbent in the area of voice telephony. The new Voice telephony Directive¹⁴⁰ contained a general requirement for telecommunication operators with SMP to grant all reasonable requests for access to their networks¹⁴¹. It further imposed a certain number of detailed obligations with respect the principle of non-discrimination, in particular between subsidiaries or internal services and other parties, that went beyond those of the Leased lines Directives. The new voice telephony Directive forced the network owner holding SMP to provide suitable information to other parties, communicate interconnection agreements to the NRA and make restricted use of the information provided for interconnection purposes by third parties. Further, network owners holding SMP were to apply similar conditions in similar circumstances to organizations providing similar services. They were also to provide access to facilities and information under the same conditions and of the same quality to other operators as they provided for their subsidiaries and partners. The following year the non-discrimination rules was further enhanced by the so-called Cable Ownership Directive¹⁴², that forced the incumbent to make the part of the company operating the fixed network a separate legal entity.

What regards the pricing regulation both the new Voice telephony Directive and the leased lines Directive mandated access providers to follow the principles of cost orientation set out in Annex II of 90/387. This rule was elaborated on in the non-binding EC recommendations on interconnection pricing¹⁴³. For network owners who did not have SMP the voice telephony Directive laid down the principle that access to the fixed networks, and the conditions under which it should be given, should normally be left to commercial negotiations between parties.

7.2.2 Mobile

The Service Directive and the original ONP Directive did not include mobile telephony. Instead the Member States had different regulations and technical

¹⁴⁰Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment, (1998) OJ 101/24.

¹⁴¹Article 16.

¹⁴²Directive 1999/64/EC ensuring that telecommunications networks and cable television networks owned by a single operator are separate legal entities. 1999 OJ L 175/39.

¹⁴³Commission recommendation 98/195/EC of 8 January 1998 on interconnection in a liberalized telecommunications market; Commission recommendation 98/511/EC amending recommendation 98/195/EC with regard to Interconnection pricing (1998 OJ L 228/30).

standards. It was first in 1996 via the Mobile Directive¹⁴⁴, initiated by the 1994 Green paper on mobile telephony¹⁴⁵, that the market for mobile telephony was liberalized.

Mobile Directive Article 3c

Member States shall ensure that all restrictions on operators of mobile and personal communication systems with regard to the establishment of their own infrastructure, the use of infrastructure by third parties and the sharing of infrastructure, other facilities and sites, subject to limiting the use of such infra structures to those activities provided for in their license or authorization, are lifted.

As can be seen in the above quote the activities of the mobile operators were subject to the license requirements of the NRAs. In regards of access issues the Mobile Directive meant that national laws and NRA rules must allow network owners to make access agreements if they wanted. However, the Directive did not mention mandatory access requirements such as the ones enacted in the fixed telephony sector. A network must be made available to service providers only if such requirements were laid down in the network owners license or authorization issued by the NRA. This maintains much of the regulative power with the NRAs who could decide on interconnection, access and pricing requirements. The Directive did however encourage the Member States and their NRAs to initiate legislation mandating access provisions.

“In order to establish the conditions under which mobile and personal communications systems are to be provided, Member States may introduce licensing or declaration procedures to ensure compliance with the applicable essential requirements and the public service specifications in the form of trade regulation, subject to the proportionality principle. Public Service specifications in the form of trade regulation relate to conditions of performance, availability, and quality of the service. Such conditions may include the obligation to give service providers access to airtime on terms at least as favorable as those available to a service provision business owned by, or with ownership links to, a mobile network”¹⁴⁶.

However, most countries did not interfere with the mobile market despite its dubious competitive structures. Sweden was the only country that mandated access to the mobile networks. The other Nordic countries and the UK initiated limited regulations on roaming between networks¹⁴⁷.

¹⁴⁴ Directive 96/2/EC amending Directive 90/388/EEC with regard to mobile and personal telecommunications, (1996) OJ L 20/59.

¹⁴⁵ Towards the Personal Communications Environment - Green Paper on a common approach in the field of mobile and personal Communications in the European Union; COM (94)145.

¹⁴⁶ Directive 96/2 amending Directive 90/388 with regard to mobile and personal telecommunications, (1996) OJ L 20/59. preamble paragraph 14.

¹⁴⁷ Proposition 1999/2000:57 p.14.

In 1997 mobile telephony was included in the ONP framework¹⁴⁸. This meant that mobile networks owners got the same rights and duties that the fixed operators already had regarding interconnection. It also meant that the SMP concept became applicable to the market. From an access regulation point of view this meant that the principles for access set out in the leased lines Directive became applicable also to mobile telephony. That is, in the cases where there was access agreements made on a voluntary basis between network owners with SMP and a service provider the pricing and non-discrimination rules of the ONP framework became applicable. However, the rules of mandatory access and non-discrimination of the new Voice telephony Directive was not applicable to the mobile networks.

Thus, the fixed telephony had both a mandatory access and a mandatory pricing regulation for network owners having SMP. In most Member States the undertakings holding SMP is easily defined as the incumbent. That is, there was a clear and distinct access and pricing regulation applicable to an easy-to-define network owner. Mobile telephony on the other hand has only the pricing regulation and weaker non-discrimination rules for companies holding SMP. In addition to this it was in many markets hard to define who had SMP, mainly due to a weaker position of the incumbent and the larger number of alternative infrastructures.

7.3 Soft law

Another common way used by the Commission to affect the behavior of the network owners is to use soft law. This soft law often takes the form of recommendations from the commission about how they think that a certain matter ought to be dealt with. As has been described above soft law has for example been used to tackle problems of high interconnection rates.

Another example of how the Commission used recommendations to influence the behavior of operators when it comes to access is “the recommendation on Unbundled Access to the Local Loop.”¹⁴⁹ The Commission here re-emphasized a number of principles resulting from EU competition rules (mostly set out in the Access notice) with regard to conditions of Access, in particular those concerning delays, discrimination, and pricing abuses. The introduction of soft law meant a shift away from traditional telecommunication regulation towards a more flexible scheme. However, with the subsequent proposal for binding local loop unbundling it became clear that the Commission would not hesitate to back up soft law” with “hard legislation”.¹⁵⁰

¹⁴⁸Directive 97/51/EC amending Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications, OJ L (1997) 295/23.

¹⁴⁹Commission recommendation of unbundled access to the local loop C(2000)1059, 26 April 2000.

¹⁵⁰ Ungerer Herbert, Access issues under EU regulation and Anti-trust law – the case of the telecommunications and Internet markets, p. 26.

7.4 New regulation

The EU regulatory regime concerning telecommunications infrastructure was successful as regards its basic purpose: creating full EU-wide liberalization of networks and services. However, complaints to the commission illustrated that even in the Member States that had implemented the ONP framework and the leased lines Directive, network owners used their control of the access conditions to the networks at the expense of their competitors in the service market¹⁵¹. The legislator therefore wanted the new framework to be more comprehensive and not allow any loopholes for network owners with SMP.

In regards of possible remedies against anti-competitive behavior the new Directives essentially means a consolidation of the ONP Directives. The main principle is, just as before, that there will be no restrictions that prevent undertakings from negotiating access and interconnection agreements between themselves, subject to the Competition rules of the treaty. However, in markets that continues to hold 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 of ex ante rules to ensure that the markets function effectively. In these cases NRAs are given the power to secure, where commercial negotiations fail, access and interconnection of services in the interest of the end-user.

This principle is formulated in the Access and Interconnection Directive:

Article 5 Access and Interconnection Directive

“NRAs shall, acting in pursuit of the objectives set out in Art 7 of [framework Directive] encourage and secure adequate network access and interconnection, and interoperability of services, exercising their responsibility in a way that promotes efficiency, sustainable competition, and gives the maximum benefits to end users.”

Building on this principle Article 8-13 of the Access and Interconnection Directive establishes the possible obligations that can be imposed on network owners having SMP: transparency, non-discrimination, accounting separation, obligation of access, price control. First, in Article 8 the Directive affirms that it is up to the NRA to choose suitable remedies given the situation on the particular market.

Art 8 Access and Interconnection Directives

“Where an operator is deemed to have SMP on a specific market/.../NRAs shall impose one or more of the obligations in Art 9 to 13 of this Directive as appropriate, in order to avoid distortions of competition.”

¹⁵¹Directive 96/19 amending Directive 90/388 with regard to the implementation of full competition in telecommunication markets, (1996) OJ L 74/13 preamble paragraph 7.

Article 10 gives NRAs the authority to impose obligations of non-discrimination. Such obligations is aimed to ensure that network owners with SMP do not distort competition, in particular where they are vertically integrated and supplies services to competitors with whom they compete downstream.

Art 10 Access and Interconnection Directive

“NRA shall/.../ be able to impose obligations for non-discrimination, in relation to interconnection and/or network access. Obligations for non-discrimination shall ensure, in particular, that the undertaking applies similar conditions in similar circumstances to other undertakings providing similar services, and provides services and information to others under the same conditions and of the same quality as they provide for their own services, or those of their subsidiary partners.”

In order to monitor and prevent discrimination an open negotiations rule is enacted. This means that national authorities can demand to see their conditions as for example prices, conditions for access to the network and technical information. This will enable all bidders for network space to act upon the same information.

Article 9 Access and Interconnection Directive

NRAs shall/.../ be able to impose obligations for transparency in relation to interconnection and/or network access, whereby undertakings have to make publicly available specified information, such as technical specifications, network characteristics, terms and conditions for supply and use, and prices. /.../ NRA shall be able to specify the precise information to be made available, the level of detail required and the manner of publication.

The transparency of terms and conditions for access and interconnection serves to speed up negotiations, avoid disputes and give confidence to market players that a service is not being provided on discriminatory terms.

7.4.1 Mandatory Access

The initial proposal from the Commission was to make access negotiations for network owners having SMP (according to the old definition) mandatory. According to the proposal mandatory grant of access should only apply to dominant network owners.¹⁵² The new entrants were, however, during the preparatory legislative work in favor of maintaining an obligation to provide access for network owners having SMP (according to the old definition) and thought that an obligation to negotiate would not ”be taken seriously” by network owners and therefore be ineffective¹⁵³. After the public consultation the proposal was changed so that the mandatory access rule was applicable to network owners holding SMP. However, as described in the preceding chapter the

¹⁵² 1999 review p. 30 ff.

¹⁵³ Commission communication, The result of public consultation of the 1999 Communications review and orientation for the new regulatory framework COM (2000) 239 of 26 April 2000 p. 11.

definition of SMP was at the same time changed so that it corresponded to the dominance concept.

Mandatory access to networks can, according to the new Directives, be demanded from network owning companies that otherwise would refuse service providers access to their network if such a refusal would mean that the development of a competitive market would be hindered or mean a disadvantage to the consumers.

Article 12 Access and Interconnection Directive

A NRA shall /.../ be able to impose obligations on operators to grant access to, and use of, specific facilities and/or associated services, *inter alia* in situations where the NRA considers that denial of access would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user's interest.

Operators may be required *inter alia*:

- a) obligations to give third parties access to specified network elements and/or facilities;
- b) obligations not to withdraw access to facilities already granted;
- c) obligations to provide resale of specified services;
- d) obligations to grant open access to technical interfaces, protocols or other key technologies that are indispensable for the interoperability of services;
- e) obligations to provide collocation or other forms of facility sharing, including duct, buildings or mast sharing;
- f) obligations to provide specified services needed to ensure interoperability of end-to-end services to users including facilities for intelligent network services or roaming on mobile networks;
- g) obligation to provide access to operational support systems or similar software systems necessary to ensure fair competition in the provision of services;
- h) obligations to interconnect networks or network facilities

NRAs may attach to those obligations conditions covering fairness, reasonableness, timeliness, transparency and/or discrimination.

When imposing the obligations referred to in paragraph 1, NRAs shall take into account:

- a) the technical and economic viability of using or installing competing facilities, in light of the rate of market development;
- b) the feasibility of providing the access, in relation to the capacity available;
- c) the initial investment by the facility owner bearing in mind the risk involved in making the investment;
- d) the need to safeguard competition in the long term;
- e) where appropriate, any relevant Intellectual or Industrial Property rights.

7.4.2 Pricing regulation

Art 13 Access and Interconnection Directive

A NRA shall /.../ be able to impose price controls including obligation for cost orientation of prices and obligations concerning cost accounting systems, for provision of specific types

of interconnection and/or network access, in a situation where a market analysis indicates that a potential lack of effective competition means that the operator concerned might be capable of sustaining prices at an excessively high level, or applying a price squeeze, to the detriment of end users. NRAs shall take into account the investment made by the operator and the risk involved.

If a network owner demands unfairly high prices for access and a market analysis reveals inefficient competition the controlling authority can according to the new Directives enact a price control. The regulatory intervention may be light, such as an obligation that pricing should be reasonable, or much heavier such as cost oriented pricing. The authority must decide whether the price is justified or not considering the costs of the network owner and adjust the price accordingly

7.4.2.1 Determining fair pricing

One of the main fears in the beginning of the liberalization process was that the owners of the established networks would hinder the rise of new competitors by denying them interconnection¹⁵⁴ with their network and thus make communication with their subscribers impossible. Interconnection could also, just like access, in practice be hindered by non-competitive pricing structures. The ONP framework therefore laid down principles relating the cost-orientation of interconnection tariffs, the publication of terms and conditions, and the requirement to implement a suitable cost accounting system identifying the cost element relevant for pricing interconnection. The aim of the regulation was to establish "best practice" interconnection rates across Europe. Community law did not impose the use of a specific costing model to calculate the level of charges for interconnection. Instead of a regulation the Commission published recommendations on interconnection pricing¹⁵⁵. In these the Commission pointed to the use of the LRAIC (Long Run Average Incremental Cost) model and set out a list of best current practices. The interconnection Directive said that:

"The levels of charge should promote productivity and encourage efficient and sustainable market entry, and should not be below a limit calculated by the use of long-run incremental cost and cost allocation and attribution methods based on actual cost causation, nor above a limit set by the stand alone cost of providing the interconnection in question. Charges for interconnection based on a price level closely linked to the long-run incremental cost for

¹⁵⁴Directive 97/33 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32 defines Interconnection as "the physical and logical linking of public electronic communications network used by the same or different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access services provided by another undertaking. Services may be provided by the parties involved or other parties who have access to their network."

¹⁵⁵The Commission recommendation 98/511/EC amending recommendation 98/195/EC with regard to Interconnection pricing (1998 OJ L 228/30) recommends a range of best practice interconnect prices, the recommendation generalized the approach for all member states. The benchmark is based on the three States with the lowest interconnection rates. The mandate for application of general EU competition rules to access agreements results from the fact that these agreements determine fundamentally the future competition structures of the sector.

providing access to interconnection are appropriate for encouraging the rapid development and an open and competitive market”¹⁵⁶

This pricing recommendation is interesting not only because it is the most developed form of pricing regulation that the Commission has published but mostly because the 1999-review indicates that this recommendation should be used also in for example cases of mandatory access (or “special access” as it is referred to in that context):

“For Interconnection, the obligation for cost orientation is laid down in primary legislation and the use of long run incremental cost methodology for call termination is set out in Commission recommendations. This construction gives sufficient flexibility while ensuring legal certainty. It is also anticipated that the approach whereby the Commission recommends suitable costing methodologies could be applied to other types of interconnection and special access as necessary.”¹⁵⁷

Thus, the companies that are mandated by the new regulation to provide access should follow the LRAIC approach when pricing the access. In practice this means that the pricing should be oriented towards the cost of the network owner for providing the service. In the models in chapter 3 this competitive price, that resulted in low or no profits, was denoted P*.

To help NRAs to determine when whether pricing is fair the network owners having SMP are under the new regulatory framework subject to a requirement to put in place a cost accounting system and to keep separate accounts for the provision of access services. An appropriate accounting separation allows regulators to identify all elements of cost and revenue related to different activities. This allows internal price transfers to rendered visible and allows NRAs to check compliance with obligations for non-discrimination and/or cost orientation of prices.

Article 11 Access and Interconnection Directive

A NRA shall.../be able to impose obligations for accounting separation in relation to specified activities related to interconnection and/or network access. In particular a NRA shall be able to require a vertically integrated company to make transparent its wholesale price and its internal transfer price, in situations where a market analysis indicates that the operator concerned provides input facilities that are essential to other service providers, while competing itself in the same downstream market.

To facilitate the verification of compliance with obligations of transparency, national regulatory authorities shall have the power to require that accounting records, including data on revenues received from third parties, are provided on request. NRAs shall be able to publish such information as would contribute to an open and competitive market, while respecting national and Community rules on corporate confidentiality.

¹⁵⁶ Directive 97/33 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32.

¹⁵⁷ Commission Communication, Review of the telecommunication regulatory framework – a new framework for electronic communications infrastructure and associated services, the 1999 Communications review, COM(1999) 539 final of 10 November 1999.

8. Analysis

An analysis of the license allocation and the subsequent regulatory reform reveals how the behavior of the Member States has been affected by their somewhat contradictory incentives. As described above the Member States wanted the licensees to:

1. Pay high license fees and pay for a universal and fast rollout of the UMTS networks.
2. Hold cost-oriented pricing.

In order to analyze how the Member States catered to these contradictory needs this analysis will first look at their behavior during the auctions and then examine their decisions when crafting the new telecommunications regulation.

8.1 License allocation

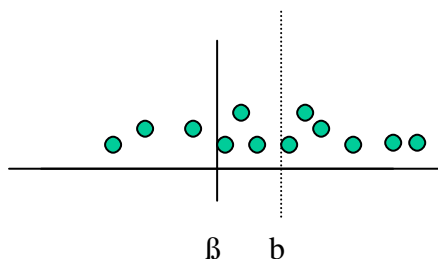
In the time period surrounding the license allocation it seems as if the prospective licensees thought that the Member States gave indications that the licensees were to have exclusive rights to the supply of UMTS capacity. The prospect of an oligopoly-like situation gave the operators incentives to pay high licensing fees in the UMTS auctions. It also led them to believe that the future incomes could cover not only the licensing fees but also the costs associated with a fast and universal network rollout.

Regarding the licensing fees it seems, even though it of course is too early to determine the definite value of the UMTS licenses, as if the Winner's curse theory has been applicable in this case. Uncertainty is inherently high in trying to estimate the value of technological innovations. This made the range of sizes in bids very high. In Switzerland the highest bidder offered 20 Euro per capita for the licenses while the highest bidder in the UK paid 630 per capita¹⁵⁸. In the cases of the UMTS licenses it was not only difficult to estimate β , there was also a bias when determining b . There was a general overestimation of the value of the licenses caused by several factors. First, there was, as described above, a belief (or at least a hope) that regulatory intervention would be less intrusive. In the beginning of April of 2001 all major European network owners in a letter to the Council and Commission warned that the new regulation will mean decreased incentives to invest. They claimed that the new framework will mean that a monopoly regulation is applied to a competitive market. The letter gives the impression that the network owners are surprised by the enactment of the new regulation.¹⁵⁹

¹⁵⁸ Klemper, Paul, What really matters in auction design – revised and extended version. Table 1 p. 32.

¹⁵⁹ Augustsson, Thomas, Avreglering enar telebolag, Svenska Dagbladet Näringsliv p. 19 April 5 2001.

Secondly, the auctions were held at a time when the valuation of IT and telecommunication companies was at its peak and the belief in the possibilities of the Internet and e-commerce was almost unlimited. Thirdly, there was no technological substitute available for the companies who wanted to own “the infrastructure of the future” at that time. Lastly, the media and stock market both called attention to the UMTS licenses as the only way for a telecommunication company to be dominant in the future.



The uncertainty about the true value of the licenses coupled with a general overestimation led to what was probably a substantial overpayment. This resulted, as described above, in that the debt load of the European telecommunication companies has grown to enormous proportions mainly due to the expensive UMTS licenses. In Germany and the UK the price for the licenses exceeded 600 Euro per capita¹⁶⁰. The Member States were benefiting from the overestimated valuation of the licenses as the auctions allowed the Member states to appropriate the expected monopoly-rent.

What regards the second incentive driver for the Member States, the obligations of network rollout and universal coverage this was included in the same probable overestimation. Just as the bidders believed that they could use the future profit for the purpose of paying licenses they thought that they could use it to finance the building of networks also in less densely populated (and therefore less profitable) areas of the Community.

If the Member States were primarily interested in achieving competition, low prices, universal coverage and fast rollout it seems as if the easiest and most controllable way would be to let the Member States themselves build the UMTS networks and then let the operators all be VOs. This would seem like the most efficient idea especially given that Member States seem to view the network as somewhat a public good. The fact that the European governments did not choose this way of organizing the building of UMTS infrastructure should probably not only be seen as a show of their belief in the markets ability to self regulate. Rather, letting the market finance the building has several advantages, most obviously the

¹⁶⁰ Klemper, Paul, What really matters in auction design – revised and extended version. Annex 1.

150 billion Euros in extra income¹⁶¹, but also the fact that the government is through this move relieved from any risk associated with the investment. The risks involved in this project are high: the returns from mobile Internet services are highly uncertain, the pricing models of the operators are unproven, consumer behavior is unpredictable and there are still no handsets available from the manufacturers.

In summary, the Member States managed to fulfill their first set of objectives: they appropriated the license fees and they achieved commitments of rapid rollout and universal services without incurring any cost or risk.

8.2 The new regulation

The next part of the analysis is directed towards the second link in the chain of events described in this thesis: the enactment of the new legislation.

Up until the new regulation the telecommunication sector has not only been governed by a dual set of legal rules, sector specific and competition law, but also by dual frameworks, one for mobile telephony and one for fixed. The market for fixed networks have grown in an ONP environment of cost oriented pricing and mandatory access rules. Much of the current regulatory framework addresses the need to create a competitive market, for example by requiring incumbent operators to meet all requests for access and interconnection with its network. This approach has given Europe some of the lowest interconnection rates in the world for fixed telephony¹⁶² and hundreds of licensed operators. The mobile networks on the other hand has developed in a much more unregulated environment. This has led to high margins and high investment rates but also to a less competitive market structure. In the mobile sector legislators has obviously believed that an unduly restrictive regulatory system would act as a brake on investment or would fail to stimulate sustainable investment. The two regulatory frameworks have thus chosen to emphasize different sides of the dichotomy between investment and competition.

When constructing the new framework the approach has been that the sector specific regulation in principal should be reduced in scope as competition grows and the need to intervene in the market decreases. The main question before the legislators was to what level of competition the applicability rules and, most importantly, the remedies should be adapted. Should they use the intrusive regulation used in the former monopoly fixed telephony sector or the hands-off approach of the mobile telephony sector when crafting the new regulation?

¹⁶¹ According to Klemper p.1 the first six European UMTS auctions cumulatively raised around \$100 billion or over 1 ½ % of the countries' combined GDP.

¹⁶²Ungerer, Herbert, The Regulatory Challenges in the emerging Competition in the EU, Speech in Budapest, 5th of July 1999, IV/C1/HU/rdu.

Mobile operators opposed, in the preparatory work for the legislation, the proposal of the 1999-review and claimed that the mobile market is competitive and that there is no market failure that would justify the imposition of regulated access for service providers. In the public consultation the GSM operators pointed to the fact that commercial agreements were already being reached with service providers in some countries. Service providers and consumer organizations on the other hand was of another opinion and pointed to the current high returns of the GSM operators claiming that there is "more than enough to make a reasonable profit for a service provider and a network operator." Other arguments, beside the high returns, for the non-competitiveness of the market was the national focus of the markets, high roaming charges and the fact that mobile operators often refuse private network deals with business customers.¹⁶³ None of the parties mentioned the situation that can be expected in the UMTS network market.

The legislators seem to have listened to both parties. They followed the call from the service providers and made the remedies used when liberalizing the monopolistic fixed telephony market applicable also to the GSM and to the new UMTS market. In regard of the applicability rules the legislator listened to the network owners and modified the SMP concept to become aligned with the dominance concept.

8.2.1 Applicability

The new definition of SMP is based on the dominance concept as defined in the practice of the Commission and the ECJ and elaborated on in the notice. The dominance analysis, as it is described in the notice, will now be used to determine whether a company has SMP within the meaning of the new regulatory framework. Judging from the situation on the Swedish market it seems as if the UMTS network owners will be willing to give access to at least some service providers. The primary concern in applicability of the new rules to the UMTS case rather seem to be that the network owners would discriminate between different service providers or that they would discriminate between service providers and their own downstream services. This behavior would make mainly the discrimination rules, and not the essential facilities concept, applicable. In the discrimination cases the notice explains how applicability should be determined through a three-step procedure: determining relevant market, establishing whether dominance or joint dominance exists and establish abusive behavior.

First, the notice clearly states that the telecommunication business indeed include at least two relevant markets, network capacity and services to end-customers.

¹⁶³ Commission communication, The result of public consultation of the 1999 Communications review and orientation for the new regulatory framework COM (2000) 239 of 26 April 2000 p. 10.

Thus, the Commission has already decided that access provision is a relevant market that can potentially hold dominant companies.

Secondly, the regulator has to determine whether the company holds SMP on that particular market. This determination is mainly based on the market share of the undertaking. The notice has a prima facie rule of 50% market share for qualifying as SMP. It can be assumed that there will probably not be any network owner that holds market shares of this size in the UMTS market (at least not at the outset). However, the joint dominance rules will be interesting to consider in this context. The notice established that the joint dominance concept is applicable to oligopoly formed by the GSM operators. What regards the UMTS market it is of course impossible to beforehand know whether it will be competitive. However, one can make an educated guess using economic theory and the experience from the GSM market.

The Industrial concentration ratio described in chapter 4 can be used as a first indicator to whether the industry is competitive. The benchmark recommended for when to be alarmed about lacking competitive structures in the market is if five firms together hold more than 60% of the market. In the UMTS case the barriers to entry prevents there from even being five firms.

Economic theory described in chapter 3 affirms that collusion both in regards of access and in regards of pricing would probably be very profitable for the licensees. In more theoretical terms the monopoly-rent ($P' - P^*$) is most likely high enough to motivate the licensees to collude. That is, if they would do the calculations described on page 26 and 27 they would find that in a repeated game situation it would be more advantageous to collude. However, the likeliness of collusion is dependent on the relationship between the network owners. In this respect the experience from the GSM market may give regulators a clue to what can be expected. This experience shows that the network owners are indeed able to align their behavior in pricing and access questions. Considering the integrated relationships between the major players on the telecommunication market and the fact that research shows that prices have not decreased as expected the claim from the Commission that most telecommunication markets are oligopolies and therefore subject to the joint dominance regulation seems to be justified. The number of network owners will be about the same in the UMTS market as on the GSM market. The value chain of the products and services produced are similar. The integrated market structure and especially shared ownership of network can be suspected of being a base for creation of cooperation which in turns form the basis of joint dominance. In the UMTS market this kind of cooperation will be far more prevalent than on the GSM market. Further, the clear barriers to entry helps define the limitation of the supply market to the network owners which in turns helps them collude in order to avoid a Bertrand price war. In addition to this many of the players already suspected of colluding on the GSM market will be competing also on the UMTS market. All in all there seems to be good reason to

expect that the UMTS market will in terms of the competitive situation be as bad or worse than the GSM market.

The most viable argument against collusion and derived dominance in the UMTS sector is the dynamism of the high-tech industries. The rapid pace of change in terms of services and products, measured in weeks and months, may result in that collusion is more difficult and that dominance erodes more quickly than in other industries. Technological change may also erode or eliminate the boundaries between markets, by products or services increasingly substitutable for each other. In this case the UMTS networks are potential substitutable for enhanced GSM networks and various short-range wireless solutions described in 2.4 point 8. In regard of the new technologies based on the GSM networks almost all of the major GSM operators have UMTS-licenses. This will most likely make them reluctant to speed up their GSM networks to compete against their UMTS investments. What regards other alternatives, the limited coverage seems to make them insufficient as a complete substitute for the UMTS networks¹⁶⁴.

Thus, when analyzing whether the SMP concept will be applicable to the UMTS network owners it seems as if it is very likely that the first two steps of the three-step definition will be filled. First, the provision of capacity is most likely a relevant market. Secondly, both experience and theory suggests that the lack of competitive structures will facilitate collusion. What regards the third step, abusive behavior, the collusion describe above will most likely cause behavior that will constitute abuse as defined in the notice. The licensees themselves have obviously realized the possibility of a pro-competitive regulatory intervention on the market. In April of 2001 they wrote a joint letter to the Council and the Commission to complain about the situation created by the new Directives. The licensees claimed that the legislator takes a regulation from a monopoly market and apply it to a competitive market and that this can lead to that Europe loses its leading role within UMTS¹⁶⁵. However, this statement is not completely accurate, in reality the monopoly regulation is removed from the application rules. Ironically, this re-emphasis on competition law, that the licensees themselves endorsed in the public consultation, means, through the joint dominance concept, a higher likeliness that they will be subject to the remedies of competition law

8.2.2 Remedies

As can be seen in chapter 3.1.5 and chapter 5.2.1.3 there are a multitude of different ways in which the network owners can impede competition. The description in the access notice on how to determine dominance takes a wide-ranging approach that seems to capture most anti-competitive behaviors. The

¹⁶⁴ Ahlbom, Helen, Världens Mr Mobile ratar 3G alternativen, Dagens industri 20 December 2000.

¹⁶⁵ Augustsson p. 19.

question then is what the available remedies to counter the various anti-competitive behaviors are.

If the new regulation will apply to the UMTS network owners they can be subject to both obligations to provide access and price control. The remedies available to the NRAs are thus potentially very intrusive. A company that is deprived of the possibility to make such basic business decisions as to whom to sell their product or what pricing strategy they should adopt are very impeded in their ability to function. However, there is reason to believe that there will be difficulties to enforce the new regulation.

What regards price control the difficulty will be to determine what the concept of cost-orientation means in this context. This is determination difficult due to the uncommon cost structure of the operators (very high fixed costs and low variable costs). The prices set by the regulator must take into account not only the variable costs of the network owner but also the prices that has been paid for both acquiring the licenses and building the network infrastructures. The fixed costs must also be distributed over time and account must be taken to capital cost, uncertainty and many other factors. The new regulation gives the responsibility for enacting price control to the NRAs who will be guided by the Commission Interconnection pricing recommendation. However, this does not include instructions on how to deal with situations where fixed costs are of such enormous importance. The experience from the GSM market provides examples of how difficult pricing rules can be to enforce. As described, the Swedish price control legislation has not been enforced due to the difficulties of determining a suitable price. These difficulties will be greater in the far more complex pricing situation of the UMTS market.

The other remedy that this thesis has focused on forces networks owners to give the VOs access to their networks. In theory this, in combination with pricing regulation, is a good way to create competition on the service provision market and prevent the licensees from colluding. However, there are a number of practical difficulties with this approach. First, the experience from the Swedish market shows that it is not enough to mandate the network owners to give access to a certain number of VOs. This has lead to that the network owners only provides access to VOs who will not compete with the network owner in their core segments and who are less sensitive to price squeeze. This way the legislation does not reach its objectives since it only creates limited competition on a limited part of the market. Secondly, the experience so far from the Swedish legislation on mandatory access is that the capacity issue has made enforcement of the law difficult due to inherent problems of asymmetric information. Swedish VO Telenordia says that “the law is constructed in such a manner that the mobile network owners only has to provide capacity in extent of available capacity. This means, in other words, that they can just claim lack of capacity although this in

reality only is a way of not letting competitors into their networks. So far the law has turned out to be unenforceable”¹⁶⁶.

The regulation says that the NRAs are to determine both whether there is available access in the networks and how to deal with the problem of only giving certain VOs access. Thus, the new regulation largely leaves the difficult decision of choosing appropriate remedy to the NRA. As general guideline when remedying abuses the new legislative framework refers to Art 1 of the Access and Interconnection Directive and Art 7 of the Framework Directive.

Article 7 Framework Directive:

The national regulatory authorities shall promote an open and competitive market for electronic communication networks, electronic communication services and associated facilities by:

- (a) ensuring that users derive maximum benefits in terms of choice, price quality and value for money;
- (b) ensuring that there is no distortion or restriction of competition in the electronic communications sector;
- (c) encouraging efficient investments in infrastructure
- (d) ensuring the efficient allocation and assignment of radio spectrum.

Article 1 Access and Interconnection Directive

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

Article 7 of the Framework Directive seems to mandate that the NRAs make a general balancing of all of the interests involved. It forces the NRAs to deal with the difficult question of investment incentives versus competition, two concepts that above have been shown to be contradictory. The NRAs will thus be forced to choose between the interests of the new entrants who demand access and pricing regulation in the name of competition and the network owners operators who emphasizes the level of investment when rolling out networks. The guiding principles of Article 1 in the Interconnection and Access Directive seems to take a standpoint that more emphasizes the need of the new entrants and of the emerging competition. The Article does not mention investment incentives among the interests of which are to be taken into account. Since the Directive points to both these Articles as guidelines it seems as if this regulatory system is urging the NRAs to make an assessment of the issue in its entirety. This assessment should include all the relevant interests at stake both at the level of the individual case and at a more principal level. In summary, these guidelines do not really help the NRAs in their difficult weighing of interests.

The Commission has delegated the responsibility of making the difficult choices between what interests to satisfy to the NRAs. This means that even though the

¹⁶⁶ Interview with Telenordia’s Catharina Åsén Hedborg in Cooke p. 15.

preparatory work talks about a harmonization of the telecommunications regulation this only relates to the determination of markets (that is harmonized through the procedure described in chapter 5.3.1). The application of remedies to individual network owners will be different in each country. The powerful position of the NRAs was reinforced when the council in deciding on the enactment of the Directives altered the proposal of the Commission so that the EU competition authority cannot change decisions made by the NRA under the new framework. The competition authority is limited in its competencies to giving non-binding recommendations¹⁶⁷.

This brings us to the second conclusion regarding the behavior of the Member States. Having enacted the new legislation the Member States have been able to both reap the profits of the auctions, made the operators finance the construction of infrastructure, avoid the risks of the project and enacted rules that enable them to create competitive pricing and access to the networks capacity market. This leaves the licensees taking all the risks while being subject to regulatory scrutiny and sanctions if trying to hard to recoup their costs.

One possibility is of course that the regulators was not trying to ruin the investments of the licensees but instead enacted the new regulation, giving NRAs the authority to enforce the rules, a regulatory pattern that they from the Swedish experience knew would not work. This would satisfy the political demands for though competition policy, while not threatening the UMTS network rollout. However, more likely than a calculated attempt to help the licensees through lenient enforcement is that it was the usual reluctance about giving national powers to Brussels (in line with the subsidiarity principle) that is the explanation for the not so harmonized enforcement rules of the new framework.

8.3 Legislative predictability

Both in the dispute over the auctions and over the new legislation it seems as if the question of legislative predictability is pivotal.

First, the licensees in their letter to the Commission and the Council indicate that they did not expect regulatory intervention of this kind. When analyzing this claim it seems to be supported by the fact that it is hard to imagine them paying so much for their licenses if they expected a regulatory intervention that would deprive them of the license rent. It seems as if the licensees were bidding for a share of a market with oligopoly pricing and with a competitive structure at least as weak as on the GSM market. On the other hand the telecommunications operators were informed about the preparatory work and were also respondents to the public consultation of the 1999-review in which the new regulation was presented. In fact the public consultation report shows that the operators themselves suggested

¹⁶⁷Hellblom Ola, *EU ministrar avvisar gemensamma teleregler*, Dagens Industri 5 April 2001 p. 16.

the applicability rule that was later enacted. Given this it seems as if the Member States has benefited from the advantageous circumstances, such as overvalued IT, media and telecommunication sectors and encouraging media and stock market, described above. It appears as if the rapid decision procedure, the surrounding circumstances and the general 3G-hype made the operators bidding in the auctions take risks that they would not have taken if they had done a sufficient risk analysis. A proper risk analysis should have entailed an evaluation of the risks of increased regulatory pressure in the telecommunications market. This is especially so when one considers that their legal advisors must have known about the upcoming changes of the regulatory framework.

However, when putting the issue of predictability in relation to the incentives to invest it may not be of such importance whether the licensees was in fact the victims of an attempt from the legislators to use the lack of predictability to satisfy both their incentives or not. If the licensees and other companies perceives that the Member States did “cheat” the licensees out of their license rent and kept the earnings to themselves it might affect the incentives to invest regardless of whether the licensees knew about the preparatory work for a new regulatory framework or not.

The second predictability issue is that the rules that have been enacted are quite unpredictable both in regards of what markets that will be intervened in and what the remedies will be. What regards the market definitions the new regulation aims to be adaptable to a fast-changing environment. It therefore stipulates that the NRAs should define markets for the purpose of ex ante regulation on the basis of Commission recommendations. In a market such as the communications sector, it is indeed vital that the regulatory system is flexible. However, there is a clear connection between flexibility and unpredictability. In this case there is an obvious risk that certainty becomes low due to that the market definitions are made up “as we go along”.

What regards the remedies that will be applied upon the companies holding SMP the NRAs will, as described above, have vast authority. The endorsers of this system claims that it instead of providing a set of ready-made solutions to predefined problems it lays down a maximum list of obligations that a NRA can impose and identifies those undertakings upon which obligations can be placed. This is necessary in a situation where it is not possible to predefine the problem and therefore not possible to define any solution. Further, the problems and their remedies will differ from country to country and can therefore not be effectively harmonized. These are of course valid points but the downside is that predictability of when regulators will intervene and what interventions can be expected is very low. A network owner that tries to predict what markets will be examined next by the NRAs and the Commission and what the likely remedies could be have a very difficult job. This makes it more difficult to plan and implement strategies and investments.

8.4 Next steps

Although the building of the UMTS networks hardly have started some of the problems identified above has already started to be catch the attention of the Council.

The possibility of an oligopoly arising on the UMTS markets have made the Member States consider allocating more frequency spectra to UMTS-traffic. The Commission and the Council is considering doubling the number of allocated frequencies thereby issuing between three and five more licenses in each country.¹⁶⁸ Once again the legislators are making choices between investment incentives and competition. The issuing of more licenses will introduce much needed competition into the 3G-market by making collusion more difficult to maintain and increasing the incentives to cheat on the agreement. Doubling the number of actors on the market will radically decrease the value of the licenses already issued. It will have negative effects on the first licensees in several ways. First, collusion will be harder to maintain pressuring the prices down towards cost, Secondly, if collusion is maintained there will be more players dividing the monopoly rent. thirdly, in a new auction the licenses are predicted to be far less expensive than in the first round. This will make it very difficult for the licensees from the first round, with their higher fixed cost, to compete with the new licensees.

This course of action could further enhance the perceived unpredictability that the telecommunication companies feel themselves to be victims of. This unpredictability (perceived or real) will definitely undermine any incentives to buy similar licenses in the future. In this context the legislators should bear in mind that it is only 7 – 9 years until the licenses for 4G will start being distributed.

The first normative recommendation in this situation must be not to issue more licenses but focus on trying to make the access and pricing regulation already enacted work. It does in any case not seem efficient to build 8-10 parallel infrastructures. The problems causing the lack of competition on the 3G-market is not that the new regulatory system is not inclusive enough or that there are too few licenses. The problem is rather that the auctions have created very strong incentives for maintaining a non-competitive market and that enforcement of the new regulation is difficult due to uncoordinated actions and weak NRAs. Perhaps a more centralized and stronger regulatory authority would have a better ability to enforce the new regulation.

During 2000 and the first half of 2001 the whole telecommunications sector has been brought to its knees. The heavy debt load of the European operators has made their capital costs increase rapidly. This in addition to uncertainty of the

¹⁶⁸ Dagens nyheter, EU skyndar på nya 3G-nät, 18 April 2001.

revenues from the UMTS services has made them postpone the extremely expensive investments in the UMTS technology¹⁶⁹. This decreased investment rate has had huge effects on equipment manufacturers like Ericsson and Nokia who has been forced to lay off thousands of workers. This crisis and the general slump in the economy has led to a depression of the telecommunications market. The problems of the telecommunications sector are so severe that they are threatening the growth of the whole European economy.¹⁷⁰ When analyzing the reasons for why the licensees postponed their investments the regulation is often mentioned.¹⁷¹ However, altering the newly enacted regulation does not seem to be an alternative for the council. Instead, the Council is starting to discuss relieving the companies that bought the most expensive licenses from their debt. This could of course benefit the pressured operators but it would be costly for the Member States and it would create somewhat strange incentive structures for the 4G auctions. If a rent seeker overbids enough the seller will refund some of the money.

In summary, neither refunding the licensing fees or distributing more licenses are very good alternatives. However, if the Council decides to issue more licenses it seems as if the first licensees should be compensated in some way. If incentives to invest have not been undermined already they will definitely be if new licenses are sold without relieving the present companies of some of their debt.

The Member States, and indeed the whole telecommunications industry, has due to the auctions and the subsequent regulation ended up with a host of various problems. This experience has hopefully produced some valuable information on how to avoid similar situations when licensing and building the 4G systems. One idea would be to let the Member States build the 4G infrastructure, just as they normally build roads, bridges and other infrastructure. If the Member States were to build one big network and allow all licensed operators to become VoS the inefficient construction of parallel infrastructures would be avoided. It would also guarantee cost oriented pricing of capacity at the same time as Member States could determine a suitable rollout pace themselves. In summary, it can provide both competitive prices and a fast, universal network rollout. The problem with this approach is that the Member States are put in a position where they must decide on technical standards, network capacity and much more. These are decisions that the telecommunications companies are better suited to make. Further, normally governmental agencies are prone to buy the system that is the cheapest one filling the minimum requirements. If the Member States themselves are to make this purchase this approach might have to be altered.

¹⁶⁹Sydsvenska Dagbladet p. A 12 April 2001 , *Dyra 3G licenser hotar tillväxt*.

¹⁷⁰Sydsvenska Dagbladet p. A 12 April 2001 , *Dyra 3G licenser hotar tillväxt*.

¹⁷¹Standard and Poor's News, *Falling Credit Quality Among European Telecom Operators Examined at Investor Forum*.

Annex 1

Liberalization Directive is based on:

- Service Directive (90/388/EEC)
- Satellite Directive (94/46/EC)
- Cable Directive (95/51/EC)
- Mobile Directive (96/2/EC)
- Full Competition Directive (1999/64/EC)

Framework Directive is based on:

- ONP framework Directive (90/387/EEC amended by 97/51/EC)

Licensing and Authorization Directive is based on:

- Licensing Directive (97/13/EC)
- GSM Directive (87/372/EEC)
- ERMES Directive (90/544/EC)
- DECT Directive (91/287/EEC)
- S-PCS Decision (710/97/EC)
- UMTS Decision (128/1999/EC)
- European Emergency Number Decision (91/396/EEC)
- International Access Code Decision (92/264/EEC)

Access and Interconnection Directive is based on:

- ONP Leased Lines Directive (92/44/EEC amended by 98/61/EC)
- TV Standards Directive (95/47/EC)
- Interconnection Directive (97/33/EC amended by 98/61/EC)
- Voice telephony Directive (98/10/EC)

Universal Service Directive is based on:

- Voice telephony Directive (98/10/EC)

Telecommunications Data Protection Directive is based on:

- Telecommunications Data Protection Directive (97/66/EC)

Bibliography

Ahlbom, Helen, *Nytt EU-förslag gynnar Ericsson och Nokia*, Available at: <http://www.di.se/Scripts/Main/ReadMe.asp?ID=2001\04\18\22044> 18 April 2001

Augustsson, Thomas, *Avreglering enar telebolag*, Svenska Dagbladet Näringsliv p.19, 5 April 2001

Black Bernard and Ronald Gilson, *The law and finance of corporate acquisitions*, 2nd edition, The foundation Press inc., New York, 1995

Blackman, *Convergence between telecommunications and other media – How should regulation adapt?*, (1998) Telecommunications Policy Vol. 22:3

Brown, Wilson and Hogendorn Jan, *International Economics*, Addison-Wesley Publishing, 1994, USA

Cooke, Johan, *Nio nya operatörer slåss om mobilkunder*, Industry Standard Swedish edition, 15 mars – 22 mars 2001

Dnes Antony, *The Economics of Law*, Thomson Business press, 1996, Oxford

Gibbons Robert, *A Primer in Game theory*, 1992, Harvester Wheatsheaf, Hemel Hempstead

Hellblom Ola, *EU ministrar avvisar gemensamma teleregler*, Dagens Industri 5 April 2001

Klemper, Paul, *What really matters in auction design – revised and extended version*. Available at: <http://www.nuff.ox.ac.uk/users/klemper/design3aweb.pdf> 9 May 2001

Larouche, *EC competition law and the convergence of the telecommunications and broadcasting sectors*, (1998) Telecommunications policy, Vol. 22:3

Lindqvist Christina, *Telia håller fast vid Nordenstrategi*, Finanstidningen, 19 December 2000.

Nilsson, Jan Erik, *Reglering av mobil telefon marknaden; open access till nätkapacitet?* Presented in October 1999. Available at: <http://www.du.se/~jen>

Parkin Michael, *Economics*, 4th edition, 2000 Addison-Wesley Publishing

Temple Lang, John, *European Community Antitrust Law – Innovation markets and high technology Law industries*, [1997] Fordham International Law Journal pp. 717-818

Törnwall, Mikael, *Nivert utesluter inte strukturaffär med Orange eller Investor*, Finanstidningen 19 December 2000 p.6

Ungerer Herbert, *Access issues under EU regulation and Anti-trust law – the case of the telecommunications and Internet markets*, Available at: http://europa.eu.int/comm/competition/speeches/index_2000.html 9 May 2001

Ungerer Herbert, *Managing the Strategic Impact of Competition Law in Telecoms*, EC/IV/HU/rdu, 9th of February 1999.
Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html
October 2 2000

Ungerer Herbert, *The broadband opportunity*, COMP/C/HU D(0), Brussels, 11 sept 2000
Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html
9 May 2001

Ungerer, Herbert, *The Impact of European Liberalization and the WTO*.
Speech at CommEd Conference 11/02/1998, Brussels
Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html
9 May 2001

Ungerer, Herbert, *The Regulatory Challenges in the emerging Competition in the EU*, Speech in Budapest, 5th of July 1999, IV/C1/HU/rdu
Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html
9 May 2001

Ungerer, Herbert, *Beating the band-width bottleneck*, Speech at The Networked Economy Conference, Paris, 14/05/1998
Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html
9 May 2001

Ungerer, Herbert, *Open Competition in the post-1998 European telecoms market*, Speech at Swedish Telecoms Summit, Stockholm, 3/12/1997
Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html 9 May 2001

Ungerer, Herbert, *International cross-border mobile service pricing*, Speech at Center for EuroTelecomms Conference, London, 24/09/1997

Available at: http://europa.eu.int/comm/competition/speeches/index_theme_3.html
9 May 2001

Verrue, Robert, *Telecom Liberalization – Future Key Issues from the European Point of View*, Speech at Verband Alternativer Telekom-Netzbetreiber Third Forum in, Vienna, 27th January 1999

Available at:

http://europa.eu.int/comm/information_society/speeches/verrue/index_en.htm 9
May 2001

Xiong Tao and Kirkbride James, *The European Control of Joint Venture: An Historic Opportunity or a Mere Continuation of Existing practice?*, European Law Review volume 23 No.1 February 1998, Sweet & Maxwell

Zackrisson, Michael, *Orange öppnar för delat 3G-nät*, Vision, 13 November 2000.

Reports from Companies, international organizations and newsagencies

Analysys and Squire, Sanders & Dempsey, Study for EC DGXII; Contract number 98/48487, "Consumer Demand for Telecommunication Services and the Implications of the Convergence of Fixed and Mobile Networks for the Regulatory Framework for a Liberlised EU Market", June 1999.

Available at:

<http://europa.eu.int/ISPO/infosoc/telecompolicy/en/Study-en.htm> 9 May 2001

Fischer & Lorentz - European Telecommunications Consultants, *Internet and the future policy framework for telecommunications*, Available at:

<http://www.ispo.cec.be/infosoc/telecompolicy/en/Study-en.htm> 9 May 2001

UMTS Forum, *Report 1-6*, Available at: <http://www.umts-forum.org/reports.html>
2 October 2000

OECD, *Telecommunications Regulations: Institutional Structures and Responsibilities*, DSTI/ICCP/TISP(99)15/FINAL, 1999

Available at: [http://www.oelis.oecd.org/olis/1999doc.nsf/LinkTo/DSTI-ICCP-TISP\(99\)15-FINAL](http://www.oelis.oecd.org/olis/1999doc.nsf/LinkTo/DSTI-ICCP-TISP(99)15-FINAL) 9 May 2001

OFTEL, *Competition in the mobile market*, February 1999

Available at: <http://www.oftel.gov.uk/competition/cmm0299.htm> 9 May 2001

Die Regulierungsbehörde für Telekommunikation und Post, *Analytical cost model* Available at: http://www.regtp.de/en/schriften/start/fs_08.html 9 May 2001

Standard and Poor's News, *Falling Credit Quality Among European Telecom Operators Examined at Investor Forum*, Available at:

<http://www.standardandpoors.com/Forum/AnalystViewpoints/Articles> 9 May 2001

Svenska Dagbladet Näringsliv March 8 2001 quoting Reuters, *Lönsamhet för 3G kan dröja upp till fyra år*.

Sydsvenska Dagbladet p. A 12 April 2001 quoting TT, *Dyra 3G licenser hotar tillväxt*.

Dagens nyheter, 18 April 2001, *EU skyndar på nya 3G-nät*

Available at:

<http://www.dn.se/DNet/road/Classic/arti.../Render.jsp?d=163&a=204410&f=in dex.htm> 18 April 2001

Treaties

Treaty of Rome

European Union Treaty

Directives

Directive 87/372/EEC on the frequency bands to be received for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community (1987) 1987 OJ L 196 p. 85

Directive 90/387/EEC on the establishment of the internal market for telecommunications services through the implementation of open network provision, (1990) OJ L 192/1.

Directive 90/388/EEC on competition on the markets for telecommunications services, (1990) OJ L 192/10.

Directive 90/544/EC on the frequency bands designated for the coordinated introduction of pan-European land based public radio paging in the Community (1990) OJ L 310/28

Directive 91/287/EEC on the frequency band to be designated for the coordinated introduction of digital European cordless telecommunications (DECT) into the Community (1991) OJ L 144/ 45

Directive 92/44/EEC on the application of open network provision to leased lines, (1992) OJ L 165/27

Commission Directive 94/46/EC amending Directive 88/301/EEC and Directive 90/388/EEC in particular with regard to satellite communications (1994) OJ L 268/15

Directive 95/47/EC on the use of standards for the transmission of television signals [1995] OJ L281.

Directive 95/51/EC amending Directive 90/388/EC with regards to the abolition of the restrictions on the use of cable to networks for the provision of already liberalized telecommunication services. OJ L 256/49

Directive 95/62/EC application of an Open Network Provision to voice telephony, (1995) OJ L 321/6

Directive 96/2/EC amending Directive 90/388/EEC with regard to mobile and personal telecommunications, (1996) OJ L 20/59.

Directive 96/19/EC amending Directive 90/388/EEC with regard to the implementation of full competition in telecommunication markets, (1996) OJ L 74/13

Directive 97/13/EC on a common framework for general authorizations and individual licenses in the field of telecommunications, (1997) OJ L 117/ 7

Directive 97/33/EC on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), (1998) OJ L 199/32

Directive 97/51/EC amending Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications. OJ L (1997) 295/23

Directive 97/66/EC on the processing of personal data and the protection of privacy in the telecommunications sector 1998 OJ L 24/1

Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment, (1998) OJ 101/24

Directive 98/61/EC amending Directive 97/33/EC with regard to operator number portability and carrier pre-selection. (1998) OJ L 268/37

Directive 1999/64/EC ensuring that telecommunications networks and cable television networks owned by a single operator are separate legal entities. (1999) OJ L 175/39

Publications of the Commission

Commission of the European Communities, "Toward a dynamic European economy – Green Paper on the development of the common market for telecommunications services and equipment, COM(87) 290, final of 30 June 1987.

Commission of the European Communities, 16th report on Competition Policy, 1987

Commission Communication on the coordinated introduction of public pan-European cellular land-based mobile communications in the Community, COM(1990) 565 final of 23 November 1990.

Towards the Personal Communications Environment: Green Paper on a common approach in the field of mobile and personal Communications in the European Union; COM(94)145

Commission Communication on the status and implementation of Directive 90/388/EC on competition in the markets for telecommunication services, (1995) OJ C 275/2 final of 20 October 1995.

Commission notice on the definition of relevant market for the purposes of Community competition law [1997] OJ C 372/5

Communication from the Commission, On the further development of mobile and wireless communications – challenges and choices for the European Union, COM(97) 217 final

Commission Communication, Strategy and policy orientation with regard to the further development of mobile and wireless communications UMTS COM (97) 513 final

Commission of the European Communities, Fourth Report on the implementation of the telecommunications regulatory package, COM(1997) 537.

Commission of the European Communities, Green Paper on convergence between telecommunication, media and information technology, Implications for regulation, COM(1997)623 final of 3 December 1997

Commission Communication, Convergence between telecommunication, media and information technology, results of the public consultation regarding the Green Paper, COM(1997)623 final of 10 March 1997

Commission recommendation 98/195/EC of 8 January 1998 on interconnection in a liberalized telecommunications market

Commission recommendation 98/511/EC amending recommendation 98/195/EC with regard to interconnection pricing (1998 OJ L 228/30)

Commission of the European Communities, Notice on the application of competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles [1998] OJ C 265/2

Commission of the European Communities, Fifth Report on the implementation of the telecommunications regulatory package, COM(1998) 594.

Commission of the European Community, 28th report on Competition policy 1998

Commission Communication, Convergence of telecommunications, media and information technology, implications for regulation The results from the public consultation concerning the Green Paper, COM (1999) 108 final of 10 March 1999

Commission Communication, Review of the telecommunication regulatory framework – a new framework for electronic communications infrastructure and associated services, the 1999 Communications review, COM(1999) 539 final of 10 November 1999

Commission communication, The result of public consultation of the 1999 Communications review and orientation for the new regulatory framework COM (2000) 239 of 26 April 2000

Commission Communication, Principles and guidelines for the Community's audiovisual policy in the digital age, COM (1999) 657 final of 14 December 1999.

Recommendation on Unbundled Access to the Local Loop. C(2000)1059, 26 April 2000

Notification of merger between Vodaphone Airtouch/ Mannesmann (2000) OJ C 19/3

Decisions

Commission Decision of 10th of December 1982, British telecom, [1982] OJ L 360/36

Commission Decision 89/113/EEC, Decca, OJ L 43/27 (1989)

Commission Decision 88/518/EEC of 18 July 1988, Napier Brown/British Sugar (OJ L 284 19.10.1998, p.41)

Commission Decision 91/562/EEC of 18 October 1991, Eirpage (OJ L 306, 7.11.1991, p. 22)

Commission decision 92/533/EEC of 22 July 1992, Nestlé/Perrier (OJ L 356, 5.12.1992,

Commission Decision 94/633/EC of 21 September 1994, Night Service (OJ L 259, 7.10.1994 p.20

Commission Decision 96/546/EC and 96/547/EC of 17 July 1996, Atlas and Phoenix (OJ L 239, 19.9.1996 p. 23 and p. 57)

Commission decision 97/26/EC, Gencor/Lohnro, OJ L (1997)

Commission Decision 97/780/EC of 29 of October 1997 Unisource (OJ L 318, 20.11.1997 p. 1)

Commission decision 2001/98/EC Telia/Telenor 2001 OJ L 40/1

Proposals

Commission of the European Communities, Proposal for a Directive of the European Parliament and the Council on access to, and interconnection of, electronic communications networks and associated facilities, COM(2000) 384 final of 12 July 2000.

Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector, COM(2000) 385 final of 12 July 2000.

Commission of the European Communities, Proposal for a Directive of the European Parliament and the Council on the authorization of electronic communications networks and services, COM(2000) 386 final of 12 July 2000.

Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on universal services and users rights relating to electronic communication networks and services, COM(2000) 392 final of 12 July 2000

Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, COM(2000)393 final of 12 July 2000.

Commission of the European Communities, Proposal for a regulation of the European Parliament and of the Council on unbundled access to the local loop, COM(2000)394 final of 12 July 2000.

The Council and the Parliament

Council Regulation No 17: First Regulation implementing Articles 85 and 86 of the Treaty, OJ (1962) 13/204

Council resolution on the development of the common market for telecommunications and services and equipment up to 1992, [1988] OJ C 257/1

Council regulation (EEC) No 4064/89 of 21 of December 1989 on the control of concentration between undertakings (OJ L 395, 30.12.1989, p.1); corrected version(OJ L 257, 21.9.1990, p.13)

European Emergency Number Decision 91/396/EEC OJ 1991 L 217/31

International Access Code Decision 92/264/EEC 1992 OJ L 137/21

Council Resolution on the development of the common market for telecommunications services and equipment up to 1992, (1988) OJ C 257/1

S-PCS Decision 710/97/EC 1997 OJ L 105/4

Decision 128/1999/EC of the European Parliament and of the Council of 14 December 1998 on the coordinated introduction of a third-generation mobile and wireless communication system (Universal Mobile Telecommunications System) in the Community (1999) OJ L 17/1

European Council, Resolution of 26 June 2000 concerning the communication from the Commission on Principles and guidelines for the Community's audiovisual policy in the digital age, (2000) OJ C 196/1.

Member State legislation

Förslag till ändring av telelagen (1993:597) Proposition 1999/2000:57

Table of Cases

Case 6/72, Continental Can [1973] ECR 215

Case 26/75, General Motors Continental v. Commission [1975] ECR 1367, at paragraph 12

Case 27/76, United Brands Company and United Brands Continental BV v. Commission [1978] ECR 207, 1 CMLR 429, 487-8

Case 85/76, Hoffmann-La Roche and Co. Ag v. Commission [1979] ECR 461, 3 CMLR 211

Case 60/81, International Business Machine Corp. v. Commission, [1981] ECR 2639, [1981] 3 CMLR 635

Case 41/83, Re British Telecommunications: Italy v. EC Commission (United Kingdom intervening), [1985] 2 CMLR 386

Case C-62/86, Akzo Chemie BV v. Commission [1991] ECR I-3359, (1993) 5 CMLR 215

Case 30-87, Corinne Bodson v. Pompes funébres des regions libérées [1988] ECR 2479

Joined cases 110/88; 241/88 and 242/88, Société des auteurs, compositeurs, éditeurs de musique (SACEM) [1989] ECR 2811

Case T-68, 77-78/89, Re Italiana Flat glas: Società Italiana Vetro v. Commission [1992] 5 CMLR 302

Case T-34/92 Fiatragri UK and New Holland Ford v. Commission [1994] ECR II-905

Case T-35/92 John Deere v. Commission [1994] ECR II-957

Case C-393/92 Municipality of Alemo v. NV Energiebedrijf Ijsselmij [1994] ECR I-1477

Cases T-24-6 and 28/93, Compagnie Maritime Belge Transport SA v. Commission [1997] 4 CMLR 273

Cases C-140-142/94, DIP SsA v. Commune di Bassano del Grappa [1995] ECR I-3257

Case C-7/97 Oscar Bronner GmbH & Company. KG. v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG and others.