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A Study of Performance and Regulation in
Telecommunications in the European Union

Thoralf Daßler

Doctor of Philosophy

Aston University in Birmingham

November 2003

Supervisor: Professor David Parker

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Aston University

A Study of Performance and Regulation in Telecommunications in the European Union

Thoralf Daßler, Doctor of Philosophy, 2003

Thesis Summary. This thesis looks at two issues. Firstly, statistical work was undertaken examining profit margins, labour productivity and total factor productivity in telecommunications in ten member states of the EU over a 21-year period (not all member states of the EU could be included due to data inadequacy). Also, three non-members, namely Switzerland, Japan the US, were included for comparison. This research was to provide an understanding of how telecoms in the European Union (EU) have developed. There are two propositions in this part of the thesis: (i) privatisation and market liberalisation improve performance; (ii) countries that liberalised their telecoms sectors first show a better productivity growth than countries that liberalised later. In sum, a mixed picture is revealed. Some countries performed better than others over time, but there is no apparent relationship between productivity performance and the two propositions. Some of the results from this part of the thesis were published in Daßler et al. (2002).

Secondly, the remainder of the thesis tests the proposition that the telecoms directives of the European Commission created harmonised regulatory systems in the member states of the EU. By undertaking explanatory research, this thesis not only seeks to establish *whether* harmonisation has been achieved, but also tries to find an explanation as to *why* this is so. To accomplish this, as a first stage a questionnaire survey was administered to the fifteen telecoms regulators in the EU. The purpose of the survey was to provide knowledge of methods, rationales and approaches adopted by the regulatory offices across the EU. This allowed for the decision as to whether harmonisation in telecoms regulation has been achieved.

Stemming from the results of the questionnaire analysis, follow-up case studies with four telecoms regulators were undertaken, in a second stage of this research. The objective of these case studies was to take into account the country-specific circumstances of telecoms regulation in the EU. To undertake the case studies, several sources of evidence were combined. More specifically, the annual Implementation Reports of the European Commission were reviewed, alongside the findings from the questionnaire. Then, interviews with senior members of staff in the four regulatory authorities were conducted.

Finally, the evidence from the questionnaire survey and from the case studies was corroborated to provide an explanation as to why telecoms regulation in the EU has reached or has not reached a state of harmonisation.

In addition to testing whether harmonisation has been achieved and why, this research has found evidence of different approaches to control over telecoms regulators and to market intervention administered by telecoms regulators within the EU. Regarding regulatory control, it was found that some member states have adopted mainly a proceduralist model, some have implemented more of a substantive model, and others have adopted a mix between both. Some findings from the second stage of the research were published in Daßler and Parker (2004). Similarly, regarding market intervention by regulatory authorities, different member states treat market intervention differently, namely according to market-driven or non-market-driven models, or a mix between both approaches.

Keywords: Telecommunications, Regulation, European Union, European Commission, Telecoms Directives, Harmonisation

To my dad.

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Glossary

Accounting separation The obligation of telecoms operators to produce separate cost accounts for each service supplied.

Benchmarking or ‘yardstick competition’ A regulatory technique that sets performance targets by using comparative measurements.

Broadband The transfer of a large chunk of data, a ‘broad band’, within 1 second.

Cost accounts Financial statements of telecoms operators that detail the costs incurred in supplying telecoms networks and/or services.

ECPR — Efficient Component Pricing Rule Sometimes alternatively called the ‘Baumol-Willig-Rule’, the ECPR is a technique to set interconnection charges. The price of interconnection provided should be equal to the direct incremental costs of providing upstream access plus the opportunity costs of not providing the downstream retail service. Then, the price level of providing interconnection is said to be ‘efficient’ when it allows the provider of interconnection to earn a normal profit, while at the same time the firm seeking interconnection is not discriminated against by anti-competitive pricing.

Effective competition A state of telecoms markets where no operator with significant market power is present.

FDC — Fully Distributed Costs A regulatory technique where total revenue allowances are allocated across the firm’s several services. The allocation is done on the basis of arbitrary accounting rules.

Harmonisation The creation of equal conditions that allow for effective competition in the telecommunications sectors of the member states of the EU.

Incremental costs Costs that arise from the provision of an 'increment', that is, the future increase of the cost of a service supplied by telecoms companies. There are two special forms of incremental costs, namely **LRIC** and **LRAIC**, as follows:

- **LRIC** — Long-Run Incremental Costs. Here, the forward-looking cost increments cover longer time periods.
- **LRAIC** — Long-Run Average Incremental Costs. In addition to obtaining long-run cost increments, the increments are averaged to obtain a smoother trend.

Interconnection The joining of two telecoms network elements for the purpose of exchanging data and/or text.

Interconnection charge or **access charge** Price to be paid by a requesting telecoms network for access to a providing network.

Interoperability A state of technological compatibility of telecommunications equipment.

Leased lines Telecoms network capacities leased by a requesting telecoms network from a supplying network.

LL — Local Loop The copper wire connection which connects the subscriber's premises to the main distribution frame in the fixed public telephone network.

LLU — Local Loop Unbundling The obligation for incumbent telecoms operators to provide on demand unbundled (non-packaged) services to competitors, distributed through the local loop.

LP — Labour Productivity Defined as output divided by labour input, LP is a measure of a company's productivity.

Market-driven approach to regulation An understanding of regulation where 'market power' as the primary source of market failure is preferably tackled.

Market failure A state of markets where competition does not achieve the most efficient economic outcome possible.

Markup The difference between the price charged and the marginal cost of a service. Markups are particularly relevant when Ramsey pricing is applied.

Mbps — Mega bits per second A technical unit of transfer speed.

Merit goods Products or services which, from the perception of society's preference, would be under-provided by private markets. In telecommunications, merit goods appear in the form of the universal service obligation.

Narrowband The transfer of a small chunk of data, a 'narrow band', within 1 second.

Natural monopoly An economic activity that is most cost-effectively supplied by a single firm.

Non-market-driven approach to regulation An understanding of regulation where wider social and economic interests are pursued. This may include the tackling of market power.

Pareto optimum A state of markets named after the Italian economist Vilfredo Pareto (1848–1923). The Pareto optimum describes a state of markets where no further redistribution of economic outcomes creates a higher economic welfare.

PM — Profit Margin Defined as profits divided by revenues, PM is a measure of a firm's operating performance.

POT — Post Office Telephone Sometimes alternatively called 'plain old telephone', POT is the traditional fixed line telephone.

PSTN — Public Switched Telephone Network The public telephone network, mobile and fixed.

Price cap regulation A form of regulation for telecommunications service charges that sets a ceiling on the average price, which can be charged by the regulated firm. Since profits are not regulated, price caps allow some or full flexibility in the price structure of the regulated firm.

Proceduralist model A form of regulatory control where the chief regulator is appointed less on the basis of his/her skills. Also, decision-making within the regulatory authority follows democratic procedures, while the government is likely to maintain a tighter control over the regulatory authority.

Ramsey pricing Sometimes alternatively called 'Ramsey-Boiteux-Pricing', this form of setting interconnection charges tries to maximise the overall efficiency of interconnection assuming that network revenue must cover network costs, while taking into account the economies of scale of a telecommunications network. Prices are set using the 'inverse price elasticity rule', whereby charges for services with the lowest price elasticity of demand receive the highest markup.

Rate of return regulation or cost of service regulation A form of regulation under which charges for telecommunications services are set so as to generate just enough revenue to cover the regulated firm's operating cost plus a fair rate of return on capital.

Regulation or regulatory intervention The activity of market intervention with the purpose of removing obstacles to the development of effective and durable competition.

Regulatory authority An agency entrusted by the government to administer regulatory intervention.

Regulatory control The control maintained by the state over the telecoms regulator.

SMP — Significant Market Power Under the previous Directive on interconnection (98/33/EC), SMP was defined as a market share of at or above 25%. Under the current framework Directive (2002/21/EC), SMP is defined as a 'position of dominance', which itself is defined as an 'affordable behaviour independent of competitors and consumers'.

Substantive model A form of regulatory control where the chief regulator is appointed more on the basis of his/her skills. Also, decision-making powers within the regulatory authority are more centralised to key members of staff or the chief regulator alone. Under this approach, the government is likely to maintain a less tight control over the regulatory authority.

Telecommunications The transfer of data, pictures and/or voice over great distances.

Telecoms directives Legal documents issued by the European Commission, which set down how specific aspects of telecoms regulation should be pursued by the member states of the EU. The overall purpose of the directives is to achieve harmonisation in telecoms regulation across the member states.

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TFP — Total Factor Productivity Defined as output over the sum of weighted inputs of capital, labour and ‘other inputs’, TFP is a measure of a firm’s productivity.

UMTS — Universal Mobile Telephone System A technology that brings broadband transmission over mobile telephone networks.

VANS — Value Added Network Service Telecoms services that have valued ‘added’ when provided. Examples: 0800 toll-free services, videotext or e-mail.

USO — Universal Service Obligation The obligation for one or more telecoms operators to ensure the supply of services when they would be discontinued on the grounds of non-profitability. Such services commonly include a fixed line telephone connection in users’ homes, public payphones and fax services.

Chapter 1

The Subject of the Research and the Research Methodology

The research in this thesis is concerned with two subjects, namely the performance of telecommunications enterprises within the EU and with the nature of regulation in EU telecommunications in the light of the harmonisation directives of the European Commission for the sector. The discussion begins by looking at historical developments and changes in telecommunications markets, before turning to an overview of EU telecoms regulation. The remainder of this chapter discusses the methodology adopted for the research, followed by an overview of the structure of the thesis.

1.1 Historical Developments and Changes in Telecommunications Markets

Traditionally, telephone and telegraph services, which had emerged during the second half of the 19th century, had been placed under the responsibility of the national post offices. A main argument for nationalisation was the opportunity for governments to secure a stable income and a reliable supply of telecommunication services through the national post offices. It was further argued at the time that national security may be at risk and that the state should therefore maintain a tight control over the telecommunications sector (e.g. Solomon and Walker, 1996). This pragmatic approach was accompanied by the economic rationale that telecommunications are a natural monopoly, that is, telecommunications services can

be brought to the consumer most cost efficiently by a single firm.

During the 1960s and early 1970s, national governments began to change their attitude towards the supply of these services by only one, fully state-owned, company. This shift was primarily driven by two major arguments. Firstly, as addressed in the Maastricht Treaty of the European Union of 7 February 1992 (CRG, 1993), governments were seeking ways out of steadily increasing debt burdens by lowering state spending including abolishing subsidisation of public telecommunications service providers (e.g. Foster, 1992). State funding was to be replaced by private investments into infrastructure renewal as well as extending existing networks (Veljanovski, 1993).

Secondly, political and academic argument since the 1960s had supported the notion that consumers should be protected from a single service provider exploiting its monopoly power through arbitrary pricing, low service quality and the slow rollout of new technologies and services. In particular, the argument that monopolies are slow at rolling out new technologies and services was regarded a major hindrance in an industry that is no longer limited to telephone and telegraph services, as it was during the early 1900s. Today's telecommunication services comprise the transfer of information around the globe in the form of pictures, sounds and/or text via satellite links and through undersea cables between continents. In 2000, global business generated a turnover of €190.7bn in Europe alone (CEC, 2000a).

The result of this attitude shift was that governments throughout the world began to consider competition and private ownership of capital as the most effective means to satisfy the needs of the state and consumers alike, and to satisfy the needs of global business, in which technologies, such as the mobile telephony and high speed Internet access, were upgraded frequently. Anticipating the need for large-scale investments into infrastructure and new technologies or services, as well as the need for more managerial freedom to enable former monopoly operators to compete with entrants (Beesley and Laidlaw, 1989; Smith et al., 1986), governments in the US, Japan and the EU gradually abandoned full state ownership of incumbent monopoly operators. These actions reflect the argument that only privately owned companies, in a competitive setting based on anticipated consumer demands, are able to produce cost efficiently and to select efficiently the technology available to meet consumer needs. What then followed in telecommunications was the liberalisation of the sector, first in the US in 1984, accompanied by the break-up of American Telephone & Telegraph (AT&T). Later there was the privatisation of Nippon Telegraph & Telephone (NTT) in Japan, in 1985 (Gibbon, 2000; Lewington, 1997). Telecoms privatisation in the EU began with British Telecommunications (BT) in 1984 (ibid) and peaked in 1996 with one

CHAPTER 1 The Subject of the Research and the Research Methodology

of the world's single biggest stock market floatations to date, when more than 700 million shares of Deutsche Telecom (DT) were placed in an initial public offering, generating a total market value of €8.67bn¹ (DT, 2001).

The transfer of incumbent telecoms operators into private joint stock companies enabled governments to raise substantial funding, which then was used to help balance the state budget in the run-up to the European Monetary Union, as it was intended under the Maastricht Treaty of 7 February 1993 (CRG, 1993). Between 1985 and 1995 telecoms privatisations in Europe totalled the equivalent of US\$40.5bn, putting this sector well ahead of oil and gas (US\$32.7bn), banking and insurance (US\$32bn) and electricity (US\$26bn), in terms of the total value of asset sales sold (Parker, 1998, p.27). By 1998, BT in the UK and Telefónica of Spain had been wholly privatised, Deutsche Telekom, KPN of the Netherlands, Tele Danmark and Telecom Italia had been partially privatised, and planned share sales were well advanced for France Télécom, Portugal Telecom and Telia of Sweden.

Telecommunications today is one of the most dynamic sectors of the European economy. In total the telecommunications industry in the EU employs over 900,000 people, has a combined turnover of US\$220bn, and accounts for around 3% of Europe's GDP. Up until the 1990s, in almost every European country competition was restricted and telecommunications were operated by state-owned utilities. The main exception was the UK, which in 1981 removed telecommunications from the control of the Post Office and established a new public corporation, British Telecommunications (BT). As already mentioned, in November 1984 BT was privatised. At the same time, a new telecommunications operator, Mercury Communications, was licensed to compete with BT. The BT-Mercury duopoly in fixed-line services continued until many of the remaining restrictions on competition were removed, after 1991 (Hunt and Lynk, 1991). In addition, a dedicated regulatory office, the Office of Telecommunications (OFTEL), was established to regulate telecommunication services and BT's charges (Littlechild, 1983).

However, contrary to the competition anticipated, the major telecoms companies were, following market liberalisation throughout the EU, more interested in consolidation and globalisation rather than competition (Katz and Shapiro, 1996; Sarkar et al., 1999). These developments reached a peak when Vodafone acquired Mannesmann in 2001 through a hostile takeover over €192.1bn² (FT, 2000). The size of this takeover reflected the notion that large size is a necessity to recover the big up-front investments needed to build capacities ahead of

¹An average exchange rate of 0.9 for 2001 was used to convert the original figure from US\$ into €.

²Again, an average exchange rate of 0.9 was used for 2001.

demand and to recover the sunk costs incurred in rolling out telecoms technology (Trebing, 1994). By 2002, in the aftermath of this trend, the industry was left with two unexpected results. Firstly, competition remained illusive in certain market segments such as the local loop, or the 'last mile', because entrants were, instead of competing with the incumbent, struggling amongst each other over the most suitable way to enter the local loop (FT, 2001). Depending on the member state of the EU, this allowed the incumbent operator to maintain a market share in this segment of between 60% and 100% (CEC, 2001a, Annex 2). Secondly, competitors had accumulated a debt burden in which the race for licences to supply the Universal Mobile Telephone System (UMTS) had contributed substantially. By 2000, debts in the telecoms companies totalled €105bn in the EU (Doyle, 2001). Illustrating the extent of the problem further, BT, one of Europe's biggest telecommunications companies, announced a major restructuring plan to recover its debts of €51bn. The British incumbent enjoys, however, relatively sound finances. France Telecom, Deutsche Telecom, KPN of the Netherlands and Orange, to name but a few, are currently struggling with an enormous debt burden, leading to a threat of being down-rated by financial analysts (FT, 2001, 2003, several issues).

1.2 Actions of the European Commission

To coordinate the introduction of competition to the telecoms markets in the member states, the European Commission (EC) brought forward a Green Paper as early as 1987 (CEC, 1987). The paper primarily stressed the importance of a Europe-wide harmonised regulatory framework, not least to respond to the growing competitive threat imposed by the US and the Asia-Pacific economic area (Solomon and Walker, 1996).

The implementation of the Green Paper was not without difficulty. The Commission intended to meet the provisions of the Treaty of Rome of 25 March 1957 (EU, 1957), in particular Article 90 (1) 'prohibiting special or exclusive rights granted to public undertakings' and Article 90 (3) obliging the Commission to 'ensure the application of Article 90 (1)' in telecommunications.³ However, legal action was taken against the European Commission. In an appeal to the European Court of Justice, some member states, among them France and Italy, argued that the European Commission had overstepped its powers by pushing towards a common regulatory framework in telecommunications, since this sector was solely

³Article 90 of the Treaty of Rome was reinstated as Article 86 under the Treaty of Amsterdam of 2 October 1997 (EU, 1997).

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a national matter (Thatcher, 1999). Supported by Article 129 of the Maastricht Treaty of 7 February 1993 (CRG, 1993), a 'system of open and competitive markets including infrastructure', and supported by the 1994 Bangemann Report's 'call for further EC action to extend fair and effective competition' (Bangemann et al., 1994), the European Court of Justice eventually ruled in favour of the Commission. Thus, the Green Paper was finally implemented, emphasising (CEC, 1987, p.52):

"In general, an open, competitive market for new service providers and terminal manufacturers can make a substantial contribution to the rapid spread of new services under the current conditions of rapid development of technology and market opportunities. Given the complexity and multiplicity of the emerging telecommunications services, only the market can efficiently link the producer with the consumer. Economics knows of no other means of fulfilling this purpose and all attempts to replace ... [the market] by something else have so far failed."

In 1988, the European Council of Ministers adopted the Commission's Green Paper and confirmed the progressive establishment of a common market for telecommunications services and equipment supplies. The Green Paper was subsequently implemented through directives (CEC, 2001b), whose primary purpose was to remove the obstacles that may hinder the development of effective competition throughout the telecoms markets of the EU due to the incumbents' market power. This power is based on a historically grown customer base and the ownership of most of the communications' infrastructure. This allows the former monopolies to generate income from asset ownership in the form of line rental, leased lines and interconnection charges that entrants cannot match (see also Burton, 1997). These economic characteristics of the industry raise doubts as to whether competition will, if left alone, be able to remove such obstacles and provide a level playing field for all competitors. To ensure member states did not favour their incumbent operators when removing obstacles to competition, the directives provided for the establishment of national regulatory authorities. The main task of these offices is to intervene in telecommunications markets in accordance with the directives and therefore to create an environment conducive to effective and durable competition.

1.3 A Brief Overview of the Research Undertaken

Based on the problems inherent in transforming former state-owned monopolies and introducing competition, it has been shown for a selection of industries that public service monopolies may produce a more efficient economic outcome (de Fraja, 1993; Willner and Parker, 2000). Moreover, given different attitudes to ownership and competition across the

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member states of the EU and the degree of latitude the telecoms directives leave to the member states, it remains to be seen whether the directives truly achieve their intentions and whether effective competition has been achieved. Therefore, the central question underlying the research in this thesis is:

Are the telecoms directives of the European Commission creating harmonised regulatory systems for telecommunications across the member states of the European Union and if differences continue to exist, why is this so?

Regulatory systems can be broken down into three main areas when analysing telecommunications in the member states of the EU:

- (1) regulatory governance, that is, the relationship between the state and its national regulator;
- (2) market intervention by national regulatory authorities;
- (3) the state of competition and regulation achieved.

The information provided in this thesis should be of primary interest to researchers in telecommunications regulation, politicians who have to transpose European legislation into national law, the regulatory authorities, European telecoms companies, the member countries and the European Commission itself. If regulatory harmonisation has been achieved, then the Commission's intention to strengthen the EU against the US and the Asia Pacific may have been achieved. If, however, disharmony remains, then further policy measures may be needed to achieve the main intentions set out in the Green Paper on telecommunications (CEC, 1987).

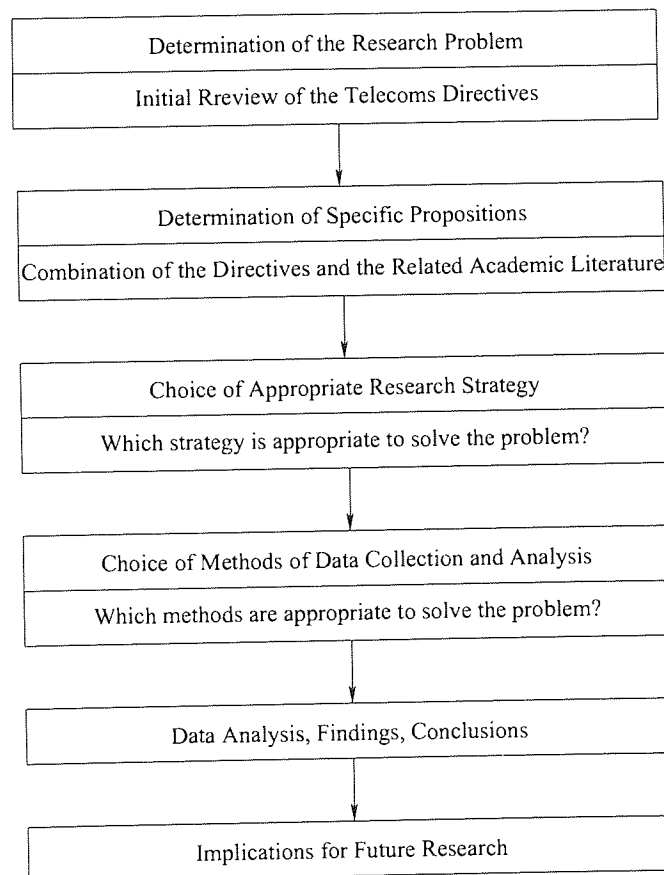
In addition to these three main themes investigated in this thesis, there is a fourth theme, namely the exploration of efficiency, measured through productivity within EU telecommunications. This aspect of the research was included to provide a fuller and more informed context of the subsequent research on regulation. Performance changes due to privatisation and market liberalisation are, alongside regulation, integral aspects of EU telecoms markets.

1.4 Research Methodology

1.4.1 The Principal Approach

Any research project can, in general, be categorised using three main classifications. These have been extensively discussed in numerous textbooks (e.g. de Vaus, 2001; Malhotra, 2000; Selltiz et al., 1964) and need not be repeated in detail here. In essence, these categories are: (i) the type of research, i.e. *exploratory*, *descriptive* or *explanatory/causal*; (ii) the type of data used in the analysis, namely *qualitative* (words) or *quantitative* (numbers); and (iii) the direction of reasoning, that is, *deductive* (where a general explanation is applied to a specific case) or *inductive* (a general understanding is built from a number of cases).

Figure 1.1: The logic followed in deriving a solution to the problem underlying this research



In addition to these categories, there are numerous methods by which data can be collected and scrutinised. In theory, this principal understanding could be used to develop a single, general blueprint, based on which any research project can be undertaken, especially

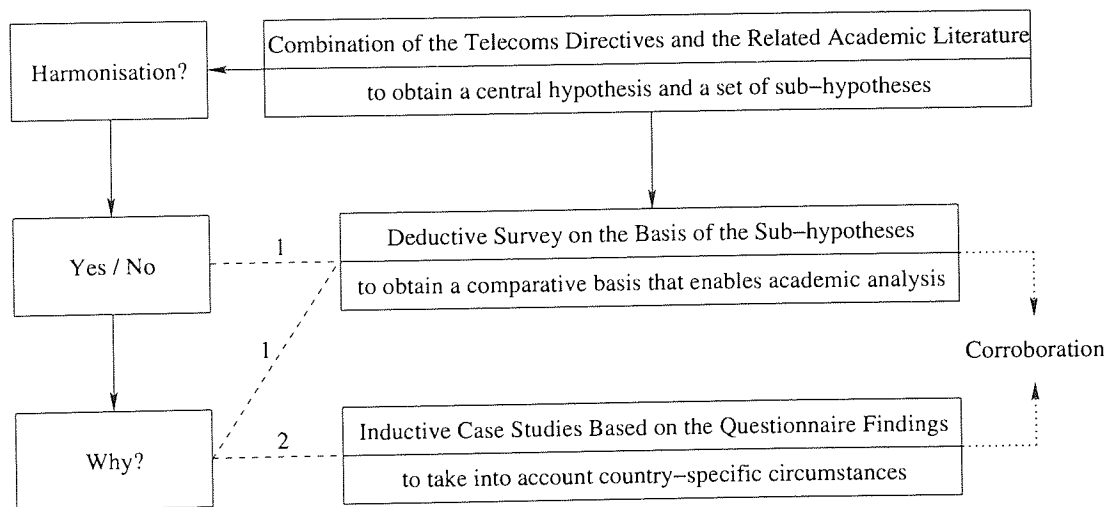
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because one type of research often leads into another, and the boundaries can be considerably fuzzy. For example, Seltiz et al. (1964) and de Vaus (2001) have pointed out that descriptive research may lead to explanatory studies, in the sense that ‘good descriptive research triggers the why-question of explanatory research’, rather than degenerating to mere description or, as Mills (1959) calls it, degenerating to ‘abstract empiricism’.

It is generally recognised that any approach to solving a research problem should stem from the problem (e.g. Schutt, 2001; Seltiz et al., 1964). Also, de Vaus (2001) emphasises that the choice of the methods of data collection and data analysis should not be driven by the strengths and weaknesses of these methods, but rather by the motivation of ‘what the method can do to help to solve the research problem’.

In this thesis the design of the research project followed the logic set down in figure 1.1, above. This general and abstract reflection of the problem solving process can be demonstrated more practically, more specifically and tailored to the main problem to be solved in this research project. This is shown in figure 1.2, which also demonstrates the dependencies among the steps taken, as well as the methods of data collection and data analysis used. Also, figure 1.2 indicates how the results that stem from the different elements of the research project were combined to draw conclusions and, hence, to answer the central research question, set down above.

Figure 1.2: *The operational approach of the main part of the research*



The solid arrows indicate dependencies and the sequence of steps taken. The dashed lines refer to methods of analysis, as discussed in the main text: 1 — *Pattern Matching*; 2 — *Analytic Induction/Analytic Generalisation*. The dotted arrows indicate how the results from the survey and the case studies were triangulated.

1.4.2 The Survey

As set out above, the central question underlying this research project is:

Are the telecoms directives of the European Commission creating harmonised regulatory systems for telecommunications across the member states of the European Union and if differences continue to exist, why is this so?

This research question was formulated as part of the preliminary review of the telecoms directives (see figure 1.1). Figure 1.2 indicates that the first step in determining and defining the problem to be solved in subsequent chapters was the combination of the telecoms directives, reviewed in chapter 2, and the discussion of the related academic literature, presented in chapter 3. The result of this combination led to the central hypothesis underlying this research:

Central Hypothesis: The telecoms directives of the European Commission are creating harmonised regulatory systems across the member states of the European Union.

Although the central hypothesis reflects one part of the central research question, it does not, as it stands, provide detailed insight and does not allow for detailed analysis. Hence, eight sub-hypotheses were extracted from the central hypothesis. These are formally established at the end of chapter 3. These sub-hypotheses reflect the aspects of telecoms regulation as set down in different telecoms directives of the European Commission, as well as their link with the academic literature. In essence, they deal with : (i) regulatory governance, that is, the relationship between the telecoms regulator and its government; (ii) regulatory intervention by telecoms regulators; and (iii) the effects on users of regulation and competition in telecoms markets across the member states of the EU. These subjects will be discussed in detail in chapters 2 and 3.

The purpose of establishing and subsequently testing the sub-hypotheses in chapters 5 to 7 is to answer the question, whether the telecoms directives create harmonisation of regulation in the member states of the EU. The creation of harmonisation is, as said earlier, the overall intention of the telecoms directives and, hence, the testing of the assumption that this has been achieved forms part of the operational approach to this research project, as shown in figure 1.2. To test the sub-hypotheses and to obtain an answer as to whether harmonisation has been achieved, a survey was conducted with the regulatory authorities in each of the member states of the EU. In principle, a survey is administered when questions

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such as 'what', 'where', and 'how many' are of foremost concern (Yin, 2003). It is not surprising, therefore, that textbooks on qualitative data analysis (Huberman and Miles, 2002; Miles and Huberman, 1994; Silverman, 2000) discuss survey research only to a limited extent. This is so because the 'how much' question is best answered through questions like: 'on a scale from 1 to 7⁴, how do you evaluate issue x?'. Such questions generate quantitative data that can then be used in statistical and econometric analysis.

To answer a 'how much' type of question was not the main intention of the survey analysis presented in chapters 5 to 7, although some aspects of the questionnaire looked at 'how much'. But this was more in a qualitative than a quantitative way, e.g. the extent to which the directives have been implemented in the member states. Rather, the main concern was the derivation of comparative knowledge of policy across the EU, a judgement on whether harmonisation has been created by the telecoms directives of the European Commission. To derive the basis for decision-making, the reports of the European Commission on the implementation of the telecommunications directives in the member states (CEC, 1999a, 2000a, 2001a) were initially used as source of information. These reports were then complemented by documentation available from the websites of the telecoms regulators in the member states, such as statutes and telecommunications acts. After a close examination, however, these sources proved unsuitable as a basis for testing the central hypothesis and, therefore, to decide whether harmonisation has been achieved. This was so for the following reasons. Firstly, information available from these reports is superficially reported, is sometimes unclear, contradictory in places, and is reported inconsistently between the member states. Nevertheless, to provide for a minimum of overlap between the EU reports and the questionnaire, questions were designed to expand on the findings of the European Commission. When relevant, comparisons were made with the conclusions of these reports to check for response bias. No systematic errors were found. A discussion of reliability and validity of the research is provided later in this chapter.

Secondly, the majority of the information required to assess whether harmonisation has been achieved by the telecoms directives was not available in any form, neither through the websites of the telecoms regulators nor from the reports of the European Commission. Preliminary conclusions drawn based on such information were only vague and it would have been inappropriate to regard them as a sufficient contribution to the available knowledge. Ultimately, an assessment of whether the telecoms directives have created harmonised

⁴Seven-point- or five-point-scales are called 'Likert Scales' and generate ordinal data with interval characteristics. For a detailed discussion see, for example, Bryman and Cramer (1994).

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regulatory systems in the member states of the EU would not have been possible.

To fill important gaps in knowledge, a questionnaire was administered, which collected data from the regulatory offices for telecommunications in the member states of the EU, consistent with the operational approach in figure 1.2. Appendix B contains a copy of the questionnaire, which is organised in themes, as follows: (i) general information, organisation and responsibilities of the national regulatory authority; (ii) transposition of the EU telecoms directives (the definition of the term 'transposition' is provided in chapter 2); (iii) mechanisms for authorising operators as facilitated under Directive 97/13/EC (licensing); (iv) price or profit regulation in national telecommunications; (v) success and status of regulating the national telecommunications market; (vi) effects of telecoms market liberalisation on users; and (vii) the separation of telecoms networks and services.

The questionnaires were sent to senior members of management of the fifteen telecoms regulatory offices in the member states of the EU. Where contacts existed prior to the data collection, these were used to approach the respondents directly. Where contacts were not available, the office was contacted instead and the questionnaires were then forwarded to the appropriate respondents. Pilot surveys were undertaken with members of staff of telecoms companies and members of staff of telecoms regulators who, in all instances, did not take part in the final data collection. These test runs showed that the original questionnaire was designed too broadly and too loosely. This was corrected in the final version. Data collection then started in January 2002. The last questionnaire was returned in June 2003, but Spain did not, despite numerous reminders, reply to the questionnaire. Similarly, Austria refused to take part in the study when the first contact was made. However, thirteen out of the fifteen EU countries replied, which yielded an 86.6% response rate.

The questionnaire looked at 'what', 'who', 'when' and 'how' (but not 'how much') types of issues in telecoms regulation. The design of the questionnaire was such that a mix of open-ended and closed-ended questions were asked, while the respondent could choose from a list of possible answers (an approach suggested by Pauline and Stone, 1984). In addition, some questions were asked that required a brief justification of the answers given. As will be discussed at a later stage, Thatcher (1999) stresses that different historic developments over time exist between EU member states and this impacts on government policy. If 'how much' type of questions generating interval data had been asked, then different evaluations or interpretations between member states would have allowed for sophisticated statistical analysis. But the results may have been highly invalid in the light of a missing comparative basis to make objective comparisons between the answers from each member state. Different

regulators might have rated something differently on a scale even though, objectively, there are no differences.

Figure 1.2, above, shows that *pattern matching* was used to analyse the questionnaire data. This method of analysis is discussed, for instance, in de Vaus (2001) and Yin (2003). They consider pattern matching as a form of theory testing using qualitative data, where a detailed set of predictions is established prior to the analysis. In this thesis, the pattern stems from the combination of the telecoms directives and the related academic literature and manifests itself in the form of the sub-hypotheses set down formally at the end of chapter 3. Chapters 5 to 7 compare this pattern with the actual situation in telecoms regulation of the member states of the EU. Then, by deductively ‘matching’ theory and practice, the decision can be made as to whether harmonisation has been achieved. This approach allows, as will be seen, not only for establishing a cause (e.g. the telecoms directives) and its effect (e.g. harmonisation), but also provides some explanation as to *why* harmonisation has been or has not been achieved. Some of the results from the questionnaire analysis were published in Daßler and Parker (2004).

It should be acknowledged that pattern matching is commonly associated with case studies, rather than with survey techniques (e.g. de Vaus, 2001; Yin, 2003). The nature of the problem tackled by this research does, however, suggest that pattern matching can be applied to analyse survey data. This is so because the data collected by the questionnaire is of qualitative nature and the result tests a set of sub-hypotheses and, therefore, an underlying theory. But a stronger reason for applying pattern matching is that the telecoms directives in conjunction with the related academic literature set up a proposed pattern, while the actual situation in the member states remains largely unclear prior to the findings presented in subsequent chapters.

1.4.3 The Case Studies

As shown in figure 1.2, above, an intention alongside gathering ‘yes’ or ‘no’ information was to find an explanation as to *why* harmonisation has or has not been achieved by the telecoms directives of the European Commission. The questionnaire analysis provides, as mentioned above, some limited explanation on the matter, but a satisfactory explanation could only be obtained when country-specific circumstances were more fully taken into account. To achieve this, a research strategy was needed that built on the survey technique. To do so, Yin (2003) suggest experiments, history studies and case studies as possible research strategies. They

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potentially promise a solution to this type of problem. However, in this research, experiments could not be undertaken because of a lack of control over the telecoms directives and policy application in the member states. Likewise, studying history could provide some insights but it is the present situation, and change in very recent years, with which this research is mainly concerned. Hence, case studies were the obvious option left as a research strategy. A case study is 'an empirical inquiry that investigates a contemporary phenomenon' (Yin, 1994). Therefore, it is considered as a comprehensive research strategy (Denzin, 1978) that may make use of several data sources (see below).

After these principal considerations, attention now turns to the practical issues considered in the case studies reported in chapters 8 and 9. Though it may seem so, the case studies were not conducted independently of the survey analysis. Drawing from the findings of the survey, the focus of the case studies was determined in a first step (see figure 1.2). Then, in a second step, four countries, namely Finland, Germany, Greece and the Netherlands, were chosen to be included in the case studies. The rationale for this choice is detailed in chapter 8. The third step was composed of a review of the Implementation Reports of the European Commission (CEC, 1999a, 2000a, 2001a) for these four countries to obtain information on the country-specific situation, in close relation to the results of the survey. Finally, the fourth step in the case studies was the conduct of tailored interviews, one for each country, which included some common questions. Although there was variation for each member state, the interviews were composed of the following themes: (i) market intervention by the telecoms regulator; (ii) the new EU telecoms framework; and (iii) authorising operators, 'rights of way' and market entry (a definition of the term 'rights of way' will be provided in chapter 2). To economise on cost, the interviews were conducted by telephone, except for the Greek regulator, which insisted on communicating in writing. The main questions asked in the interviews are included in appendix C.

The reasons for asking common questions alongside tailored ones were because, firstly, the questionnaire had not taken into account the changing regulatory framework, an issue which was investigated in the interviews on a common basis. Secondly, the findings from the questionnaire and the review of the EC Implementation Reports revealed country-specific circumstances, which could only be investigated in detail by tailored questions. The case study analysis also allowed the clarification of issues that had remained unclear in the questionnaire answers, such as the number of telecoms market segments where effective competition had already been achieved.

The interview questions themselves were of a semi-structured nature with a mix of

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open-ended and closed-ended questions (see, for example, Boynton, 1995). This approach allowed for a maximum of flexibility and a safeguard against obtaining superficial information, while ensuring that the interview kept to the schedule. Some degree of control over the data collected was therefore maintained. A degree of control was needed because the interview was not of an exploratory nature, where fact gathering is of foremost concern. Rather, the propositions investigated in the case studies were identified previously, namely in the survey study.

Turning to the method used to analyse the case study data and, hence, to reach conclusions, in principle the favoured method to analyse case study data has been labelled *analytic generalisation* (Yin, 1994, 2003) or, alternatively, *analytic induction* (de Vaus, 2001). Both terms refer to the same inductive method, which has been detailed by Denzin (1978). In essence, analytic induction is an analysis technique that seeks to provide generalisations which apply to *all* cases, though only a limited number of case studies were conducted. In so doing, analytic induction can be used to achieve descriptive generalisations and/or causal explanations (ibid). This fits the approach needed for the analysis of the case studies in chapters 8 and 9. Secondary information was obtained from the Implementation Reports of the European Commission (CEC, 1999a, 2000a, 2001a) and used to build a general understanding of each country's regulation. Then, the interview data was analysed and a general explanation of cause and effect was built within each case. Finally, the evidence from all four cases was used to generalise beyond the limit of the four. Further details of the approach are given in later chapters. The interview evidence and the survey evidence were then corroborated, as shown in figure 1.2, above. The result was an explanation as to *why* harmonisation has been achieved or has not been achieved by the telecoms directives of the European Commission. Chapter 10 uses the results from the corroborated evidence to go beyond an answer to the research question set down earlier. This was possible because the findings from the case studies and the survey could be linked with the remaining part of analysis, discussed next.

1.4.4 The Performance Analysis

Besides the main part of the research, the thesis includes a study of performance in EU telecommunications. This part of the research is presented in chapter 4 and uses *profit margins* (PM), *labour productivity* (LP) and *total factor productivity* (TFP) as measures of performance. The primary intention was to discuss *how* telecoms performance changes with

privatisation and market liberalisation. The results of this descriptive study form a basis for the later research into EU regulatory harmonisation of telecommunications.

1.4.5 Aspects of Validity and Reliability

Schutt (2001), Silverman (1993) and Yin (2003), for instance, note that the quality of any research project can principally be assessed by its *reliability* and its *validity*. Although numerous threads to these criteria have been identified, research is, in essence, reliable when it can be repeated. In contrast, the validity of research is split into (i) construct validity: are the applied methods of data collection correct?; (ii) internal validity: have all variables been identified in the causal relationship?; (iii) external validity: can the findings of the study be generalised beyond the immediate scope of the project? Finally, research is reliable when it can be repeated elsewhere. It is worth noting that not all types of research are concerned with all quality assessment criteria. Specifically, descriptive research is not concerned with internal validity because no causal relationships are determined.

In this research, internal validity is of no concern to the descriptive analysis of telecoms performance, presented in chapter 4. The other assessment criteria remain, however. Reliability should not be a major issue in the part of the thesis concerned with performance because PM, LP and TFP measures can be applied at any time in the telecoms sector, provided that data exist. In chapter 4 reference is made to a number of earlier studies of performance measurement in telecommunications. Likewise, construct validity does also not appear to threaten the quality of the performance analysis. This is so because the measures have a strong theoretical basis, drawing from the mathematical understanding of economic efficiency (chapter 4 considers this matter in more depth). Lastly, regarding external validity, there does not seem to be a substantial problem because performance studies in liberalised and privatised environments are regularly undertaken (for a review see Martin and Parker, 1997, chapter 3).

In terms of the main part of the research, however, the considerations of validity and reliability are considerably more complex. This draws, as shown in figure 1.2, from the overall research strategy adopted, which, in essence, is a combination of two strategies, namely survey and case studies. In addition, the overall research strategy seeks to determine a causal relationship and, hence, internal validity is of particular concern, alongside aspects of external validity, construct validity and reliability.

Internal validity. As discussed earlier, internal validity is concerned with whether variable y

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(harmonisation) is affected by variable x (the telecoms directives) or any other variable(s). In regard to this research, it should be acknowledged that there might be a threat to the internal validity of the findings of this thesis. As noted earlier, new directives have entered into force after the questionnaire was administered. This situation was, however, addressed by incorporating the new telecoms directives of the European Commission into the case study analysis. Therefore, it is unlikely that the research conclusions drawn in chapter 10 suffer from the exclusion of essential aspects that might contribute to the degree of harmonisation achieved across the member states of the EU.

External validity. This is an issue to do with the ability to generalise beyond the immediate findings of the research undertaken in later chapters and relates to considerations of sampling. Firstly, regarding the questionnaire survey, all current member states of the EU were included, which excludes sampling. Secondly, and as emphasised by Yin (1994, 2003), cases but *not* samples were used. The logic behind this approach is that the conclusions drawn from case studies are generalisable to propositions, though not to populations or to the universe (*ibid*). The goal of case study analysis is to expand or generalise theories, it is *not* to enumerate frequencies.

Samples were used in the performance study in chapter 4, over the period studied. The EU countries included were chosen on the basis of data availability. However, all of the main EU telecoms markets were included.

Construct validity. This concept refers, as said before, to the validity of the methods of data collection used. Since, as discussed above, the questionnaires provided a list of possible answers to a question, alongside an opportunity for brief justifications, the construct validity of this research should be greatly enhanced. This is so because the scope for different interpretation between the regulators is reduced. In terms of the case studies, the justification is not as simple, however. Yin (2003, p.35) emphasises that critics of case study research frequently point out that the 'investigator fails to develop a sufficiently operational set of measures and that subjective judgements are used to collect the data'. This issue was recognised and therefore taken into account when the case studies presented in chapters 8 and 9 were prepared. As stressed already, the case studies stem from the findings of the questionnaire. Hence, in a first step, these findings were used to review the Implementation Reports of the European Commission (CEC, 1999a, 2000a, 2001a). Then, gaps were identified and tailored interviews developed. Therefore, the construct validity of the case studies conducted should not be a serious issue because of their direct relationship with the

questionnaire results and the secondary data.

Reliability. To demonstrate the repeatability of the case studies, four were administered and further studies could be readily undertaken. Regarding the questionnaire, however, the ability to repeat is reduced because the answers relate to the telecoms directives that were current until 24 July 2003. A new framework is in the process of being implemented at present. But, as will be reviewed in chapter 2, the new framework did not change fundamental concepts set down in the previous directives. Where changes occurred, then these relate to detail, such as changing the definition of 'significant market power' of telecoms operators, or when an operating licence should be issued. If these changes had been part of the questionnaire survey, it is highly unlikely that the analysis, presented in chapters 5 to 7, would have led to different conclusions.

1.4.6 Limitations of the Research

Despite the careful design of this research project, it is worth emphasising that a number of shortcomings remain. Firstly, there may be some degree of selection bias because the telecoms regulators chosen for data collection and analysis will be naturally biased towards their work, which may be reflected in their answers. However, the responses were, wherever possible, cross-checked against published information. The findings were then used as the basis for the case study design, which also reviewed secondary information.

Secondly, the questionnaire could not cover every aspect of national telecommunications. Although the main issue central to this research was appropriately tackled, some aspects of telecoms regulation remain uncertain. For example, as will be seen in chapters 5 and 7, the impact on users of regulators setting quality guidelines and the issue of granting 'rights of way' remain unclear. Another shortcoming of the research is that the new telecoms directives, current since 25 July 2003, were not covered at all in the questionnaire survey because it preceded the new directives. Also, Austria and Spain failed to agree to take part in the research. Nevertheless, thirteen responses out of fifteen possible ones or, in other words an 86.6% response rate, is unusually high for a questionnaire study.

To corroborate the questionnaire survey, case studies were designed to investigate aspects of telecoms regulation further. They especially focussed on the country-specific circumstances in the telecoms sectors of four member states. For example, the case studies took onboard the implementation of the new telecoms directives of the European Commission, 'rights of way' and the way telecoms regulators intervene in their markets. However, despite

this effort, it could be argued that a question mark hangs over the robustness of the findings, especially because only four country case studies were undertaken. The time constraints of the research and the need to obtain the cooperation of regulatory offices did not permit the conduct of a larger number of case studies.

Lastly, there is an issue attached to the performance analysis. Due to non-availability of data, the analysis in chapter 4 stops in 1998 and could not be updated to a more recent year. The data source used changed the way it classifies some data after 1998. Also, missing or unreliable data did not permit the inclusion of all fifteen member states. However, should data become available in the future, then the performance analysis undertaken as part of this research could be extended.

1.5 The Structure of the Thesis

This thesis is structured as follows. Chapter 2 explores the telecoms directives of the European Commission in detail. In so doing, the previous, as well as the new, directives are discussed. Also, related documentation, such as international agreements and European treaties, which impact on telecoms regulation in the EU, are included.

Chapter 3 then looks at the academic literature related to the telecoms directives. In essence, the following are discussed: (i) theories on the rationale of privatisation and market liberalisation; (ii) the benefits of private capital in competitive markets; (iii) the rationale for market intervention; (iv) the rationale for establishing regulatory authorities; (v) the policy transfer literature; (vi) market intervention by regulatory authorities; and (vii) problems with market intervention by regulatory authorities. In addition, the telecoms directives and the academic literature are formally combined at the end of chapter 3 to establish the central hypothesis and a set of eight sub-hypotheses for the research.

Chapter 4 looks at performance in ten telecoms markets of the EU, plus Switzerland, Japan and the US as benchmark countries. Profit margins, labour productivity and total factor productivity are applied as measures of productive efficiency.

Chapters 5 to 7 present the analysis of the questionnaire survey, on the basis of the sub-hypotheses established in chapter 3. More specifically, chapter 5 looks at the implementation of the telecoms directives in the member states of the EU, the relationship between the telecoms regulators and government, and the basic powers and functions of the regulatory authorities. Following this, chapter 6 discusses the way market intervention is administered by the telecoms regulators in the EU. Indicators used are (i) the overall approach to telecoms

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market intervention adopted; (ii) meeting wider economic interests; and (iii) tackling market power. Drawing from the intentions of the EU telecoms directives, chapter 7 then looks at the effects of competition and regulation as well as the benefits for users obtained from competition and regulation.

The final chapters of analysis, chapters 8 and 9, present the case study evidence of Finland, Germany, Greece and the Netherlands. Chapter 8 provides the rationale for choosing these four countries.

Last but not least, chapter 10 brings all of the important findings together. Firstly, the final decision is made as to *whether* the telecoms directives have created harmonisation. Secondly, the theories on regulatory control and market intervention by regulatory authorities are aligned to form a new theoretical framework, represented in the form of a three-by-three matrix, which can be used in future research to assess regulated industries *worldwide*. The countries considered in the main part of this research are placed in this matrix, according to the findings in chapters 5 and 6. This classification reveals an unexpected result, an emerging link between the main part of the research and the performance analysis in chapter 4. Only when the countries included in the thesis were placed in the matrix could this final link in the research be established.

Chapter 2

Telecommunications Policy in the European Union

The roots of harmonisation within Europe reach back to 25 March 1957, the date when the European Economic Community was established by way of the Treaty of Rome (EU, 1957). The Treaty subsequently triggered a number of broad measures, by which a common competitive market throughout the European Community was to be created. However, it was not until 1987 when the Green Paper on telecommunications (CEC, 1987) marked the beginning of a period of serious policy, pressing towards market liberalisation, harmonisation and creating effective competition. What followed over the subsequent decade was the introduction of a series of directives on European telecommunications with the intention to build a common framework for the sector. The development of EU policy is detailed in Schneider et al. (1994) and Curwen (1996). However, the telecommunications industry in the EU was finally liberalised in full on 1 January 1998. Prior to this date, parts of the telecoms sectors in the member states of the EU, such as satellite communications and procurement, had been liberalised and technology use was standardised as part of the systematic transformation of monopolies into competitive suppliers.

The current telecoms framework is considered as vital by the European Commission for the achievement of effective and harmonised competition throughout the community. As will be seen, some directives are rather strict, whereas others leave a considerable degree of freedom to the member states.

However, the telecoms directives are generally expected to achieve harmonised regulatory systems across the member states of the EU. To assess if this harmonisation has been

achieved, it is necessary to define the term 'harmonisation'. The following definition, which draws from the telecoms directives (e.g. CEC, 2002c), is used in this thesis:

Harmonisation will be understood as the creation of equal conditions that allow for effective competition in the telecommunications sectors of the member states of the EU.

As set down by the 'Independent Regulators Group' (IRG), the association of European national telecommunications regulatory authorities established in 1997, the term 'effective competition' is defined as (IRG, 2001):

"... the persistent absence of players with the ability to influence prices and [to] persistently enjoy higher profits than ... firms which do not possess ... [this ability]."

The purpose of this chapter is to review the framework as facilitated in the telecoms directives issued by the EU, and to give a brief introduction to the legal basis of this framework. The understanding obtained below will then be the basis for the research presented in chapters 5 to 9.

2.1 The Legal Basis of Harmonisation in the Telecoms Markets of the European Union

As mentioned above, the legal basis of harmonised market liberalisation and competition in the EU draws from the Treaty of Rome of 25 March 1957, which established the European Community. On 2 October 1997, the Treaty of Amsterdam (EU, 1997) was signed to found the EU. The treaty amended and brought up to date the legal provisions of the Treaty of Rome. Most Articles from 1957 were reinstated and given a new number. However, besides the many provisions of the Treaties of Rome and Amsterdam, some articles, such as the power of the Commission to take a member state to the European Court of Justice, were incorporated into the telecoms directives. More specifically, the foremost policy objective within the EU is to establish a single market by implementing common policies, which in turn 'promote a harmonious, balanced, non-distorted and suitable development of economic activities' across the member states. To achieve these intentions, the Treaty of Rome originally set down 'measures to establish the internal market', which triggered the Commission's 1987 Green Paper on Telecommunications marking the starting point for issuing directives for the European telecoms sector.

In addition to the legal documents on the EU, there also is international law with direct relevance for European telecommunications, in the form of the 'General Agreement on Trade in Services — GATS' (WTO, 1994). The general part of this document includes,

like the European Treaties, provisions that were reinstated in the directives. For example, member states had to abolish non-competitive practices, had to make their economic policies transparent, and were allowed to exert market intervention according to principles set down by the Agreement, which comprises 'legal distinction and functional independence' of the institution administering market intervention. In addition, despite market liberalisation, the agreement acknowledges the need for operating licences at the national level, if certain requirements, such as network integrity as well as health and safety standards, have to be met by operators.

Further to these principal provisions, the Annex on Telecommunications in the General Agreement emphasised the special role of the telecommunications industry due to its two-fold characteristics. Firstly, 'a communications network is the means of transport for other industries' and, secondly, it is 'an economic activity itself'. The emphasis was made to justify special regulations applied to the sector, such as granting non-discriminatory access to networks at national and international levels. In addition to these obligations for competitors, the need for international standards on technology has been highlighted, alongside the importance of standardisation introduced by organisations such as the International Telecommunications Union (ITU), to ensure global compatibility and interoperability of equipment. These obligations were, as will be seen below, reinstated in the telecoms directives.

2.2 The Telecommunications Framework in Force until 24 July 2003

The current framework, which will be in force until 24 July 2003, consists of twenty-eight directives and complementary legislation such as Recommendations and Regulations, whose complete set is available from the website of the European Commission.¹ Before a review can be undertaken, some explanation is required to understand the complexity of the present framework. Firstly, the directives refer to three dates: the date of issue, the date of entering into force, and a deadline by which the directives have to be part of national legislation. The date of entering into force is omitted in the sections below because the important date for analysis in this study is, alongside the date of issue, the date at which a Directive has to be 'transposed' into national legislation. The term 'transposition' will also be used from now on to refer to the incorporating of the telecoms directives into national legislation. Secondly, the

¹<http://europa.eu.int/ISPO/infosoc/telecompolicy/en/Main-en.htm>.

European Commission has made a distinction between three groups of telecoms directives. The first group, the harmonisation directives, are, due to their importance for this study, reviewed in detail. The remaining two groups, the directives on enabling liberalisation and the directives on the standardisation of the common use of technology, are only summarised below because of their lesser importance for the analysis presented in later chapters. Thirdly, depending on the year of accessing the websites of the European Commission, directives change print layout, while their texts remain unchanged. This has caused texts to appear on different pages and page numbers are, therefore, omitted when quotations are used. Finally, reviews of provisions provided in this section do not claim to be complete, in the sense in which they were originally set down in the directives. The reviews only claim to be comprehensive so as to provide a basis for further analysis in this research. An alternative review of the telecoms directives in force until 24 July 2003, which has not been adapted to the special requirements of this study, is available in Simmons and Simmons (2001).

2.2.1 General Provisions

All directives include four basic requirements to be met by member states, which may be seen as guidelines for authorities operating according to the telecoms directives. Firstly, regulatory decisions must be based on objective, proportional, non-discriminatory and justifiable criteria that are transparent and publicly available. These criteria will, in the remainder of this thesis, be referred to as the 'common principles'. Secondly, refusal of rights, such as not allowing operators to commence operations, are only permitted if an operator lacks the qualification to provide network and/or services, or if country-specific health and safety requirements and the integrity of a telecoms network cannot be guaranteed. The European Commission refers to these criteria as 'essential requirements', against which an operator must have the right to appeal. Thirdly, the directives lay down functions and powers for national regulators, which include to ensure maximum benefits for end-users, and to collect market information to be made publicly available. Finally, member states are required to keep the Commission informed on progress and status of the implementation of the regulatory framework. This information is published in the Implementation Reports of the European Commission (e.g. CEC, 2000a, 2001a, 2002f).

2.2.2 Liberalisation Directives

The full set of liberalisation directives to date, whose primary objective was to work towards full market liberalisation on 1 January 1998, is listed below in order of their dates of issue. Only the most important provisions are summarised, since they are, in contrast to the harmonisation directives reviewed later in this chapter, of lesser importance for this study.

16 May 1988:

Terminal equipment liberalisation — 88/301/EEC (CEC, 1988)

28 June 1990:

First service liberalisation — 90/388/EEC (CEC, 1990a)

17 September 1990:

First procurement liberalisation — 90/531/EEC (CEC, 1990b)

25 February 1992:

Application of Community rules to procurement — 92/13/EEC (CEC, 1992a)

14 June 1993:

Coordinating procurement procedures of entities — 93/38/EEC (CEC, 1993)

16 January 1996:

Liberalisation of mobile and personal communications — 96/2/EC (CEC, 1996c)

13 March 1996:

Full competition — 96/19/EC (CEC, 1996b)

As first set out in the Directive on terminal equipment (88/301/EEC), member states had, in preparation for liberalising their telecommunications markets, to abolish all special rights of incumbent operators which supply equipment. In addition, consumers were released from service contracts with these companies that bind subscribers for periods of longer than one year. However, powers to abolish special rights and contracts of longer than one year were later extended to all telecoms services and procurement (92/13/EEC). While the procedures for procurement activities of companies were set down in Directive 90/531/EEE, Directive 93/38/EEC introduced the coordination of these procedures.

The Directive on terminal equipment liberalisation (88/301/EEC) introduced 'type approvals'. This refers to the requirement to implement transparent technical specifications

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and procedures to approve technology used in the market. In addition to these provisions, an authority independent of telecoms companies was required to undertake these type approvals (also 88/301/EEC). It is noteworthy that these provisions reflected early steps towards establishing a national regulator, which, as will be seen below, were refined by later directives.

Further enabling provisions before full market liberalisation on 1 January 1998 were, firstly, that operators had to show their ability to supply a telecommunications service. This requirement was introduced by the Directive on service liberalisation (90/388/EEC) to ensure that entrants are able to compete with incumbent companies. Secondly, the original Amendment (94/46/EC) of the service liberalisation Directive introduced the concept of geographical areas for which market access is granted. Thirdly, the number of operators using the radio spectrum was limited by the second Amendment (96/2/EC) of the Directive on service liberalisation on the grounds of frequency scarcity.

Final enabling provisions were that an authority independent of telecoms companies was required to authorise entrants to supply telecoms services (90/388/EEC on service liberalisation) and to allocate telephone numbers (96/19/EC on full competition). The Directive on full competition also allowed member states to apply for a deferment to open their telecoms market to full competition, on 1 January 1998. Originally, Greece, Ireland, Portugal and Spain applied for an extension until 2003, yet only Greece (in 2001) and Ireland (in 2000) finally made use of the extension granted (CEC, 2000a; Lewington, 1997).

2.2.3 Directives on the Common Use of Technology

The directives below are again listed in order of their date of issue.

9 October 1990:

Designation of frequency bands for pan-European radio paging — 90/544/EEC (CEC, 1990c)

3 June 1991:

Designation of frequency bands for digital European cordless telecommunications — Directive 91/287/EEC (CEC, 1991)

13 October 1994:

Technical standards of satellite services — 94/46/EC (CEC, 1994)

24 October 1995:

Standards for the transmission of television signals — 95/47/EC (CEC, 1995)

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12 February 1998:

Standardisation of telecommunications terminal equipment and satellite earth station equipment — 98/13/EC (CEC, 1998d)

Member states had, under Directive 90/544/ECC, to make available four channels in the radio frequency band between 169.4MHz to 169.8MHz to allow for the establishment of a pan-European radio paging service. Likewise, Directive 91/287/EEC required emptying the frequency band between 1880MHz and 1900MHz for a digital Europe-wide mobile communication network. These frequencies must be provided to operators by an institution independent of companies supplying telecoms networks and/or services.

Directive 94/46/EC facilitated standards of satellite technology used in the market to ensure interoperability of equipment. Likewise, Directive 95/47/EC facilitated standards for television signals to be transmitted via cable television networks, satellite or antenna. Under this Directive, which also introduced the 16:9 television picture format, operators were obliged to provide, based on the 'common principles' introduced above, the necessary technical services related to the reception of television. This Directive replaced the original document regulating this matter, namely Directive 92/38/EEC.

Provisions for type approvals, set down in Directive 88/301/EEC on terminal equipment referred to above, were refined by Directive 98/13/EC on conformity, which facilitated new standards. Under this Directive, television and satellite earth station equipment had to comply with the 'essential requirements', also introduced above. The Directive, which repealed the original conformity Directives 91/263/ECC and 93/96/EEC, also introduced the 'CE' symbol to be awarded by member states for equipment that conforms to agreed standards. The symbol allows free marketing of television and satellite earth station equipment bearing the symbol.

2.2.4 Harmonisation Directives

The following set of directives, labelled 'harmonisation directives' by the European Commission, reflect the intention to create a common market across the member states, in terms of common principles for competition and common consumer benefits. The listing below is again in order of the dates of issue.

10 June 1990:

Open Network Provision (ONP) framework — 90/387/EEC (CEC, 1997e)

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5 June 1992:

Leased lines — 92/44/EEC (CEC, 1992b)

10 April 1997:

Licensing — 97/13/EC (CEC, 1997a)

30 June 1997:

Interconnection — 97/33/EC (CEC, 1997b)

6 October 1997:

Amendment of ONP Framework and leased lines — 97/51/EC (CEC, 1997c)

15 December 1997:

Data protection — 97/66/EC (CEC, 1997d)

26 February 1998:

New voice telephony and universal service — 98/10/EC (CEC, 1998c)

24 September 1998:

Number portability and carrier pre-selection — 98/61/EC (CEC, 1998e)

Open Network Provision Framework — 90/387/EEC. This Directive facilitated unrestricted access for operators to a telecommunications network. More specifically, the framework Directive of 10 June 1990 was brought forward to remove restrictions on the provision of network capacities, such as the dictation of conditions for leased lines and interconnection by incumbent telecoms operators. Under the framework on the provisions for open networks, all operators, and the incumbents in particular, were required to provide a minimum of line capacity on reasonable request according to commercial agreements between contracting operators. These agreements have to be non-discriminatory and based on costs. Only if the operators concerned cannot reach an agreement within six months, then the regulatory authorities should intervene. Basic tools that enable regulators to meet this requirement include that telecoms operators with 'significant market power' (SMP) have to keep separate cost accounts for interconnection/leased lines and for retail services. The concept of 'significant market power' of an operator refers to a market share of at or above 25% in the organisation's relevant market, and was defined in Directive 98/33/EC (interconnection) (CEC, 1997b, Article 4, Paragraph 3), reviewed below. However, the requirements in the

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Directive considered in this section were introduced to enable national regulatory authorities to monitor the business activities of these companies effectively.

The Directive, which had to be transposed by 1 January 1991, further introduced the liberalisation of data transmission and was intended to harmonise the conditions and the technical standards of network access — leased lines and interconnection — including tariff principles with regard to the common requirements and the use of the public communications infrastructure throughout the European Community. Although harmonised conditions are generally seen as conducive to the development of effective competition, specific restrictions apply if data protection, network integrity or health and safety regulations cannot be guaranteed. To meet the provisions of this Directive, member states can use discretion on the form of the required enforcement mechanisms.

There was an Amendment, on 6 October 1997 (97/51/EC), to adopt the original framework on open network provision to the forthcoming full market liberalisation on 1 January 1998, especially in terms of the provision of public telecommunications services and networks. In detail, suppliers of telecommunications services were required to provide interconnection and were granted access to fixed line services and networks by 31 December 1997. Exceptions to these provisions are at the discretion of member states, but regulators have to comply with the 'essential requirements'. In addition, to ensure open access to networks, regulatory authorities should 'encourage harmonisation of services and technical interfaces'.

Leased Lines — 92/44/EEC. This Directive, issued on 5 June 1992, extended the scope of network access to a minimum capacity of leased lines, according to the 'common principles' and the 'essential requirements'. Like with open networks, to reach commercial agreements is left to negotiations between operators. Tariffs charged are allowed to consist of an initial connection fee as well as a periodic rental charge. To make the market transparent, national authorities may refer to the information given by the cost accounts, which operators have to keep. Finally, member states had to comply with the provisions of this Directive by 5 June 1993.

The Amendment of 6 October 1997 (97/51/EC) was intended to adopt the original provisions for leased lines to fixed networks and full market liberalisation on 1 January 1998. In more detail, the provisions of the original leased lines Directive (92/44/EEC) were extended to organisations with 'significant market power', unless competition is regarded as effective or there are no organisations with such power. The assessment of SMP was refined

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in the Directive on interconnection (97/33/EC), detailed below. Operators to which this Amendment applies have to provide leased lines on a non-discriminatory basis and tariffs must be independent of the type of the application. Moreover, Amendment 97/51/EC set down explicitly restrictions that apply to the provision of leased lines in fixed line networks. Such restrictions can only be of a regulatory nature, which rules out technical restrictions beyond the directives on the common use of technology, and restrictions beyond the 'essential requirements'. Member states were required to enforce the Amendment by 31 December 1997.

Licensing — 97/13/EC. The Directive of 10 April 1997 established procedures for allowing suppliers to commence operations, for which the 'one-stop-shopping-procedure' was facilitated (CEC, 1997a, Article 2, Paragraph 1c):

"One-stop-shopping-procedure means ... obtaining ... individual licences from, or ... the notification to, more than one national regulatory authority, in a coordinated procedure and at a single location."

A licence is granted when an application is brought forward by an operator and a specific decision is made. Administrative charges incurred in management, control and enforcement, as well as for the rights of use and the installation of facilities can be levied by the granting institution. In contrast, a notification only requires the application by a service or network provider, and the right to commence operations is then granted automatically if the authority does not notify the applicant otherwise within a determined period of usually six weeks. It is within the scope of the Directive that a licence should be granted whenever special conditions are imposed. Such conditions usually relate to access to the radio spectrum, the protection of the public interest, the maintenance of network integrity and/or data protection, and the right for operators to use telephone numbers.

The Directive further empowers member states to enforce conditions, but does not set down how such conditions should be enforced. It is interesting to note that the Directive, when referring to granting authorisation and providing operators with telephone numbers, does not specifically facilitate which institution should administer these tasks. The only condition is the 'legal distinction from and the functional independence of' such an institution. This makes it discretionary whether the government itself or the regulatory authority grants authorisations and allocates telephone numbers. Finally, member states were obliged to transpose this Directive by 31 December 1997.

Interconnection — 97/33/EC. Provisions under this Directive of 30 June 1997 reinforced and clarified original articles under the 1990 framework on open network provision with specific

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reference to interconnection and a universal service obligation (USO). This obligation is defined as (CEC, 1997b, Article 2, Paragraph 1g):

“... a defined minimum set of services of specified quality which is available to all users regardless of their geographical location ... at an affordable price.”

The Directive, which had to be implemented by 31 December 1997, leaves it largely to the discretion of the member states to specify ‘a defined minimum set’, but it is recommended to include fax services, itemised billing and voice telephony in rural areas. Because there may be a need to compensate the operator providing universal services for the costs incurred, the Directive allows member states to use either a national funding scheme or a surcharge on the providing operator’s interconnection charges. In both cases, the service elements for which funding is received, have to be made known to the regulator.

As mentioned earlier, the Directive defined ‘significant market power’ of an operator (CEC, 1997b, Article 4, Paragraph 3) as a market share of at or above 25% in the organisation’s relevant market. The national regulatory authority may, if it regards this as justified, apply a different level based on objective criteria, such as turnover relative to the size of the market or market influence. Operators with ‘significant market power’ are required to provide interconnection to rivals on reasonable request and on a non-discriminatory basis.

The Directive also made specific reference to international interconnection matters, leaving it to the discretion of regulatory authorities to ensure that sufficient capacities are available. This includes, for example, that an operator authorised in one member state is allowed to obtain interconnection in another member state without further authorisation.

In addition to the provisions of this Directive, another issue is relevant when reviewing the obligations under the interconnection Directive, namely: unbundled access to the local loop, the local telephone network commonly referred to as the ‘last mile’. Telecommunications services are brought to the consumer through this infrastructure, and it is defined in Regulation 2000/0185(COD) of 5 December 2000 as (CEC, 2000b, Article 2, Paragraph c):

“... the physical ... [copper wire connection] ... connecting ... the subscriber’s premises to the main distribution frame ... in the fixed public telephone network.”

Although document 2000/0185(COD) is not a Directive, its provisions had to be transposed by 31 December 2000 to encourage competition and therefore stimulate technological innovation. This Regulation and Directive 97/33/EC on interconnection form a framework as follows. Operators with ‘significant market power’ have to supply, on reasonable request, sufficiently unbundled access and transmission in the same way as these operators would provide for their internal use. The requirement of sufficient unbundling aims at the protection of competitors that are authorised under the licensing Directive 97/13/EC. The central

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element under the local loop Regulation is that undertakings requesting networks and network elements of the local loop only have to compensate the provider for capacities received, and not for a bundle of capacities. Further conditions to be met are firstly that the provision has to be cost-based and non-discriminatory. Secondly, suppliers of access and transmission services are required to publish up to date reference offers, which contain at least a description of the components on offer, the associated terms and conditions, and charges. Thirdly, access can only be refused according to objective criteria set by the regulator.

However, the national regulator can impose changes to reference offers including prices and ensure that charges foster fair and sustainable competition. The member state can exempt operators with 'significant market power' from the obligatory cost-based charges if it regards competition in the local loop as effective. A regulator is allowed to collect relevant financial information from the providing operators.

Data Protection — 97/66/EC. The Directive of 15 December 1997 applied general rules of European data protection to telecoms. Regarding the processing of personal data, it was intended to ensure the protection of fundamental consumer rights, especially the users' right of privacy, while at the same time ensuring the free exchange of information. For example, the Directive introduced general guidelines on security and confidentiality of telecommunications data. Regarding security, the provider of telecoms services has to adopt appropriate technical and organisational measures to ensure security. Likewise, member states have to ensure the confidentiality of data processing by, for instance, prohibiting listening, tapping and storage without the consent of the user concerned. These measures do not apply to issues associated with state security and lawful business conduct, such as data collection for statistical or marketing purposes. The Directive goes to great length detailing consumers' rights and measures for data protection.

The Directive on data protection had to be transposed by 24 October 1998 and member states had to ensure that its provisions were implemented without imposing technical features or technical restrictions beyond the directives on the common use of technology and beyond the essential requirements. This is to ensure that technology used in the market evolves freely.

Finally, it is important to note that the Directive leaves it to the discretion of member states whether the regulator or the government itself administers data protection in national telecommunications markets.

New Voice Telephony — 98/10/EC. This Directive, which on 13 December 1996 replaced the

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original voice Directive 95/62/EC, made specific reference to the application of 'significant market power', the framework on open network provision, the provision of universal services and a 'good quality of services', and the application of data protection in fixed line services and networks. Although these provisions are mostly discretionary, the main objective of this Directive was to increase transparency for end-users by explicitly applying provisions of earlier directives to fixed line telephony.

Turning to detail, the provisions are as follows. At least one fixed line operator has to provide, on reasonable request and based on costs, interconnection and leased lines. This provision is mainly aimed at incumbent operators, but can be extended to other undertakings with 'significant market power' (SMP), if the regulator deems this necessary. Operators with such powers are also required to provide good service quality and universal services in the fixed line telephone network. If universal services, such as public payphones, needs of disabled people and courtesy phones for subscribers with social needs, cannot be provided on a commercial basis, then it is at the discretion of the member state to implement a funding scheme based on either a national fund or a surcharge on interconnection. However, the Directive recommends that the obligation to provide a 'good quality of service' should be included in the licences of operators having 'significant market power' in fixed networks and services. In addition, the national regulator, who should conduct an independent audit of the performance data of the operator in question, has to ensure that the accounting of all operators providing fixed line networks and services follows generally accepted principles.

Moreover, the regulatory authority may set performance targets to promote competition and the provision of telecoms services. Performance targets are left to the discretion of member states, including whether to implement profit or price regulation, such as price caps. If special or targeted tariff schemes are implemented, the regulatory authority has to ensure that such schemes promote competition, are transparent, non-discriminatory and cost-based. If consumer protection cannot be guaranteed, the regulator may alter or withdraw the proposal.

The Directive further applied earlier provisions on data protection to fixed line markets. For example, operators providing subscriber information are required to set up a national directory service. Moreover, itemised billing and technical options have to be supplied to users by one or more operators by 31 December 2001. Such options include, for example, that a user can switch on or off whether to display the caller's name and telephone number. Likewise, the caller must have the option to send or not to send his/her telephone number when making a call. These features are referred to as 'caller line identification' and

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'calling line identification'. The national regulator can, however, choose not to enforce these options if competition is deemed to provide them.

Regarding costs and tariffs of operators with 'significant market power', the Directive refers to the principle of cost-orientation. In addition, changes in tariffs have to be announced in advance. This does not apply, however, if competition is regarded as effective by a member state. Moreover, services provided must be sufficiently unbundled enabling consumers to purchase only those services they demand. To enable national telecoms regulators to monitor pricing behaviour, operators with 'significant market power' are required to adopt a cost accounting system that should be verified for compliance and published on an annual basis. Such systems, which may also be introduced to support the implementation of tariff principles, have to show the main categories under which costs are compiled and the rules used for allocation of costs. Principal requirements for these systems are detailed in Article 18, Paragraph 3b of the new voice Directive (CEC, 1998c).

In addition to referring explicitly to earlier regulations, the fixed line Directive refined requirements for regulators and operators. Firstly, national regulators are granted the powers to restrict access to the public fixed lines networks if an operator does not meet the 'essential requirements'. Secondly, member states are required to implement non-discriminatory and proportional measures for non-payment of bills. Such measures can include allowing suppliers to disconnect users that do not pay their bills. Thirdly, to ensure the functioning of telecommunications services, member states are required to implement procedures addressing interruption, termination and service reduction imposed by operators, and operators with 'significant market' power in particular.

Final provisions of this Directive are as follows. Firstly, deferments granted under the original voice Directive (95/62/EC) for countries with less developed fixed line infrastructure remain unchanged. As introduced with Directive 96/19/EC on full competition, above, four countries originally applied for a deferment until 2003. Additional deferments can be requested if the member state provides evidence of excessive burdens imposed on organisations. Secondly, any party participating in fixed line telephony must be able to bring unsettled disputes before the national regulator, who is required to have inexpensive and fair procedures in place to solve these disputes. Lastly, the new voice telephony Directive had to be transposed by 30 June 1998.

Number Portability and Carrier Pre-selection — 98/61/EC: The Amendment of Interconnection and Leased Lines. This Amendment of the interconnection Directive of 24 September

1998, commonly referred to as the 'numbering Directive', introduced number portability and carrier pre-selection on a call-by-call basis through a short dialling prefix. These services had to be in place by 1 January 2000, but member states were able to apply for a deferment, if this was not already granted under the full competition Directive 96/19/EC, of 13 March 1996 (again, see above for details on the four countries that applied for a deferment). The Commission emphasised the importance of these provisions to achieve effective competition, especially because these services must be free of charge.

The numbering Directive interacts with the provisions on data protection and licensing, since an operator may be required to obtain a licence if it uses telephone numbers. Hence, when an operator provides subscribers with telephone numbers, the telecoms operator in question has to ensure the protection of private user information, such as data held in directory services.

2.2.5 Summary of the Provisions on European Telecommunications Current Until 24 July 2003

This section summarises those provisions of the present framework for telecommunications in the member states of the EU, which have been identified as relevant for the analysis presented in forthcoming chapters. In doing so, differences between *discretionary* and *restrictive* measures are emphasised in this section. Restrictive measures do not leave discretion for the national telecoms regulator, which implies that such measures have to be transposed exactly as set down in the directives. In contrast, discretionary provisions leave a considerable degree of latitude to regulatory authorities. This situation means, in other words, that the *what* of a provision in question is not open to discretion, yet the *how* is mostly left to the judgement of telecoms regulators. However, as mentioned earlier, this summary does not claim to be comprehensive in the sense of covering all of the telecoms directives originally set down by the European Commission, reviewed above. The summary only claims to be complete so as to provide a basis for the analysis presented in chapters 5 to 9.

2.2.5.1 Restrictive Provisions

As the above review has shown, there are three central requirements for member states, which can be considered as restrictive measures. A first set of these provisions is that the Commission expects to be kept informed on the progress of transposing the telecoms directives. This is relevant, in particular, given that all directives pose a deadline by which

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they have to be transposed in national telecoms legislation. Regarding the date of full market liberalisation, 1 January 1998, member states were given the possibility to apply for a deferment. As introduced earlier, Greece, Ireland, Portugal and Spain applied for an extension until 2003, though only Greece (in 2001) and Ireland (in 2000) made use of the extension granted (CEC, 2000a; Lewington, 1997). However, member states had to have the telecoms regulatory framework in place by 1 January 1998. Whether the framework was in place by this date is the basis of sub-hypothesis 1, developed in chapter 3.

A second set of restrictive provisions is that the telecoms directives have introduced guidelines on market intervention for national telecoms regulators. The 'essential requirements' facilitate that telecoms suppliers can only be refused to commence operations if they lack qualification, if they are unable to meet health and safety regulations, or if network integrity cannot be guaranteed. In this context, the first service liberalisation Directive (88/301/EEC) facilitated 'type approvals', that is, the technology to be used in a market has to meet specific requirements. However, alongside the 'essential requirements', another central theme of the telecoms directives are the 'common principles'. These comprise that measures of market intervention have to be proportional, non-discriminatory, justifiable, transparent and publicly available.

A third set of restrictive provisions concerns the relationship between the state and the telecoms regulator, as well as basic powers and functions of regulatory authorities. In essence, the telecoms directives of the Commission facilitate the requirement of 'legal distinction and functional independence' for institutions that administer telecoms market intervention in the member states of the EU. Besides this, the telecoms directives make specific when this requirement applies. Especially Directive 97/13/EC on licensing determines that an institution, which grants authorisation and provides operators with telephone numbers, has to meet the prerequisite of legal distinction and functional independence. It is, however, interesting to note that Directive 97/13/EC does not explicitly determine how these prerequisites have to be administered.

However, as will be seen in chapter 5, Italy and the Netherlands have made use of this freedom, in the sense that licences are not granted by the telecoms regulators of these countries. In Italy, the powers to authorise telecoms operators are shared between the Ministry responsible for telecommunications and the country's telecoms regulator. Similarly, the Dutch regulatory system facilitates that no licences are needed to provide wire-based networks and/or services, whereas the Ministry responsible for telecommunications reserves the right to grant licences for the provision of wireless networks and/or services. Chapter 3

will explore the related theoretical issues.

In addition to the provision of 'legal distinction and functional independence', a last restrictive requirement relevant for the analysis in subsequent chapters, is the so-called 'one-stop-shopping-procedure', also facilitated in Directive 97/13/EC on licensing. This procedure in essence determines that operators must be able to obtain authorisation at a single location and at a single point in time. As will be seen in chapter 5, it is questionable whether this provision is sufficient as it stands. However, 'legal distinction and functional independence' is the basis of sub-hypothesis 2 of this thesis. Powers and functions are the basis of sub-hypothesis 3. Both sub-hypotheses are explained and presented at the end of chapter 3.

2.2.5.2 Discretionary Provisions

The telecoms directives intend to create a framework for harmonised regulatory intervention in the telecoms markets across the EU. In doing so, the first group of discretionary measures is related to the *overall approach* to telecoms market regulation. In essence, the telecoms directives have emphasised that regulators should 'enforce effective competition', 'determine the effectiveness of competition', and 'monitor the competitive behaviour' of operators. As they stand, these provisions have been considered as insufficient by the Independent Regulators Group (IRG, 2001). This association of European telecoms regulators encourages its members to use at least two indicators to assess the effectiveness of competition (*ibid*).

The overall approach to regulation taken by the telecoms regulators in the member states of the EU will be a central theme of the analysis in chapter 6.

A second group of discretionary measures relevant for subsequent analysis is composed of provisions that are facilitated alongside the overall approach to telecoms market intervention, namely measures aiming at the *control of market power*. It should be emphasised that the terminology 'control of market power' is not used by the European Commission. It is introduced here because it provides a useful link between the issues in the directives and the theoretical background reviewed in chapter 3. However, the European Commission has introduced the concept of 'significant market power'. Especially Directives 97/33/EC (on interconnection) and 97/51/EC (the Amendment of open network provision and leased lines) determine that 'an undertaking shall be deemed to have such powers' if it has a market share of at or above 25%. These Directives leave it to the discretion of the regulatory authority to alter the level. If, however, a telecoms operator has been determined to have 'significant market power', then this operator has to meet further requirements, namely to provide, 'on reasonable request', interconnection and leased lines on a non-discriminatory basis, and on

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the basis of the costs incurred. In addition, it is left to the companies in question to reach commercial agreements for leased lines and interconnection. Only if operators are unable to reach such a deal based on agreement within six months, then the regulator should intervene, either in the form of a mediator or in the form of enforcing an agreement. The provisions related to leased lines and interconnection were refined and explicitly applied to fixed lines by Directive 98/10/EC on new voice telephony. The same Directive enables, at the discretion of the telecoms regulator, the control of consumer charges. As will be seen in chapter 6, a number of telecoms regulators in the EU have implemented a price cap regime for their incumbent telecoms operators.

Alongside these groups of provisions, the final set of measures relevant for analysis in chapter 6 is concerned with *meeting wider economic interests*. Again, this terminology is chosen here because of the link between the directives and the theoretical issues reviewed in chapter 3. A first issue facilitated by the telecoms directives, and Directives 97/33/EC (on interconnection) and 98/10/EC (on new voice) in particular, is the concept of universal services, where it is at the discretion of the telecoms regulator to implement either a national funding scheme or a surcharge on interconnection to compensate an operator for the costs of providing universal services. A second measure to meet wider economic interests is the recommendation for regulators to 'ensure a good quality of service' for consumers (Directive 98/10/EC). Finally, operators that are judged to have 'significant market power' are required to provide the regulator with separate cost accounts (Directives 90/387/EEC on the open network framework and 92/44/EEC on leased lines) for each of the businesses pursued. This provision is aimed at supporting the regulator in its decision-making, such as making decisions related to the control of market power. Regulators are, under Directives 90/387/EEC (on the open network provision) and 98/10/EC (new voice), obliged to independently audit these cost accounts. The overall approach, the approach to controlling market power, and the approach to meeting wider interests are the basis of sub-hypotheses 4 to 6 of this thesis. Again, these sub-hypotheses are formally presented at the end of chapter 3.

2.3 The New Harmonisation Framework for European Telecommunications

2.3.1 Overview

Soon after market liberalisation on 1 January 1998, the European Commission announced a new regulatory framework to facilitate a 'light regulatory touch'. This was to account for the needs of a competitive market environment, which, in theory, only requires the monitoring of companies' behaviour to ensure that neither operators nor consumers are treated unfairly. The new framework is based on six directives: a Framework Directive (CEC, 2002c), an Access Directive (CEC, 2002a), an Authorisation Directive (CEC, 2002b), a Directive on Universal Services and Consumer Rights (CEC, 2002d), and a Directive on privacy and electronic communications (CEC, 2002e). In addition to these five new directives, the telecoms framework that is current since 25 July 2003 contains a directive on telecoms equipment and its conformity (CEC, 1999b), which consolidates and brings up to date the earlier directives on the common use of technology (see above). However, the Directive on privacy and electronic communications, and the Directive on equipment are not reviewed below because they are not part of the analysis in subsequent chapters.

The five new directives entered force of 7 March 2002 and member states had to incorporate these into national legislation by 25 July 2003. Given that the present framework evolved over two decades and contains many cross-references which make it complicated to understand it in its entirety, the new framework is tidier and significantly clearer. Despite keeping many provisions of the present directives in their original form, the new provisions eliminate the problem of confusing interrelations and cross-referencing by downsizing the entire framework, the directives plus complementary legislation, from twenty-eight to eight documents in total. The sections below review the new directives in brief. While focusing on the new provisions, regulations from the current framework are only repeated again where necessary. A copy of the five new directives is available from the website of the European Commission.²

2.3.2 The New Telecoms Directives

Framework Directive — 2002/21/EC. In essence, the new Directive (CEC, 2002c) consolidates the general provisions that are scattered across the previous directives and introduces

²http://europa.eu.int/eur-lex/en/search/search_lif.html.

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tighter legislation. In doing so, the Directive intends to establish a harmonised framework by facilitating tasks and procedures for national regulators. It should be borne in mind that the present framework only requires that an institution administering market intervention and providing operators with telephone numbers has to be 'legally distinct from and functionally independent of' companies supplying telecommunications networks and/or services. The new provisions, however, explicitly place the general provisions under the responsibility of a regulatory authority, in turn clarifying the main tasks to be administered by telecoms regulators. These tasks are to 'promote effective competition', to 'prevent the distortion of competition', and to 'develop national markets'. The new framework Directive sets out broad policy measures on how these tasks can be achieved, which include 'the encouragement of investment into infrastructure' and 'ensuring consumers' rights'. Overall, the European Commission expects that this Directive will lead to a greater degree of equal application of provisions and more harmonisation regarding market intervention between member states.

In addition to these general changes, there are a number of new special provisions by which harmonisation in telecoms is finally to be achieved. More specifically, national regulators have to ensure that the national requirements for an operator to gain rights of way are available on request. The Commission in this context facilitates a 'granting without delay' in an attempt to ease the cumbersome procedures administered in some member states, such as Belgium. Moreover, the new Directive stresses international cooperation between regulators to ensure a consistent application of provisions, especially if a decision in one member state affects telecoms operations in another. It is in this respect that the Commission introduces a requirement by which it expects a considerable degree of harmonisation to develop. Annex I of the new framework Directive includes a definition of telecoms markets. In transposing the new framework, telecoms regulators are required, based on the market definition, to carry out an analysis of these markets. The objective of this analysis is to determine whether these markets are effectively competitive. Should the analysis reveal that they are, national telecoms regulators are required to withdraw existing or to not impose new regulation. Where markets are not competitive, regulatory authorities shall implement new or bring into line existing regulation according to the new framework. This approach is an attempt by the European Commission to devise the consistent application of provisions and, ultimately, to create harmonisation in telecoms regulation of the EU. The Commission felt that the present framework did not appropriately provide for a consistent market definition between member states. However, since the regulators of Germany and the Netherlands have indicated that they are not sufficiently empowered to carry out a market analysis

(CEC, 2002f), the interview analysis presented in chapters 8 and 9 will look at this issue in detail.

Another new provision is the explicit reference to the intended 'light regulatory touch', and it is here where two new provisions become of particular relevance. Firstly, instead of calling for a separation of accounts in all cases of 'significant market power', the new Directive requires separate accounts only if the annual revenues of an undertaking exceed €50m. Stemming from this, the new framework, unlike the previous directives, leaves it to the discretion of a member state whether to administer independent auditing of cost accounts. This is now only required if cost accounts do not comply with general European accounting law. Secondly, the determination of 'significant market power' is substantially revised. The 25% level is abolished under the new framework, and only a 'position of dominance', defined as an 'affordable behaviour independent of competitors and consumers', is relevant since 25 July 2003.

Authorisation Directive — 2002/20/EC. Like its predecessor (Directive 98/13/EC on licensing), the new authorisation Directive (CEC, 2002b) leaves it to the discretion of the member states whether granting authorisation and providing telephone numbers to operators are responsibilities of the national regulatory authority or whether the Ministry responsible for telecommunications reserves these powers. The only requirement that has to be met by an institution granting authorisation and telephone numbers is the requirement of 'legal distinction from and functional independence of' companies supplying telecoms networks and/or services.

Alongside these principal provisions, the new authorisation Directive reflects the intention to achieve a 'light regulatory touch' in European telecoms regulation. By trying to simplify and harmonise procedures involved in granting market access, the European Commission has introduced some modifications. When operators request authorisation from national regulatory authorities, the following new rules apply. Firstly, the 'one-stop-shopping-procedure' has been abolished. Instead, operators have the right to be provided with the full details of the authorisation procedure. Secondly, licences should only be issued if an operator uses frequencies. If an operator intends to use a fixed network, then only a general authorisation should be sufficient.

Thirdly, in an attempt to make it easier for telecoms operators to obtain a licence or a general authorisation, national telecoms regulators are required to grant authorisations within a time limit set by the Directive as follows. General authorisations should be issued

within three weeks. This time limit applies only if the regulator has received the complete application documentation from the operator in question. In contrast, licences should be issued within six weeks, again on receipt of complete application documentation.

Finally, existing authorisations that were granted under the present framework had to be in line with the new provisions by 25 July 2003, but member states can apply for temporary prolongation if unjustifiable burdens for companies arise.

Access Directive — 2002/19/EC. The new Directive on access to networks (CEC, 2002a) incorporates the original framework on open network provision, leased lines and interconnection, and the Directive on numbering. Like its predecessors, the new Directive focuses on bringing barriers down by allowing an undertaking to request interconnection or access in another member state without the need for further authorisation. This applies if the undertaking is already authorised in its home country of the EU and does not currently supply networks/services in the other member state. While still facilitating commercial agreements between operators, a greater degree of regulatory intervention is advocated to improve and harmonise the enforcement of provisions. Finally, the provisions on unbundled access to the local loop, reviewed in the previous section, still apply.

Universal Service Directive — 2002/22/EC. There is only a small number of new provisions under this Directive (CEC, 2002d), which incorporates voice telephony and numbering. The provisions on universal services contain the earlier ‘Communication on Assessment Criteria for National Schemes for the Costing and Financing of Universal Service in Telecommunications’ (CEC, 1996a), and the ‘Guidelines for Member States on Operation of such Schemes’ (CEC, 1996a). A new provision is that the Directive lists in its Annex technical parameters of service quality.

2.4 Summary of the Telecoms Framework in the EU from 25 July 2003

This section provides a summary of all provisions that form the telecoms regulatory framework since 25 July 2003. The summary is presented under the headings of *restrictive* and *discretionary* provisions.

2.4.1 Restrictive Provisions

2.4.1.1 Obligations for National Regulatory Authorities

Among the provisions of the directives, only a few are distinctly restrictive and leave little or no freedom for member states. This is interesting given the intention to achieve harmonisation in European telecoms markets between member states. Turning to detail, the most restrictive provision is that regulators have to be 'legally distinct from and functionally independent of' suppliers of telecommunications networks and/or services. Further restrictions for national regulatory authorities include to keep the Commission informed, to enforce accounting separation if the annual revenues of an operator exceed €50m, and to administer an independent audit of these accounts if the national accounting principles deviate from general European accounting law. Finally, in the interest of technological development, regulators are not allowed to implement technical restrictions beyond the directives on the common use of technology, and beyond the 'essential requirements'.

2.4.1.2 Consumers' Rights

The underlying provisions are primarily concerned with ensuring privacy and protection of the interests of consumers, and can be summarised briefly. Directive 2002/22/EC on universal services and consumers' rights provides guidelines for service quality, facilitates number portability and carrier pre-selection, and offers consumers the choice of itemised billing. Finally, the provisions of the data protection Directive give users the choice of caller/calling line identification, explained above. Moreover, personal subscriber data used by telecoms operators is restricted to lawful business conduct, such as marketing.

2.4.2 Discretionary Provisions

2.4.2.1 General Provisions

In addition to the restrictive provisions, general provisions set out *what* has to be done, leaving the *how* to the member states. Therefore, the Commission urges international collaboration between national regulatory authorities to promote a consistent application of the framework. Moreover, regulators are required to follow the definition of the telecoms markets laid down in Directive 2002/21/EC (framework Directive) and to carry out an analysis of these markets as part of the transposition of the new framework for telecommunications.

The general provisions lay down principles according to which regulators can influence

national telecommunication. As introduced earlier, regulators are required to promote equal access to services and networks, encourage investment in infrastructure, and ensure consumer rights as the regulator's main objective. The only requirements regulatory authorities have to meet here are the 'common principles', namely a regulatory decision has to be taken according to objective, proportional, non-discriminatory and justifiable criteria that are transparent and publicly available. In addition, it is left to the discretion of member states whether to administer retail price controls, such as price caps, and under what circumstances to notify operators that they have 'significant market power'. It should be borne in mind that, despite the rule of a 'position of market influence', it is left to the regulators to determine when an operator is in such a position.

2.4.2.2 Authorising Operators

When allowing an undertaking to commence operation, member states are subject to a number of requirements. Firstly, in granting authorisation and allocating telephone numbers to operators, authorisation can be administered by a government department or the telecoms regulator, provided that the granting institution is 'legally distinct from and functional independent of' suppliers of telecoms services. Secondly, licences are only justified if an operator intends to provide telephone numbers and scarce frequencies, while other services and fixed networks are made subject to a general authorisation. After an application is received in full, such authorisation must be granted within six weeks for frequencies, and within three weeks if the applicant requires telephone numbers. The time limit of three weeks also applies if an applicant intends to provide fixed networks. Charges unspecified in level can be levied for administration and enforcement of authorisation conditions. These obligations seem rather tight, but the phrase 'after full application was received' leaves a great deal of discretion to the member states. Although the maximum requirements to be attached to authorisations are laid down in the Directive, regulators can freely choose from that list. These requirements include the universal service obligation, which either at least one operator or all undertakings with 'significant market power' have to provide, and costs arising from the provision of universal services can be recovered from a national fund or a surcharge on the revenues from interconnection. It is, however, at the discretion of the member state to determine whether the provider(s) of universal services should be compensated at all.

After an operator has been granted an operating authorisation, 'rights of way' or, in other words, the rights to lay cables and to build antennas, becomes relevant. The regulatory

framework requires that these rights shall be granted 'without delay'. However, as shown in chapter 5, this issue is yet to be harmonised.

Besides provisions that apply to regulators, there are a number of further obligations to be met by operators. Firstly, when applying for authorisation, an undertaking must show that it has the ability to provide the services it has applied for, and it has to show that the 'essential requirements' are met. Contrary to what may seem at first glance, these provisions are rather discretionary because member states can determine the underlying measures to meet these requirements. Secondly, the new framework requires undertakings to implement measures to ensure the protection of personal user data, but does not specify in detail what these measures should be in detail.

2.4.2.3 Interconnection and Leased Lines

Operators with significant market power have to provide, on reasonable request, a minimum of leased lines and interconnection to competitors. Like the existing provisions, the new framework leaves open how the terms 'minimum capacity' and 'reasonable request' are to be interpreted. These provisions are in particular relevant under the Regulation on unbundled access to the local loop (CEC, 2000b). However, the only specific requirement here is that the provision of capacity has to be in line with commercial agreements and be provided on a non-discriminatory basis, while charges for interconnection and leased lines have to be cost-orientated.

To achieve a harmonisation in charging, the Commission had stressed a 'current best practice' or, in other words, a benchmarking procedure for setting charges for leased lines and interconnection. This was based on the three lowest prices in the member states. However, this best practice, as set down in Commission Recommendation 98/332/EC (CEC, 1998a), was an interim measure until costs calculated according to the method of long-run average incremental costs (LRAIC) were available, and until national regulators had the experience and the economic resources needed to administer this costing methodology. Long-run average incremental costing will be explored in chapter 3.

To ensure that the above provisions are met, regulators are required to intervene if no agreement can be reached between operators within six months. Moreover, regulators have to enforce accounting separation for operators with 'significant market power' and apply a standardised methodology for reporting financial information. The European Commission favours the use of long-run average incremental costing, allowing an estimation of likely future cost trends on which regulatory decisions can be made, such as the application of a

new price cap.

2.5 Conclusions

Stemming from the legal foundations of the European Community, this chapter has reviewed the telecoms directives of the European Commission including new directives. Although the new framework for European telecommunications is imminent, the analysis below, and especially in chapters 5 to 7, is based on the framework that was current in December 2001. The reason for this is that the questionnaire survey, which forms the basis of discussion in these chapters, commenced in February 2002 using a 'cut-off' date of 31 December 2001. By then, the new framework had not yet entered force. It could be argued that this situation compromises the validity of the findings in chapters 5 to 7. However, the new framework, which has to be transposed by 25 July 2003, does not include significant changes in the main modes of telecoms regulation in the EU. As first set down in the Commission's Green Paper on Telecommunications (CEC, 1987), the intention of the directives is to create a harmonised state of competition, from which telecommunications users can benefit more than under the previous monopoly situation. These intentions are the basis of sub-hypotheses 7 and 8, which will be established at the end of chapter 3. Where changes to the regulatory framework were made, more, rather than less, discretion has been introduced. Therefore, if the previous framework did not create harmonisation, then it is highly questionable whether the new, less restrictive provisions, will do so. This, however, remains to be seen, especially in the light of the market definition and the market analysis to be conducted under the new framework. Therefore, some discussion of these recent changes does enter into the analysis of the interview data in chapters 8 and 9. The interviews were conducted in spring 2003.

To summarise the significant changes, the new directives facilitate more regulatory discretion, but have not changed the overall approach to telecoms regulation in the member states of the EU. Firstly, regulators are required to redefine telecoms markets and to carry out an analysis of these markets to identify whether existing regulation should be withdrawn or altered, and whether new regulation should be introduced. Secondly, as said above, the definition of 'significant market power' has been replaced by a 'position of dominance', defined as an 'affordable behaviour independent of competitors and consumers'. Cave and Prosperetti (2001) have criticised the Commission because this concept is not suitable, in their view, to encourage effective competition in the provision of network access. It does not, in the words of Cave and Prosperetti (*ibid*), 'slay the access pricing devils'. The findings

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in chapter 6 are consistent with this argument. Thirdly, the 'one-stop-shopping-procedure' has been replaced by the granting of 'rights of way without delay', whose requirements have to be made publicly available. Again, the analysis in chapter 5 concludes that there remain some doubts about this approach. Therefore, a study of it was incorporated in the case study analysis in chapters 8 and 9. The reason for incorporating this issue is that local authorities, which grant 'rights of way', still largely escape the scope of the measures in the new framework.

Another new provision relates to accounting separation, which should, since 25 July 2003, only be enforced if an operator's annual revenue exceeds €50m. This is in contrast to the stricter provision that was current until 24 July 2003, which enforces accounting separation for all operators with 'significant market power'.

Finally, the new authorisation Directive (2002/20/EC) in particular, is intended to facilitate a 'light regulatory touch' with regard to authorisation procedures. In contrast to the current framework, licences should, from 25 July 2003, only be issued if an operator intends to use frequencies. Fixed line services are to be made subject to a general authorisation. The new authorisation Directive also facilitates time limits: licences should be granted within six weeks and telephone numbers should be allocated within three weeks.

These ongoing changes in the details of telecommunications regulation present an opportunity to study the process of transposition in the EU. In this thesis the study takes the form of a review of the published literature, including documentation from the European Commission, and by undertaking a questionnaire study of national telecoms regulatory offices in each of the member states of the EU. In addition, follow-up interviews with senior members of staff in four of these offices were undertaken. These interviews assisted in the writing of dedicated case studies of telecommunications regulation in these four countries. The studies highlight the changes telecoms regulators have had to introduce during the transposition of the telecoms directives. The results of this analysis are presented in chapters 5 to 9.

The next chapter turns to a review of the literature relevant to this study, namely on the economics of regulation.

Chapter 3

A Review of the Relevant Literature

3.1 Overview

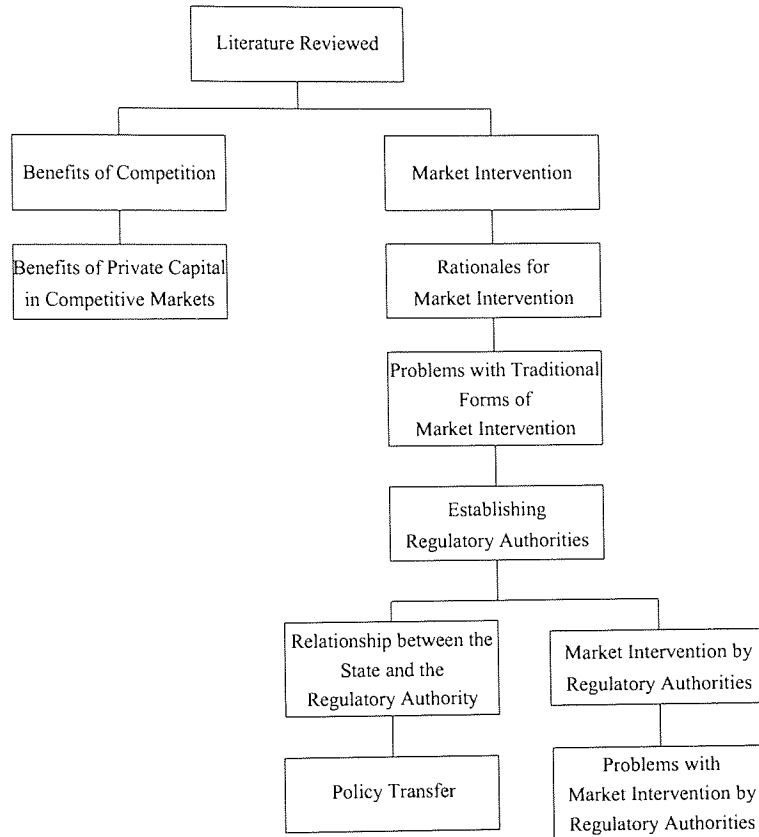
After the discussion of the telecoms directives of the European Commission and related European Treaties in the previous chapter, attention now turns to the review of the academic literature that underlies the telecoms legislation in the European Union. In essence, the issues reviewed in this chapter relate to privatisation, market liberalisation and market intervention by regulatory authorities.¹ Figure 3.1, below, provides an overview of the structure of the literature reviewed in this chapter.

It should be emphasised that privatisation and market liberalisation have received attention from many different academic disciplines. This will, in particular, become evident in section 3.3.3, which discusses the establishment of regulatory authorities. To name a few, law, political sciences, or cultural aspects have been identified to impact on regulatory matters. But this literature review will mainly focus on economic and institutional aspects involved in telecoms regulation. This is so because, firstly, the main focus of the telecoms directives is on these issues and secondly, the time constraints of this research did not permit to include a broader focus. Hence, there may be room for future research.

The main purpose of this chapter is to provide a theoretical understanding of the research project, in terms of the economics and the institutional aspects involved, and to

¹An alternative review of the issues involved in market liberalisation and regulation, not adapted to the special needs of this study, is available in Parker (2002b).

Figure 3.1: Overview of the literature reviewed



identify a gap in the present knowledge on EU telecoms regulation. After this gap has been identified, the reviews of the telecoms directives and the related literature are combined. This allows the formulation of the central hypothesis of this research, as well as a set of sub-hypotheses, which will guide analysis in subsequent chapters. However, attention first turns to a discussion of the rationale for market liberalisation and privatisation.

3.2 Rationales for Market Liberalisation and Privatisation

3.2.1 Proposed Benefits of Competition

The intellectual foundation of the benefits of competition was laid by Adam Smith (1776), who identified that markets ensure, driven by the self-interest inherent in human nature, the

satisfaction of individual needs through a cooperation between producers and consumers. Whereas this understanding describes *what* mechanisms are in play in market economics, Joseph A. Schumpeter (1912, 1942) provided an understanding as to *how* these mechanisms work. In essence, producers strive to economically exploit previously unused inventions by bringing these inventions to the market in the form of new goods and/or services. In turn, consumers satisfy their needs by purchasing these goods or services, through which producers generate profits. Over time, competition among suppliers accounts for the erosion of generalisable profits due to the declining stock of marketable inventions. This process is commonly referred to as 'Schumpeterian innovation', and profits generated during this process are known as 'Schumpeterian rents'.

Drawing from these ideas, von Hayek (1948) developed understanding further by arguing that the profits generated from Schumpeterian innovation lead to the most efficient distribution of economic outcomes in market economies. The source of this efficient distribution is an ongoing 'discovery process' (von Hayek, 1968), in the sense that suppliers 'experiment' with making new technologies and/or services available to the consumer at an initial price because suppliers do not know the preferences of consumers in advance. In turn, consumers experiment by choosing their supplier to obtain 'value for money' according to their preferences in terms of price and quality of the supply. Price changes then represent a shift in the relationship of demand and supply, while the market is constantly in a state of discovery. It is further argued that this dynamic mechanism provides, in the long-run, the best possible distribution of economic outcomes. An imbalance in the market is a normal effect incurred when there is a short-term over(under)-supply and under(over)-demand. This intellectual tradition, based on innovation and discovery, has become known as *Austrian Economics* because it was developed by Schumpeter (1912, 1942), von Hayek (e.g. 1948, 1968, 1980) and von Mises (e.g. 1922, 1969), all economists of Austrian origin.

Austrian economics has been advanced more recently by Kirzner (1997), Littlechild (1986) and Shand (1984) to provide an economic rationale for abolishing monopoly supply of utility services. They argue, in particular, that competition prevents, due to the discovery process of competitive markets, arbitrary pricing and long-term supernormal profits, makes new technologies and/or services available more quickly, and provides consumers with a better quality of service. Regarding the utility sector, however, some problems have been recognised. Katz and Shapiro (1996), for example, have emphasised that the presence of scale and scope economies may enable incumbent telecoms operators to prevent the arrival of competition and earn economic rents over the longer-term. Consistent with this argument

is that competition remains illusive to date in some segments of the telecoms sectors of the member states of the EU, such as in the provision of the local loop. This issue will be analysed in chapter 6. In response to ongoing monopoly, governments establish regulatory authorities, whose primary objective is to get competition under way by removing artificial obstacles to competition and to regulate prices, profits and services while monopoly continues. Economic regulation is a central theme of this thesis and will be considered again in detail later in this chapter.

3.2.2 The Proposed Benefits of Private Capital in Competitive Markets — the Role of Ownership

It has been argued that it is possibly not a major issue whether a firm is publicly or privately owned — rather it is important how the firm behaves in the competitive environment (Bishop and Kay, 1988; Bishop et al., 1994; Kay and Thompson, 1986). Related to this argument, there were discussions about reforming state-owned enterprises and introducing competition without transforming the companies in question into private joint stock companies (e.g. Foster, 1992). However, despite these propositions, governments in the EU, and in many other parts of the world, have decided to abandon full state ownership and to introduce private capital in former monopoly providers of utility services. In essence, abandoning full state ownership and allowing competition is based on the strongly held belief in economics that private ownership of capital in a competitive market environment, as opposed to monopoly state ownership, creates benefits for consumers and for the economy as a whole (Cook and Kirkpatrick, 1995; Hanke, 1987; Shapiro and Willig, 1990).² These benefits are associated with efficiency improvements in the provision of utility services, which in turn allow the state to lower public spending and levy lower taxes on profitable businesses. In economics, this line of argument receives support from two sets of theories, in particular from *property rights/principal-agent theories* and *public choice theory*.

Property Rights and Principal-Agent Theories. The first approach, the theory of *property rights*, argues that state managers do not have the incentives to prevent economic waste because they do not have the property rights over the residuals (profits) of their businesses (e.g. Aharoni, 1986; Boycko et al., 1991). In addition, although the public bears the risk arising from loss making in state-owned companies, financed through taxation, the public has little or no influence over the decision-making process in such companies and elections, for

²For a fuller review of the literature associated with privatisation see Megginson and Netter (2002).

example, are only an imperfect mechanism to prevent economic waste (Arrow, 1970; Mitchell, 1988). By contrast, it is argued that entrepreneurs have the incentives to minimise economic costs because they have the property rights in their businesses. Therefore, entrepreneurs strive to enjoy the benefits of their activities, seeking a competitive advantage over rivals to earn higher profits. It is also argued that in large privately owned firms, where ownership and control is divided between shareholders and directors, the control problem is addressed by investors moving their funds to the most profitable enterprises traded on stock exchanges (although it became evident recently that this control mechanism does not always work smoothly, as the activities of Enron and WorldCom in the US have shown). Investors, in addition to moving their funds, can incentivise private managers through performance-based salaries and various other forms of corporate control, such as annual general meetings and preferential share options. This relationship between owners and managers of a company, also known as *principal-agent theory*, ultimately leads to efficiency improvements.

However, this relationship introduces problems in the sense that decision-making agents (managers) are not the major residual claimants and do not bear a major share of the wealth effects of their decisions. Therefore, Mirrlees (1971) and Ross (1973) have emphasised that agency costs arise from the divergence of interests between the principal (the owners of the firm), and the agent (the managers). Fama and Jensen (1983a,b) have associated the source of agency costs with incomplete contracts, which cannot be costlessly written and enforced. Due to incomplete contracts between managers and shareholders, there is room for the agent to engage in behaviour like shirking and rent seeking (Alchian and Demsets, 1972), which explains, to some extent, the activities of Enron and WorldCom. Arguably, one solution to these agency problems is the 'Rhine' model of corporate control, also known as 'German-Japanese' model, where a supervisory board monitors the board of directors.

Public Choice Theory. This second approach, also known as 'the economics of politics' or 'Virginia School', complements the above arguments. Proponents of this theory (e.g. Buchanan, 1960; Downs, 1957; Niskanen, 1971) deny that state management is disinterested and altruistic. Instead, state managers and their masters, e.g. politicians and civil servants, are believed to maximise their own utility, much like rational utility maximising management in the public sector. With interests primarily in themselves or their utility they act no differently than individuals elsewhere in the economy. In the absence of profit maximisation, state management, according to Niskanen (1971), is associated with the pursuit of perquisites

of the office, power, patronage, output of the bureau, ease of making changes, and so on. This leads to an over-supply of inefficiently produced public sector outputs (e.g. Cullis and Jones, 1987; Dunleavy, 1991; Udehn, 1996), which can only be prevented by supply through private ownership in a competitive market environment.

Property rights/principal-agent theories and public choice theory together provide a strong argument as to why state-owned utility providers, such as telecommunications operators, might be more efficiently run under private ownership. However, the argument needs to be tested to see if the expected efficiency improvements on privatisation do indeed materialise. Research undertaken previously in this area has looked at trends in various economic performance indicators related to changes in the form of ownership of the companies in question (e.g. Martin and Parker, 1997). A review of this research is presented in chapter 4, alongside a new study of the performance of telecommunications sectors in the member states of the EU between 1978 and 1998, using profit margins, labour productivity and total factor productivity as measures of efficiency. In addition, Japan, Switzerland and the US are included in this analysis as comparators. A portion of this study, namely chapter 4, is intended to test, *inter alia*, whether in the EU introducing private capital into telecommunications and opening the market to new entry have, as proposed by the theories discussed above, had the expected impact on performance improvement. The efficiency study provides a foundation for the later discussion of regulatory processes across EU telecommunications.

3.3 Market Intervention

This section reviews the academic literature on market intervention by the state and by an agent acting under aegis of the state, while focusing on the regulation of former monopoly markets by national regulatory authorities. As detailed below, a main objective of market intervention is to remove obstacles that inhibit the development of durable competition in markets. In other words, market intervention can aim at strengthening the competitive position of entrants, while at the same time weakening the position of the incumbents. Traditionally, this task was assigned to the state in the form of administration through government departments. For reasons reviewed in this section, the regulatory role in telecommunications has now been commonly reassigned to dedicated regulatory authorities, which operate under the aegis of the state. Hence, two main areas to be reviewed can be identified: 'regulatory governance', which looks at the relationship between a national regulator and its govern-

ment (and hence the public), and 'market intervention by regulatory authorities', concerned with how regulators interact with the market. The latter area includes the activities and the procedures administered by the regulator. Both these areas have a changing academic literature, which provides the theoretical foundation of the research presented in chapters 5, 6 and 7. The remainder of the present chapter reviews this literature.

3.3.1 Market Failure and the Rationale for Market Intervention

The justification for market intervention is based on arguments well established in economic theory. The underlying concepts (e.g. Gruber and Kleber, 2000; Parkin et al., 1998) stem from the notion that competitive markets have the capacity to achieve an outcome where economic resources are allocated most efficiently and social welfare is maximised for any given distribution of income. Hence, the outcome of market activities is most efficiently distributed between all participants in economic activity, a situation referred to in economic theory as a *Pareto Optimum*. The creation of the Pareto optimal welfare is named after the Italian economist Vilfredo Pareto (1848–1923), who first formalised this notion of economic efficiency (Pareto, 1935). The Pareto optimum describes a state in which no further redistribution of economic outcomes can create a higher economic welfare. However, markets when left alone may 'fail' to achieve this optimum, in which case economic theory refers to this as a condition of *market failure*.

The literature associated with market failure (e.g. Gruber and Kleber, 2000; Majone, 1996; Parkin et al., 1998) identifies several reasons why markets may fail to achieve a Pareto optimum. These sources of market failure will be explored next.

Incomplete or Missing Markets. If markets are missing or incomplete, then supply is usually provided by a monopolistic firm. The monopoly, if unregulated, will curtail production to raise prices above the competitive level, which then distorts resource allocation. Moreover, since monopolistic firms do not feel the pressure of competitors, there is little or no incentive to lower costs because higher costs can be passed to consumers in the form of higher prices.

Incomplete or missing markets can be linked to industries with a dominant player, such as European telecommunications. Majone (1996) and Trebing (1994) emphasise that a dominant player may enjoy revenues unmatched by entrants, in which case market failure results from *market power*. For example, due to the incumbent telecoms operator's ownership of most of a country's network infrastructure, the former monopoly may enjoy revenues from line rentals, leased lines and interconnection charges that other operators cannot match

(Miller, 2001; Sarkar et al., 1999). In particular, as will be seen at a later stage, a constant source of argument in the telecoms sectors of member states of the EU are the charges for interconnection and leased lines, which competitors frequently claim remain arbitrary and excessive, thus limiting competition (e.g. CEC, 2000a; Mason, 2000).

Another concept that can be linked with incomplete or missing markets is *inequality* as a source of market failure. Society may decide that market outcomes in industries with a dominant player are unacceptable because of the resulting distribution of income and wealth (each given distribution of income and wealth implies a different Pareto optimum). In response, as will be seen, telecoms regulation according to the formula $CPI-X$ may be used to limit the incumbent operators' revenues with implications for service charges and hence income distribution.³ A price cap exists to regulate prices (and long-term profits), and the way in which it is set will impact on income distribution. This will be discussed in section 3.4.2 and analysed in chapter 6, which investigates the extent with which price caps are used in European telecoms regulation.

A further concept that can be linked with incomplete or missing markets is a *quasi-monopoly* that some operators may enjoy. This form of market failure in telecommunications primarily occurs when matters of network interconnection are involved. Wright (2002) emphasises that mobile operators can charge arbitrary prices in the interconnection market when these charges are not regulated. This is so because the calling network has no choice but to interconnect with the wireless network, if the caller is to be connected to the called person on that wireless network. It has also been argued (ibid) that supra-normal rents earned due to quasi-monopolistic powers may be competed away over time between wireless networks in the struggle for subscribers.

Natural Monopoly and Positive Network Externalities. Another source of market failure is the notion of *natural monopoly*, a characteristic of markets where the industry's output can be provided most efficiently by one firm. It has long been argued that in network industries, such as telecommunications, this condition is met. The conditions for natural monopoly are commonly recognised as economies of scale and scope (e.g. Gruber and Kleber, 2000; Parkin et al., 1998). Economies of scale occur when the long-run average costs of a producer decrease as output increases in a given time period. Economies of scope occur when a range of goods produced together allows for a decrease in total costs. Economies of scope are associated with a sub-additive cost function, which means that the cost of providing a number of products

³In the UK, the consumer price index (CPI) is referred to as the retail price index (RPI).

or services together is lower than producing them separately. More formally,

$$c_i < c_a + c_b + \dots + c_n,$$

where $i = a \dots n$ and $c =$ total costs of production.

Closely related to the effects of natural monopoly is the notion of *positive network externalities* (e.g. Mason, 2000). For example, to build a network in telecommunications, large up-front investments are required to build capacities ahead of demand (Trebing, 1994). Moreover, once a network is built, running it is subject to large sunk costs (Miller, 2001; Wallsten, 2001). Sunk costs are costs that are not recoverable if production ceases. Selwyn (1996) and Trebing (1994) have argued that the incumbent operators are able to recover sunk costs more easily because the incremental costs of adding an additional network element, an up-front investment, is compensated for by the revenues from the entire network in the form of charges for line rental, leased lines and interconnection, and customer service charges. In addition to up-front investments and sunk costs, large networks can provide 'social external network benefits'. This means that adding a network element enables more users to interconnect through the same network.

However, economic understanding has shifted away from the notion of natural monopoly in telecommunications and markets are now being opened to competition. Experience has shown that competition rather than monopoly brings economic benefits to consumers. In other words, the benefits of natural monopoly in telecommunications are more restricted than previously commonly believed, especially given the pace of technological change in this sector. For example, radio technology can overcome the need for fixed line networks.

Imperfect Information. This form of market failure occurs when the information needed to evaluate competing products and to make an informed choice is either missing or asymmetrically distributed. Where markets are subject to these characteristics, one party may try to use its information advantage to negotiate a favourable contract at the expense of the other party, leading to 'adverse selection' (Akerlof, 1970). It is also possible that information advantages will be used to exploit favourably the terms of an existing contract, which has been labelled 'moral hazard' (ibid).

In telecommunications, 'adverse selection' can occur when a telecoms operator obtains an operating licence from a regulator by providing misleading cost and revenue forecasts (Thatcher, 1999). In contrast, 'moral hazard' may be observed when a telecoms operator tries to hide the true costs of interconnection to be able to overcharge competitors for the

provision of network capacity within an agreed pricing formula.

Inadequate Provision of Public Goods and Merit Goods. A further form of market failure generally recognised in the economic literature is associated with the *inadequate provision of public goods*. Public goods are products or services which, firstly, can be enjoyed by additional individuals without additional economic costs (the 'non-rivalry' condition). Secondly, it is difficult, and perhaps impossible, to exclude additional individuals from the enjoyment of these goods (the 'non-excludability' condition). Due to these characteristics, the market has little or no incentive to supply public goods at a welfare optimal level. The classic public good is defence.

Telecoms services may have some element of 'non-rivalry' when there is excess capacity, so that additional subscribers can be added at very low (though rarely zero) cost. But telecoms services can be expected to be excludable, in the sense that non-payers can have their service discontinued. Telecoms services are not, therefore, true public goods. They do, however, have some attributes of what are called *merit goods*. Merit goods are those which, from the perception of society's preference, would be under-provided by private markets (e.g. education). The application of the concept of merit goods in telecoms appears in the telecoms directives, discussed in chapter 2, in particular in the form of the universal service obligation. This obligation ensures the availability of certain telecommunications services even if markets would discontinue their supply on the grounds of non-profitability.

Negative Externalities. A final form of market failure generally recognised in economic theory is *negative externality*, that is, when the action of one individual or firm imposes a cost on other individuals or firms without corresponding compensation. Since the producers of these costs do not bear the full costs of their output, they tend to engage in an excessive amount of such activities. Well known examples are air and water pollution, where government regulation, for example in the form of licensing, might be needed to tackle the problem. Alternatively, externalities can be internalised through imposing taxes on output. Then, the producer of the externalities will bear the full costs and restrict output. Negative externalities, however, do not appear to have much obvious applications in telecommunications, except perhaps in the form of unsightly overhead lines or road works when cables are sunk underground.

Overall, although economic theory refers to other sources of market failure, it is *monopoly*, *positive network externalities*, *imperfect information* and *merit goods* that are especially

relevant to the research presented in chapter 6. As will be seen in section 3.4, telecoms regulation in the member states of the EU is intended to remove these sources of market failure to achieve more efficient economic outcomes (Crew, 1991). Laffont and Tirole (2000) conclude that consumers can benefit from market intervention in telecommunications. Prieger (2001) and Uri (2001) find that industry regulation provides consumers with lower service charges, while stimulating the supply of new services. Appropriate methods of market intervention to achieve such outcomes will be reviewed in detail in section 3.4.2.

3.3.2 The Rationale for Establishing National Regulatory Authorities

Traditionally, the role of the state in market economies was to influence the economic outcome by attempting to tackle the sources of market failure. This approach to market intervention has proved, however, subject to a number of shortcomings. The major lines of criticism (Dyson, 1982; Page, 1992; Thoenig and Friedberg, 1976) suggest that politicians may not be interested in monitoring the activities of their own government departments effectively. In addition, it is argued that civil servants may have the power, as a strong interest group, to block political decisions in the light of periodically changing governments and policies. These arguments are associated with public choice theory, discussed above. In addition, opposition parties may lack information and resources to fulfil the task of monitoring governmental activities of market intervention. In adding to these points, Majone (1996) has emphasised that periodic changes of government, due to the results of general elections, introduce time inconsistency in policy making. This causes different policy objectives to be pursued by governments over time, which leads to changes in the methods of market intervention.

A proposed solution to these problems stems primarily from principal-agent theory, introduced earlier. The solution assigns the task of market intervention to an agent that acts under the aegis of a principal, who can effectively monitor and control the agent's behaviour. A general overview of this argument is available, for instance, in Sappington and Stiglitz (1987), and Vickers and Yarrow (1988) specifically link principal-agent theory with privatisation and market liberalisation of utility industries. In essence, it is proposed to establish regulatory agencies by statute as 'independent' authorities (for a definition see p.77, below), in the sense that they then operate outside the bureaucratic line of control or the direct influence of government departments and therefore ministers.

It has been suggested that a dedicated regulatory agency is justified because it is able

to focus better on controversial public issues, and can, therefore, satisfy overall economic and social interests more effectively than government departments and their ministers (Baldwin and McCrudden, 1987; Guédon, 1991; Teitgen-Colly, 1988). More specifically, there are three main benefits in the literature that can be obtained when regulatory authorities are established (*ibid*). Firstly, there is the need for expertise in highly complex and/or technical matters, such as telecommunications regulation, which government departments generally lack. This benefit is associated with the argument that a regulatory authority may prove superior at collecting and using information from the industry subject to regulation. Secondly, an agent can provide better policy continuity than periodically changing ministers, while policy-making by an expert agent should, due to the dedication of this agent to specific tasks, provide for continuous improvement in terms of policy formulation and policy application. Thirdly, it has been argued that a dedicated agent can protect citizens better from bureaucratic arrogance and reticence.

The implications of these propositions are that politicians should pass on the task of regulation to dedicated regulatory authorities, which can tackle the sources of market failure more effectively, especially if these institutions are provided with appropriate financial and human resources (Fenno, 1959; Noll, 1997). Traditionally, regulatory authorities were considered as a 'black box'. Majone (1996), however, strongly emphasises that this approach is inadequate because regulatory authorities, if established, operate in a complex environment driven by economic and political interests, legislators, judges, the media and consumer interests. Moe (1987) therefore proposes that it is important to look inside the institutions that administer market intervention to understand the processes by which interests are transformed into policies of market intervention. These policies cannot be assumed to be homogenous within or between countries, which will be explored next.

3.3.3 Regulatory Governance

The paragraphs above have introduced why and under what circumstances national regulatory authorities may be established to administer market intervention. This discussion has left aside the ways in which a regulator acts under the aegis of the government. In other words, there are issues concerning the relationship between the regulatory authority and the government. More specifically, policy credibility, powers passed to the regulatory authority, forms of regulatory control, and policy transfer need to be considered to understand the relationship between the government and the regulatory authority. These issues relate to a

discussion of 'regulatory governance', which can be defined as (Thatcher and Sweet, 2002):

... the process through which the rule systems in place in any human commodity are adapted, on an ongoing basis, to the needs and purposes of those who live under them.

Foster (1992) has argued that regulatory governance involves many academic disciplines, among them economics, political science, law, issues to do with cultural differences (see, for example, Hofstede, 2001) and institutional matters, to name but a few. In this context, Thatcher (1999) identifies different historical developments, that is, political and economic legacies (Wilks, 1997, 2001), as factors, which may lead to varying regulatory practices (e.g. Hérítier et al., 2001). For example, Böllhoff (2001) compares British and German regulatory approaches and identifies different traditions and practices. Each of these areas has developed a literature in its own right, which cannot be covered in full here. Therefore, the review of the issues will focus primarily on the institutional and the economic aspects involved, not least because of their close relationship with the telecoms directives of the European Commission.

Kreps (1990), and Milgrom and Roberts (1992) have argued that policy credibility is at risk when a government entrusts an agent to administer market intervention. This poses the question, can agents be controlled and should policy makers pass on responsibilities after all? In a study of seven regulatory authorities from the late 1970s and 1980s, Wood and Waterman (1991) concluded that the empirical evidence on the controllability of an agent is so strong that research should be directed towards discovering the most efficient forms and mechanisms of regulatory governance. Hood (1991), in an attempt to provide more efficient means of control, emphasised the inappropriateness of punishment and suggested instead self-policing mechanisms that are already inherent in the system. More specifically, this refers to 'strict requirements and professional standards', so that 'no one controls the agency, yet the agency is under control' (Moe, 1987).

Drawing from policy credibility and the controllability of an agent, the question arises, *how much* power should be passed to the national regulatory authority? This question relates to a discussion of the 'delegation problem' (Majone, 1996) and can be considered as a game played out over time between the regulator and the government (Kreps, 1990; Milgrom and Roberts, 1992). Williamson (1985) has emphasised that such games are built on trust relationships and reputation because incomplete contracts exist between the principal (in this case the government) and the agent (in this case the regulator). It follows that the more trusted an agent is, the more willingly a government will be to delegate powers. Drawing to some extent from these considerations, and drawing to a large extent from the understanding developed during this research project, it can be argued, regarding European

telecommunications, that different levels of powers may be present, in the sense that some regulators may be empowered to administer more tasks than others. This argument is a theme of the analysis in chapter 5, where, among other issues, the powers of telecoms regulators are discussed.

Even if a government trusts its regulator and delegates powers, the government may, for reasons of policy credibility, still desire to maintain a certain degree of control over the regulatory authority. In this context, Ogus (2003) identifies four main types of regulatory arrangements, based on the 'degree of independence' of a regulatory authority. Thatcher (2002) defines 'independence' as:

[an institution that is] . . . organisationally separated from selected politicians, and members of staff are appointed and difficult to remove before the end of their terms of office.

However, the arrangements are as follows:

- (1) The agency is part of central or local government and, hence, *non-independent*. Decisions are, in essence, made within the bureaucracy, for which a Minister takes responsibility.
- (2) The agency is *semi-independent*, in the sense that government maintains some form of residual control over the agent. These forms may include (i) appointment of the chief regulator by decision and on recommendation of an institution within the state hierarchy; (ii) decision-making in accordance with government guidelines; (iii) appointment of members, mainly from governmental sources; (iv) government representation within the agency; and (v) some form of ratification of decisions by Ministers.
- (3) An agency is *independent* of government and, hence, few, if any, of the above controls exist. The members of such an agency are primarily drawn from non-governmental sources, the institution acts under principles set down by the legislature and would, in essence, serve the public interest.
- (4) The agency is *independent* of government, but primarily self-controlled and serves the interest of the sector under regulation. Its members are drawn directly from the regulated sector, but some degree of public control may be exercised.

The review of the telecoms directives in chapter 2 has shown that regulators should be 'legally distinct from and functionally independent of' suppliers of telecoms networks and/or services in the EU, but the discussion of regulatory control above suggests that governments will maintain some form of control over the regulatory authority. It is expected, therefore,

that the telecoms regulators in the member states of the EU will have been established as semi-independent institutions, that is, category (2) in the above list. Chapter 5 looks at the evidence from the member states.

Complementary to the understanding provided by Ogus, two basic models of regulatory control have been identified by Majone (1996), namely *proceduralist* and *substantive*. As will be seen, these models form an essential part of the analysis in chapter 5 and the discussion in chapter 10. For a similar distinction see Baldwin (1996) and Weiler (1993).

Substantive Approach. Majone (1996) argues that under the substantive approach policy consistency is of foremost concern. The regulator, while enjoying a greater degree of independence, is appointed primarily due to his/her expertise, and therefore state officials have a reduced influence over the decision as to who will be the regulator. Hence, democratic accountability is of lesser importance in the governance of the regulatory agency than regulatory ability and the achievement of regulatory goals. Arguably, the substantive model is preferable when the topmost objective of regulation is achieving a Pareto optimum regulatory outcome or, in other words, when removing market power, as discussed above, is the primary objective of market intervention.

Proceduralist Approach. This approach is in essence concerned with democratic control, a higher accountability of the national regulatory authority to the state, and judicial review of regulatory activities. This regulatory model proposes, for example, that the head of the regulatory authority be appointed by elected state officials, and his/her skills and reputation may be of lesser importance than the democratic appointment procedures. The proceduralist approach may be preferable when the main objectives of regulation are primarily concerned with public interests, such as consumer benefits and employment. In other words, this model may be preferred when a wider set of market failures is the concern of regulation, going beyond the attainment of economic efficiency.

The models of Ogus and Majone are of particular relevance for two reasons. Firstly, it may well be possible that all telecoms regulators in the EU are *semi-independent*. But even then there might be differences in the way the chief regulators are appointed and in the way the decision-making processes work. Secondly, understanding developed during this research suggests that the substantive and the proceduralist models of regulatory control can be linked with the above discussion of powers passed to the regulatory authority. Although this link has not been provided by Majone (1996), chapter 5 will link the two forms of control

with the powers of a regulator. This is to investigate whether in European telecommunications regulation the substantive model is associated with more powers passed to regulatory authorities, and whether the proceduralist approach is related to fewer powers devolved to the regulator.

An example that shows the link between the substantive and the proceduralist models in the practice of telecoms regulation in the EU has already been provided by Thatcher (1999). Thatcher argues, that, while Britain has applied a market driven approach to regulating telecommunications, thus leaving most decisions to the regulator, the French state is heavily involved in the policy making procedures of its regulatory authority. Based on these findings, Thatcher argues that French customers have benefited more than their UK counterparts from telecoms regulation, even though OFTEL, the UK telecoms regulator, was set up a decade earlier than the regulatory authority in France. Although Thatcher does not refer directly to the approaches identified by Majone (1996), there is evidence in Thatcher's study that supports Majone's propositions. The proceduralist approach is concerned with tackling a wider set of market failures and, in the case of France, seems to have benefited consumers. However, this conclusion leaves open whether the proceduralist approach is able to tackle market power sufficiently and, in turn, encourage market entry in the long-run.

Despite Thatcher's findings, it should be emphasised that it is usually not possible to draw a clear line between achieving a Pareto optimum by restricting market power and other market failure objectives. This seems clear from the UK's experience of regulation (Baldwin and Cave, 1999), in the sense that economic efficiency has not been pursued through regulation without taking into account social consequences, such as employment and poverty issues (e.g. Waddams, 1999, in the pricing of gas and electricity). Also, no regulator will be free from some democratic accountability and, even where democratic processes are paramount, the skills of regulatory staff cannot be ignored. A blending of both approaches to regulation may therefore be more often used than reliance solely on either the substantive or the proceduralist model. Regarding social consequences, it has been emphasised that establishing a governance structure for regulation requires taking into account the political and economic environment in question (e.g. Bradbury and Ross, 1991; Kilpatrick and Lapsley, 1996; Parker, 1999). This argument points to an issue that may be of particular relevance with respect to the EU. Thatcher (1999) argues that policy making institutions differ between countries due to different historical developments. This, in turn, creates dissimilar policies and suggests, regarding the scope of this research, that some countries may not be as much in favour of competition as others and/or may prefer more traditional forms of state intervention in place

of an 'independent' national regulator. However, Thatcher (ibid) argues that countries can, over time, adopt policies and/or programmes from other countries.

It is in the context of Majone's approaches to regulatory control, the understanding of the regulatory authority as provided by Ogus and the different historic developments between countries (Thatcher, 1999), that considerations of 'policy transfer', sometimes alternatively called 'lesson drawing' (Rose, 1991, 1993), are appropriate. A full review of the related literature is available in Bennet (1992) and Dolwitz and Marsh (1996). In essence, policy transfer is concerned with the process by which countries import policies and reform programmes from other countries. The literature underlying lesson drawing identifies several types of policy transfer (e.g. DiMaggio and Powell, 1991; Hood, 1994). One form of policy transfer is *normative* and arises from political and economic interaction between countries, mainly due to a common understanding of academic theory. Normative policy transfer may occur, for example, due to foreign students graduating from universities in the US and the UK. Exposure to a common educational process may build a uniform understanding of political and economic issues. This could apply to economic theories on competition, market failure, and market intervention through regulatory authorities. In addition to normative policy transfer, a second form of lesson drawing is *mimetic* and addresses the suggestion that countries, over time, adopt policies or programmes which are fashionable, have proven successful in other countries and/or promise certain benefits (e.g. Thatcher, 1999, regarding European telecommunications). In its new framework Directive for telecommunications (2002/21/EC), reviewed in chapter 2, the European Commission advocates international cooperation between national telecoms regulators to ensure consistent application of the provisions of the telecoms directives.

Probably both normative and mimetic effects have been important in exporting 'good regulatory practices' from one country to another. Included in normative effects are the developing literature on 'best practice' economics of regulation and regulatory governance (e.g. Cook et al., 2004) and in mimetic effects, the recorded regulatory successes and failures across Europe. In this study, normative and mimetic policy transfer will be considered as contributing to harmonisation of telecoms regulation in the EU alongside the directives of the European Commission. The attainment of harmonisation due to these forms of policy transfer will, from this point forward, be considered as 'good regulatory practice'. In order to link this definition with the analyses in chapters 5 to 7, it is useful to distinguish the forces that cause the emergence of especially mimetic lesson drawing. Bartle (2000) identifies that 'technological change' and 'globalisation' cause mimetic effects to gain momentum, first at the

national level and in time between countries, i.e. at the cross-national level. These aspects will be considered again at the end of this chapter to establish formally the theoretical basis for analysis later in this thesis.

The emergence of policies in telecommunications has been linked with the level of democracy in countries that potentially adopt policies from other countries. Li and Xu (2002) find for the telecoms sector worldwide that the willingness to privatise monopolies and to introduce competition depends, to a considerable extent, on the configuration of private interests, government interests and the political structure of countries in question. More specifically, Li and Xu (ibid) conclude that countries with a higher level of democracy are more likely to reform their telecoms sectors than countries with lower democratic levels. This is so because the interests of government in less democratic countries outweigh the interests groups that potentially benefit from reforms. However, since the analysis in later chapters is concerned with the member states of the EU, it is assumed that democracy has little influence on policy transfer across the member countries because all of the states pursue democratic processes.

However, a third form of lesson drawing is relevant, known as *coercive* policy transfer. That is to say, there may be a certain pressure on governments to 'follow suit' and to pursue certain policies (Dolwitz and Marsh, 1997; Hood, 1994). The telecoms directives of the European Commission can be regarded as a form of coercive policy transfer because the member states of the EU have no choice but to transpose these documents into national legislation (see also Daßler and Parker, 2004). Examples by way of illustration are the cases of Finland, Germany, Greece and the Netherlands, the countries chosen for the analysis in chapters 8 and 9. These countries, as will be discussed further in subsequent chapters, have faced infringement proceedings initiated by the European Commission for the non-compliance with certain provisions set down in the telecoms directives.

Different speeds of compliance have received attention from the literature related to policy transfer (DiMaggio and Powell, 1991; Parker, 2002a), where it has been emphasised that lesson drawing should not be viewed as a 'passing off' of a set of specific policies to other countries. This is so because of domestic institutional barriers to importing 'alien' policies (Parker, 2003a). Instead, lesson drawing should be seen in terms of the 'acceptability' of a policy in each host country (Daintith, 1987), and the way in which countries interpret and operationalise the policy to be adopted can be expected to vary. This argument seems to be of particular relevance regarding the member states of the EU, given the fifteen different historic developments. The expected result is unified attitudes, policies and principles, which

evolve, at best, only over time. This trend will be reinforced by the flexibility built into some of the telecoms directives, as discussed in chapter 2. Ultimately, the issues associated with policy transfer may cause member states to respond to the telecoms directives at different speeds, especially where the directives leave scope for local interpretation. This perception is supported by the analysis presented in section 5.2.

The relationship between the member states of the EU and the European Commission initiating coercive forms of policy transfer can be considered at a more abstract level. Thatcher (2001) argues that the principal-agent theory, introduced above, explains, in part, the interaction between the Commission and national governments. Initially, national governments (in this case the principals) established the European Commission (in this case the agent) by way of the treaties on the EU. Then, by applying its legal weaponry, especially in alliance with the European Court of Justice (see chapter 2), the Commission has since been exploiting its powers, which it has been given by national governments. This has led, according to Thatcher (*ibid*), to cases of conflict (the infringement proceedings initiated against member states are cases in point). In contrast, where member states were granted a deferment to open their telecoms markets to full competition (see chapter 5 for detail), national governments and the Commission appear to have cooperated to resolve certain aspects of EU telecoms regulation. Thatcher argues in this context that conflict and cooperation arise from agency loss, in the sense that formal controls and less formal norms have evolved over time, which appear to have reached different levels of effectiveness. However, though it might be felt that a more in-depth exploration of these issues is beneficial at this stage, the analyses in subsequent chapters are not concerned with these aspects of telecoms regulation. It is suggested, therefore, to consider principal-agent issues at the EU level in future research projects.

3.4 Market Intervention by Regulatory Authorities

This section considers the relationship between the national regulatory authority and the market under regulation. Levy and Spiller (1993) emphasise that the success of a regulatory system depends on more than the forms of regulatory governance in place. If the system is to be a success, that is, if durable competition is to be achieved in telecommunications, then regulation needs to respond flexibly to changing circumstances, while at the same time arbitrary action by the regulator should be avoided. Issues relevant in this context include, therefore, the nature of the interaction between the regulatory authority and the regulated,

and the techniques administered while intervening in market activities.

3.4.1 Regulatory Action and its Effects on the Regulated Industry

As suggested by Hall et al. (2000) and Veljanovski (1991), regulation, in whichever form, can be considered as a game played out over time between the regulator and the regulated. It has been argued that, much like in the government-regulator relationship, trust between the regulatory authority and the industry under regulation is essential if this game is to provide long-term benefits for either player (Lapsley and Kilpatrick, 1997). Moreover, this game is played in public under the eyes of a critical media that may embarrass government. The results of the regulatory game are therefore under permanent public scrutiny, which leads to an ongoing evaluation of the legitimacy of regulation. Based on this understanding, Haskins (2000) identifies five determinants of the public acceptance or 'legitimacy' of regulation. The first determinant is regulatory *accountability*, for which the following definition has been developed during the course of this research:

being responsible for ones actions.

However, while needing to have a certain degree of independence regarding its day-to-day decision-making to prevent continuous political meddling, it has been emphasised that a regulator should be publicly accountable. Accountability is an important requirement for a regulatory authority to avoid the regulator using its information advantage to outwit the government and to 'shirk away' from control, especially in an environment of periodically changing governments (Foster, 1992; Kydland and Prescott, 1977; Majone, 1996). Secondly, there is a need for regulatory *consistency*. A high level of uniformity of decision-making is required to avoid unpleasant surprises for investors (which could in turn raise the costs of capital) and to develop trust between the regulator and the regulated. Thirdly, regulatory decisions are required to be *proportional* or, in other words, there is a need for decisions to concentrate on remedying market failures identified without excessive intervention. Fourthly, regulatory actions should be *targeted* to avoid unintended effects. For example, a decision to remove cross-subsidises may discourage entry due to lower prospects of a return for entrants (Foster, 1992). Finally, there is the need for *transparency* of the decision-making process administered within the regulatory authority, so that the way decisions are made is subject to public review (an approach consistent with the concept in law of 'due process').

Even if a regulatory authority acknowledges these principles, evidence on regulatory practice to date in a number of countries suggests that regulation is a complex balancing

act between a multiple of interrelated and sometimes conflicting interests, and is never likely to be administered easily (Souter, 1994; Parker, 2001). For example, while providing consumers with minimum prices, a regulatory authority has to allow adequate profits to enable companies to finance their investment needs. Such an allowance is commonly based on normal returns on investment or a return equivalent to the firm's costs of raising capital.⁴ If this profit allowance is set too low, there may be a danger that regulatory action will drive revenues below the costs of production causing an operating loss for the companies in question (Hart and Moore, 1988). This means that the maximum returns allowed on a specific asset, such as the income from the ownership of telephone networks, is set too low. In this context, telecoms market entrants in the member states of the EU have complained about 'price squeezes' and the Dutch telecoms regulator, for example, has implemented a safeguard measure against such effects reoccurring (CEC, 2001a).

It follows that industry regulation, while attempting to achieve a multitude of social and economic objectives, introduces 'regulatory risk' for the regulated companies. In addition to the risks already inherent in commercial operations, regulatory risk is caused by different levels of information available to the regulator and the regulated and hence the regulated firm is unable to anticipate future regulatory decisions (Hart and Moore, 1988; Parker, 1998). For example, a regulatory authority may set a revenue target too tight in the absence of complete information on operating and capital costs. This situation may cause loss making because costs are not recovered completely. It should be noted in this context that, although such information asymmetries can be a major reason why regulatory responsibilities are reassigned from a government department to a dedicated regulatory authority — the regulator may prove superior at collecting and using information — different levels of information cannot be removed completely.

Given such risks, it is not surprising that the industry under regulation, such as EU telecoms, has learnt how to play the regulatory game (William et al., 2003). The authors argue that firms react by hiring experts or regulatory consultants, which, in turn, leads to greater regulatory awareness and the introduction of new professional regulatory procedures within the firm. Hence, mimetic effects emerge, initiated by coercive regulatory pressure. It has been argued in this context (*ibid*) that mimetic effects first occur at the national level and may develop into cross-national lessons learnt. Recent research in this area (Coen et al., 2002) suggests that entrants as well as incumbent telecoms operators have formed networks

⁴This concept relates to considerations of the costs of debt and equity and is usually based on the capital asset pricing model (e.g. Copeland and Weston, 1988).

in an attempt to influence future Commission policy. Likewise, the Independent Regulators Group, a network of the telecoms regulators in the EU, has, over time, benefited from cross-national mimetic lesson drawing and has repeatedly lobbied the Commission to implement policies beneficial to the member states. Hence, mimetic effects at the EU level have also emerged.

Drawing from such effects, the literature emphasises the importance of formal rules for the regulatory game (de Laat, 1997; Klein, 1997). These rules may be clearly agreed and set down in a statute or licensing agreement (Graham, 1995; Levy and Spiller, 1993) to create a consistent and stable framework for managing the complexity of regulation (Trebing, 1987). In addition, Berg (2000) emphasises the need for transparency to allow the different parties (e.g. managers, consumers and shareholders) to make informed decisions. For example, with this in mind, all telecoms regulators in the member states of the EU have made their statutes and many regulatory decisions available on their websites. These documents usually provide a statement of the legitimacy of the office, a description on the purpose of telecoms regulation, the organisational structure of the office, some basic information on the philosophy of the regulation, and occasionally, details of regulatory changes and modes of consultation.

3.4.2 Methods of Market Intervention

3.4.2.1 Principal Approaches

The issues of interest here stem in essence from the way industry regulation is treated given broadly two different schools of thought on the role of a regulatory authority (Trebing, 1987). Firstly, one school of thought argues that competition is the most powerful means to achieve a Pareto-optimal economic outcome, and, therefore, market intervention other than to tackle market failure is undesirable. This *market-driven* approach to regulation recognises, however, that there may be a dominant supplier and a Pareto optimal economic outcome may not be achieved. Hence, the emphasis in regulation is to remove legal barriers to entry to encourage competition. In addition, it is argued that regulating the dominant supplier's prices or profits may be appropriate to create a level playing field for all competitors. Price or profit regulation should, however, 'wither away' as competition matures (Burton, 1997; Littlechild, 1983; Parker, 2002b).

Secondly, it is argued that, in what will be referred to as the *non-market-driven* approach to regulation, markets are flawed and lead to an inefficient distribution of outcome including disadvantages for consumers (Trebing, 1987). Therefore, the purpose of regulation

is to remove these flaws on a permanent basis. In contrast to the school of thought introduced above, a non-market-driven approach does not focus simply on bringing entry barriers down and regulating prices or profits in the meantime. Regulation should concentrate more widely on the public interest or social values. To achieve these intentions, a set of policy recommendations is proposed, such as setting quality guidelines for services, implementing health and safety requirements for suppliers, and entrusting one or more operators with the universal service obligation in telecommunications (Kolstad et al., 1990). Moreover, it is proposed in this school of thought to conduct regular market reviews to identify, for example, areas of inadequate service, potential competition or least-cost supply options.

Before the main methods associated with these principle approaches are reviewed, it is important to stress that a market-driven and a non-market-driven approaches to regulation each have their shortcomings. Also, it has been argued that in practice no clear line can be drawn between them. As noted earlier, Baldwin and Cave (1999) have argued that the Pareto optimum may not be achieved without referring to wider social and economic interests. Therefore, a regulator may need to pursue a mix of objectives for regulation (ibid).

Drawing to some extent from these propositions, it may be the case that a regulatory authority may place emphasis on pursuing a non-market-driven approach, but still promote competition. Alternatively, a regulator may pursue a market-driven approach and administer price caps as the main method of regulation, while at the same time taking into account wider economic and social interests. This was so in UK telecoms regulation after 1983. The role of OFTEL was not limited simply to administering price regulation in the absence of competition (Littlechild, 1983), although a main emphasis of the office initially seems to have been on the administration of price caps. Over time, OFTEL's interventions in the market have affected the regulated companies more widely, which has turned attention to the longer-term nature of the relationship between the regulator and the regulated. In addition, the tightness of the price cap regime administered by OFTEL has been lessened, and attention has been shifted more to competition promotion and service quality (Cave, 1997a). Overall, despite the emphasis on one of these treatments of regulation in a country, elements of the other treatment are pursued by the telecoms regulators.

The following paragraphs review various regulatory methods and, where insights are available from the economic literature, their likely effectiveness in terms of achieving intended outcomes.

3.4.2.2 Preferred Methods Under a Non-market-driven Approach to Regulation

As introduced above, this approach stresses the need for more permanent regulation and qualitative methods are favoured in the conduct of regulation. In particular, setting quality guidelines and entrusting the universal service obligation are the main methods proposed in the literature, alongside the use of cost accounts.

Enforcing the Universal Service Obligation. A first method under a non-market-driven approach to regulation is a decision by regulators as to whether one or more providers of products or services should provide merit goods. As introduced in section 3.3.1, such goods have in telecommunications taken the form of universal services. Under the telecoms directives, and Directive 97/33/EC on interconnection in particular, regulators in the EU have the power to entrust these services to one or more operators. Regulatory authorities also have the power to decide as to whether to compensate the provider(s) for costs incurred. A decision not to grant compensation may be based on the regulatory decision that the access to a wide customer base associated with supplying universal services outweighs the associated costs (Curwen, 1997). Universal services and compensation for their provision in the member states of the EU are analysed in chapter 6.

Setting Quality Guidelines. A second method favoured under a non-market-driven approach is to implement general rules, for example in the form of setting quality guidelines for the industry. The available references on the role of quality guidelines in utility industries focus mainly on the water and sewerage industry. This is not surprising given that this industry directly relates to environmental protection and to health and safety of the population. Quality is commonly measured in quantitative terms (e.g. Burgess et al., 2000), such as the *ph-value* ('pondus hydrogenii' — the hydrogen weight) or *ppm* (parts per million). The quality of services in the telecommunications industry in the EU is driven by the telecoms directives of the EU. In particular, Directive 98/10/EC on new voice telephony facilitates that a 'good quality of service' is available to consumers, which regulators have to ensure.

Using cost accounts to tackle information asymmetry. Theories associated with cost accounting originated in accounting and finance, and a literature in its own right has developed, of which activity-based costing is a recent development. A full review of the cost accounting literature is not necessary here, but it is useful to stress that in telecommunications, operators with 'significant market power' are obliged under several telecommunications directives

to provide regulatory authorities with separate cost accounts for each service supplied. Of particular importance in this context are Directives 90/387/EEC (open network framework) and 92/44/EEC (leased lines); for details see chapter 2. In addition, the European Commission has long advocated 'long-run average incremental costs' (LRAIC) as the methodology to be applied in the member states of the EU when setting charges e.g. for interconnection (e.g. CEC, 1998a). In essence, these costs typically comprise an average of all costs incurred in providing additional or incremental services, such as an average of the costs of capital, labour and the costs of other inputs.

A main reason why long-run average incremental costs are favoured is because the methodology is forward looking (e.g. Cave, 1997b; Joo et al., 2001). Therefore, this technique does not have the problem of alternative methodologies, such as historic costs, which may distort information associated with historic investments because price changes due to inflation and innovation are not included. Since long-run average incremental costs take into account such price changes, this methodology is practical for regulatory purposes to set future maximum prices charged by operators for retail services and/or interconnection. Therefore, LRAIC provide essential cost information, which helps, in turn, to tackle the information disadvantage the telecoms regulators may have over the industry. Chapter 6 looks at this issue in regard to the practise of EU telecommunications.

3.4.2.3 Preferred Methods Under a Market-driven Approach to Regulation

In contrast to the set of qualitative methods suggested above, a market-driven approach to regulation favours quantitative techniques for the regulation of prices charged to the consumer, and prices charged to competitors for interconnection until competition is effective. This can be achieved according to a range of techniques, each with its own strengths and weaknesses. The following paragraphs discuss commonly used methods, while the research presented in chapter 6 analyses the situation in the member states of the EU. The methods are:

- profit or cost of service regulation;
- price caps;
- sliding scale regulation;
- benchmarking or 'yardstick competition';
- setting prices for the interconnection of telecoms networks;

- using cost accounts to regulate charges for interconnection and leased lines.

Profit or Cost of Service Regulation. Traditionally, this method was used in the US in a wide range of industries controlling annually the rates of return on a firm's asset base. Since rate of return regulation controls a firm's profits, companies are free, within the profit constraint, to set their own prices (Levy and Spiller, 1993). However, while rate of return regulation seems a powerful technique at first glance, probing deeper reveals three major shortcomings. Firstly, operators tend to report costs that are higher than they truly are to justify higher permitted revenues to achieve the agreed profit. Regulators then have to police capital and operating expenditures to ensure they obtain the correct information on efficient costs (Kahn, 1988). Secondly, there is little incentive for firms to reduce capital costs and, in turn, improve efficiency. This is so because the returns permitted are based on the size of a firm's asset base. Operators therefore tend to increase their asset base beyond economic efficient levels to obtain the highest possible returns. This distorts the pattern of investment (Averch and Johnson, 1962), and may, in addition, result in a level of quality at prices which consumers do not want to pay (Foster, 1992). In this context, Phillips (2002) finds that the service quality of traditional telephone services in the US has fallen since the shift away from rate of return regulation (see also Uri, 2001, discussed below in the context of price caps).

Thirdly, the regulatory process in the US is extensive and difficult to administer, since it involves annual public and quasi-judicial hearings to reach agreements between suppliers, consumers, the regulatory offices and, if required, other interest groups (Sidak and Spulber, 1977) — though it is important to recognise that this is a feature of US-style regulation and may not be intrinsic to rate of return regulation *per se*. Rate of return regulation, due to its shortcomings, was not recommended for use in the UK in 1983 when Professor Stephen Littlechild reported to the government on the future of telecommunications regulation ahead of BT's privatisation (Littlechild, 1983). The Implementation Reports of the European Commission (e.g. CEC, 2001a, 2002f) make it clear that profit regulation is not used in telecommunications regulation by the member states of the EU.

Price Caps. Littlechild in his 1983 report (Littlechild, 1983) recommended, in place of rate of return regulation, the use of price caps in the form of $RPI-X$, where RPI is the retail price index and X is an efficiency factor to be determined by the regulator.⁵ Littlechild believed that this method would be significantly easier to administer than US-style rate of

⁵At privatisation of BT in 1984, X was set by the government; subsequent levels of X were set by OFTEL.

return regulation, while at the same time providing stronger incentives for a firm to reduce its costs.

A price cap leaves the earnings due to cost savings of management in the firm during the time the efficiency factor X is set. The additional profit — profit is not controlled — can then be paid out to shareholders in higher dividends. Alternatively, additional profits can be retained by the firm and used to finance expansion, higher management salaries, and so on. Another advantage of price caps is that they can be applied specifically to services in which the incumbent operator enjoys a dominant position. Although a separate X for each such service would provide maximum flexibility and effectiveness, Littlechild (*ibid*) recommended, for reasons of administrative efficiency, a basket of services that would be subject to the price cap. Initially, this basket in the UK telecommunications sector comprised line rentals and local calls, but was subsequently expanded to include international calls from 1991 (Cave, 1997a).

There are, however, three possible problems with this form of regulation. Firstly, due to the incentive to lower overall costs, there is a danger that the quality of the services provided may decline (Braeutigam and Panzar, 1993; Foster, 1992). Hence, the regulator should monitor service quality and agree service standards. Secondly, at least in the UK, price cap regulation has caused occasional public discontent, for example when British Telecommunications, despite tight caps applied by OFTEL, continued to generate unexpectedly high profits (Parker, 1997). Thirdly, price caps have not proved, as expected by Littlechild (1983, 1988), significantly easier to administer than rate of return regulation (Grout, 1997; Newbery, 1997; Vass, 1999). To determine the efficiency factor X , complex economic modelling is required including forecasts of the potential growth in the demand for services, future changes in input prices and investment, and calculating the appropriate cost of capital (e.g. Alexander and Irwin, 1996; Armstrong et al., 1994; Vass, 1997). Especially the determination of the true cost of capital with the need to set price caps on the basis of projected profits has proved to be a notoriously challenging task for the regulator. To address this problem, and as already mentioned, the European Commission has advocated long-run average incremental costs as the methodology by which the telecoms regulators in the member states of the EU should project future costs and hence profits (e.g. CEC, 1998a).

Drawing from the problems associated with price cap regulation, Levy and Spiller (1993) have emphasised that formal rules are needed, as under rate of return regulation, to ensure that the regulator is not captured by telecoms operators, especially during the negotiation of the X factor. It has been suggested that some capture has happened between

OFTEL and BT (Thatcher, 1999). This issue relates to a discussion of *regulatory capture* and *lobbyism*, which will be considered in section 3.4.3 on the problems of market intervention by regulatory authorities.

To undertake their regulatory assessments and to outwit capture, the regulatory offices need to have adequate resources available, such as skilled staff and budgets independent of political control. Although these are the same principal considerations as under rate of return regulation, involving agreements between the regulator, the government and the regulated companies, the scope for argument should be reduced when applying price caps because the efficiency factor is usually set at a fixed level for a number of years.

It is also important that a price cap is not set too tight, so that market entry is discouraged due to the resulting low return prospects (Foster, 1992; Veljanovski, 1993). Even worse, and some member states have indeed reported such an effect, entrants may become subject to price squeezes, and were in the past forced to supply below costs (CEC, 2001a).

Despite these shortcomings, empirical evidence on the effects of administering price cap regulation in telecommunications supports the view that price caps have strong advantages over rate of return regulation. These advantages are the reason why telecoms regulation in the US was changed to price caps in 1991 (Uri, 2001). The same source finds that incentive regulation in the form of price caps for US local exchange carriers substantially improved the technical and allocative efficiency of the companies in question. Prieger (2001) and Mueller (1993) have argued that price caps are conducive to innovation, since telecoms customers in the US have benefited from a number of new service offerings following the implementation of price caps. These findings can be applied to Europe, in the sense that the price cap regime should provide the incentives as suggested by Littlechild. However, to begin to make an assessment of the extent of the impact of price caps, in the light of the overall context of telecoms regulation in Europe, their implementation needs to be investigated. It is important to assess which countries apply price caps and which operators are subject to incentive regulation according to CPI-X. This is an objective of the research presented in chapter 6.

Sliding Scale regulation. This regulatory technique tries to combine rate of return and price cap regulation (Burns et al., 1995). When profits rise to an agreed level in any year under the price cap, then the corresponding revenues (the scales) are immediately adjusted (slid) downwards. Although this method automatically shares the benefits of efficiency gains over

and above a given level between producers and consumers, it does not incentivise managers to the same extent as price caps to achieve efficiency gains. This is so because the firms are not allowed to retain all the savings as they would under price cap regulation, until the cap is adjusted. Sliding scales were rejected for use in the UK after consideration in 1998 (DTI, 1998). It has been suggested that sliding scale regulation is not administered elsewhere in telecoms regulation in the EU (CEC, 2001a). The research presented in chapter 6 considers this further.

Benchmarking or 'Yardstick Competition'. A powerful incentive to reduce costs, while focusing on market segments with monopoly power and while not locking firms into a preset rate of return, is to use the costs of the best performing firm(s) in the market as a benchmark measure to set performance targets for dominant operators (e.g. Laffont and Tirole, 2000; Levy and Spiller, 1993; Schleifer, 1985). This form of regulation is called 'yardstick competition' or 'regulation at arm's length', and is usually used as a complement to rate of return or price cap regimes, in the sense that the benchmark can be seen as the way to determine the appropriate rate of return, or X respectively. Yardstick competition is in practice recommended by the European Commission for the regulation of prices of leased lines and interconnection charges in the member states, by referring to a 'EU best price' (CEC, 1998b). While benchmarking seems a useful method at first glance, probing deeper reveals that best practice costs are usually not readily available to the regulator, who then has to research these costs, for example by collecting productivity and profit data from other companies or other countries (Weyman-Jones, 2001).

Although the European Commission has attempted to work around this issue by taking the three countries that have the lowest charges for leased lines and interconnection as the benchmark measure, there has been much argument in UK regulation and elsewhere in the EU about the legitimacy of such benchmarks. For example, Tele Danmark, the Danish incumbent telecoms operator, has repeatedly complained in the past about the distortion of input pricing associated with benchmarks applied to interconnection and leased lines (CEC, 2001a). The basis of these arguments is that benchmarks may not take into account input price differences between member states due to the different overall price levels and other national differences, such as geography and population density. Hence, a benchmark may be too low in one member state and too high in another. If the benchmark is misapplied, the operator subject to this form of regulation may be forced to supply leased lines and interconnection below the true costs incurred in their provision. Such concerns have been

expressed by a number of incumbent telecoms operators in the EU (CEC, 2000a). In an attempt to address this criticism, the Commission recommends the use of purchasing power parities when determining the three lowest interconnection charges.

Setting prices for the interconnection of telecommunications networks. The literature reviewed in this chapter has so far focussed on a number of principles that apply to economic regulation of utility industries in general. Interconnection, however, has received special attention in the telecommunications literature. This is not surprising given that satellite, wireless and wire-based communication networks interact, and given that the telecoms industry spans around the globe with different services involved. In contrast to a number of other utilities, telecoms do not simply involve a homogenous product, such as electricity or gas, since communication can be undertaken in the form of transmitting text, pictures and/or voice.

It needs to be recognised that the literature related to telecoms network interconnection charging is voluminous and technical (e.g. Laffont and Tirole, 1994; Laffont et al., 1998a,b; Lewis and Sappington, 1999). A complete, detailed review of this literature would not be appropriate here because the thesis is not concerned with the economics of interconnection. In essence, however, a lively debate in telecoms network interconnection is on the most appropriate technique to set prices. To date, no final proposition has been accepted for setting interconnection charges most efficiently. Cave (1997a) has emphasised that all of the proposed methods may be difficult to administer, while their effectiveness can be questioned.

The literature associated with setting interconnection charges mainly refers to two alternative methods, namely *Ramsey Pricing* and the *Efficient Component Pricing Rule*. Ramsey pricing, also referred to as 'Ramsey-Boiteux-Pricing', was first formalised by Frank P. Ramsey (1927) for setting optimal taxes. Marcel P. Boiteux (1956) then recognised that the principles of optimal taxation apply to network industries in the form of setting optimal interconnection prices. In essence, Ramsey pricing tries to maximise the overall efficiency of interconnection assuming that network revenue must cover network costs, while taking into account the economies of scale of a telecommunications network (e.g. Armstrong et al., 1996; Laffont and Tirole, 1994). Prices are set using the 'inverse price elasticity rule'. This means that interconnection charges for services with the lowest price elasticity of demand receive the highest markup, that is, the difference between the price charged for interconnection and the marginal costs of providing interconnection.

CHAPTER 3 A Review of the Relevant Literature

The second possible technique is commonly referred to as the *Efficient Component Pricing Rule* (ECPR) or the 'Baumol-Willig-Rule'. This method, which was first proposed by Robert Willig (1979), tries to set optimal interconnection charges while taking into account that these charges influence retail prices. The understanding is as follows. A competing operator has originating calls, which it needs to interconnect, in the usual case with the incumbent operator's network. Hence, the incumbent provides upstream access. In addition, the incumbent operator no longer provides the same level of retail services downstream, therefore losing a source of revenue and suffering traffic costs from interconnection because some downstream retail services are now provided by the entrant.

Under such conditions, the price of interconnection provided should be equal to the direct incremental costs of providing upstream access plus the opportunity costs of not providing the downstream retail service (e.g. Baumol and Sidak, 1994; Laffont and Tirole, 2000; Willig, 1979). Then, the price level of providing interconnection is said to be efficient when it allows the provider of the interconnection to earn a normal profit, while at the same time the firm seeking interconnection is not discriminated against by anti-competitive pricing. The efficient component pricing rule has been enforced through court rulings, for example to settle a dispute between the incumbent telecoms operator and an entrant in New Zealand (Carter and Wright, 1999).

It can be shown that Ramsey pricing and the efficient component pricing rule each have their shortcomings. For example, Ramsey pricing is regarded as difficult to administer, especially due to difficulties associated with determining price elasticities and relevant network costs (e.g. Laffont and Tirole, 2000). Another problem is that Ramsey pricing disadvantages suppliers with the highest price elasticity, in the sense that these operators cannot make use of the same markups as can their counterparts with the lowest price elasticity. This is due to the inverse price elasticity rule, which, in turn, reduces the competitiveness of suppliers with a high price elasticity. Therefore, Ramsey pricing is regarded as a method that creates arbitrary interconnection pricing between suppliers and OFTEL has rejected the use of Ramsey pricing in the UK on these grounds (OFTEL, 2002).

Due to the shortcomings of Ramsey pricing, the efficient component pricing rule has been favoured recently (e.g. Joo et al., 2001). However, Carter and Wright (1999) emphasise that this technique is incapable of dealing with two-way interconnection in a regulated environment. Two-way access refers to a situation where one operator provides interconnection (for up or downstream access) while at the same time requesting interconnection (for up or downstream access). In such a case, the efficient component pricing rule would

provide incorrect charges because, as noted above, the efficient price is set assuming that a reduced downstream retail service is provided. In addition, it has been argued (Yannelis, 2002) that opportunity costs are difficult to determine and regulators will therefore have to make rough estimates instead. Therefore, as shown by Armstrong et al. (1996), the efficient component pricing rule may have, in terms of administration, no advantages over Ramsey pricing. Moreover, Kim and Kim (2001) argue that the efficient component pricing rule does not take into account social benefits from network externalities in the calculation of efficient interconnection prices. Network externalities were introduced in section 3.3.1 and result from users being able to contact each other on the same network.

Since there has not been a completely satisfactory solution to the setting of interconnection charges, an alternative to the two methods was preferred by Laffont and Tirole (1994). Based on the understanding that setting interconnection charges has an effect on consumer charges, it has been proposed that regulators apply global price caps, that is, a cap which covers interconnection and consumer charges. However, the European Commission in its telecoms directives does not favour any of the methods proposed by the literature. Mainly due to the regulatory burden and due to difficulties when administering these methods, several directives (e.g. 90/387/EEC on the open network provision framework) oblige operators with 'significant market power' to supply interconnection simply on the basis of the costs incurred in providing interconnection (more precisely the long-run average incremental costs, discussed below). In addition, as mentioned earlier in this section, the European Commission recommends an 'EU best practice' benchmark charge composed of the three lowest interconnection charges in the EU. This is to prevent incumbents from inflating the interconnection costs to anti-competitive levels. To enable regulatory authorities to enforce this provision, operators have to keep separate cost accounts for networks and services (see below). To prevent unnecessary market intervention, Directive 90/387/EEC on the open network provision framework facilitates commercial agreements or negotiation between operators to reach a deal over interconnection prices. Regulatory authorities should only intervene in the form of acting as a mediator or by enforcing an agreement if the parties in question cannot close a deal by negotiation within six months (see chapter 2). This light-handed approach to the regulation of interconnection charges has been questioned, however. For example, Carter and Wright (1999) and Wright (2002) emphasise that such agreements can disadvantage consumers, in the sense that unregulated price negotiation may lead to collusion between operators, which, in turn, can be conducive to illegal price fixing.

Using cost accounts to regulate charges for interconnection and leased lines. The use of cost accounts is not limited to tackling information asymmetry. Separate cost accounts, as required under Directive 90/387/EEC on the open network framework, should enable telecoms regulators to make essential regulatory decisions. These include the cost-based provision of interconnection and leased lines. Chapters 6 and 10 will illustrate this application of cost accounts in telecoms regulation in the member states of the EU.

3.4.3 Problems with Market Intervention by Regulatory Authorities

This chapter has so far reviewed the literature related to the rationale for establishing regulatory authorities, the relationship between a regulator and the government, and certain aspects of the nature of market intervention by regulatory authorities relevant to understanding telecommunications regulation. Yet to be considered are concerns about market intervention by regulatory authorities, which have to be acknowledged when conducting research on regulation. Particularly relevant in this context is the criticism that draws from the theories on *regulatory capture*, *public choice theory*, and from the role of competition in Austrian economics.

Proponents of theories of regulatory capture (e.g. Olsen, 1971; Posner, 1974; Stigler, 1971) argue that governments and regulators are prone to being lobbied by the industry under regulation and/or politically influential groups that try to maximise their economic rents (High, 1991; Peltzman, 1976). In such cases, the sources of market failure are not necessarily removed by regulation. Rather, economic wealth is redistributed by regulation between interest groups, which usually benefits the most influential lobbyist (Stigler, 1988). An example of regulatory capture in telecommunications has been provided by Katz and Shapiro (1996). The telecoms regulator in the US was captured by the industry to introduce high definition television signals to be carried on existing frequencies of 6MHz, which, at the time, avoided large investments ahead of demand. In the years following, however, technological progress was hampered, in the sense that later technologies could not be rolled out on the existing 6MHz network because higher carrier frequencies were then required.

To avoid the capturing of the regulator by special interests, it has been argued that the budget of the regulatory authority should not be under direct governmental control (Parker, 2001). Moreover, it has been suggested (*ibid*) that a regulator, while accountable for its actions, should not be open to summary dismissal and needs to be appointed on the basis

of his/her abilities rather than on the basis of political patronage. In addition, regulatory offices should be adequately staffed with skilled personnel that understand the complexity of economic and social issues in the regulatory game (Fenno, 1959; Noll, 1997).

Another danger stemming from regulatory capture is that regulators may themselves become active rent seekers and, acting out of self-interest, oppose any steps to reduce their powers. Public choice theory, introduced earlier, argues in this context that such behaviour is associated with an over-supply of regulatory output (Cullis and Jones, 1987; Niskanen, 1971). This may lead to concerns about the overall economic efficiency of regulation, since the marginal social benefits of regulation could be outweighed by its marginal social costs (Ricketts, 2000). Regulatory costs comprise the direct costs of running regulatory offices, such as the costs of staffing and equipment. In addition, there are indirect costs associated with regulation, in the shape of the costs of complying with regulations. Firms and individuals incur costs in meeting the regulatory requirements or in trying to avoid them. Direct and indirect regulatory costs cannot be determined exactly and only rough estimates exist, therefore (Hahn, 1998). Where compliance costs have been estimated, however, as in the US, they are said to have totalled around €462bn per year⁶ (Leach, 2000). Since such costs are not explicitly listed in national accounts statistics, e.g. under the government's budget (Stein et al., 1995), regulation may occur beyond the economically efficient level. In extreme cases, regulatory costs may even lead to a questioning of the legitimacy of the regulation of privatised firms, that is, when it can be shown that continuing public sector supply would be more economically efficient (de Fraja, 1993; Willner and Parker, 2000).

The second line of criticism of regulation is associated with the long-term prospects of regulatory intervention and stems primarily from the role of competition in Austrian economics. Despite the development of market intervention by regulatory authorities internationally, Burton (1997), Miller (2001) and Sarkar et al. (1999) have argued, following the propositions of Austrian economics, that the most powerful means to avoid a resulting inefficient distribution of wealth are fast-paced technological advances, which erode the position of incumbent operators. Entrants exploring new technologies or services in segments where incumbent operators do not have a dominant position will eventually check undesired rents earned. Based on this understanding, proponents of this view argue that regulators cannot mimic the discovery process of competitive markets and regulation is, therefore, very second best to the promotion of competition. Regulation may even distort the evolving relationship of demand and supply due to wrong price signals being created by price regulation. This, it

⁶An average exchange rate of 0.7 was used for the currency conversion.

is argued, leads to market intervention not fading away as competition matures (as predicted by Littlechild, 1983). For example, as emphasised by Burton (1997) and Veljanovski (1993), regulation in the UK has gradually expanded its influence by setting ever tighter price caps and by increasing the sources of revenues subject to price regulation (Cave, 1997a). This was certainly the case in UK telecommunications until the coverage of the price cap was lessened in 1997. Of relevance here is that von Hayek (1980) has argued that regulation may create a state of 'ordered competition' rather than allowing the evolution of a true competitive order.

In recognising these dangers, Burton (1997) has suggested that regulators should learn and adapt the same way markets do, while taking into account economic, political and social conditions (Evans, 1995). In this context, it has been suggested that regulators 'learn to improve informational gathering devices', which can, in turn, contribute to the achievement of harmonisation (Coen, 2003). Indeed, as was reviewed in chapter 2, the Independent Regulators Group (IRG, 2001) advocates that regulators should use at least two indicators to assess the effectiveness of competition. However, there will always remain the balancing act of regulation, namely tailoring the interests of the different parties affected by regulation, which has the potential to damage the business environment over the long-term. For example, protecting the customer from being overcharged may lead to lower prices that act as a disincentive to market entry (Thatcher, 1999) or lead to unattractive shareholder returns (Berg, 2000). Regulatory learning leading to new regulatory rules also conflicts with regulatory consistency, discussed earlier. New rules may lead to higher 'regulatory risk' and lower investment. If regulators change the rules of the game due to a learning process, they may create uncertainty, causing a higher cost of capital (Parker, 1998).

3.5 Summary of the Literature Reviewed

The first issue considered in this chapter was the economic rationale for introducing competition in markets that were in the past subject to monopoly supply. This rationale draws from market economics and especially the Austrian perspective that markets undergo a permanent discovery process due to the evolving relationship of demand and supply, driven by commercialising unused or under-utilised economic assets. These forces allow the market to achieve an efficient distribution of economic outcomes, which enables consumers to benefit from lower prices, new technologies or services, more choice, and a better quality of service. Driven by the self-interest inherent in human nature, markets ensure that individual needs are met through cooperation between producers and consumers.

CHAPTER 3 A Review of the Relevant Literature

This reasoning was followed by a discussion of the rationale for abolishing full state ownership of former monopolies to achieve economic efficiency of operations in competitive markets. It was in this context that the theories of property rights and principal-agent were reviewed. These theories suggest that efficiency gains stem from incentives for owners to prevent economic waste in private sector companies. Private sector managers (agents) strive to obtain cost and revenue advantages over rivals. In turn, owners (principals) enjoy the profits from these economic activities. More specifically, the theory of property rights argues that in joint stock companies the incentives to prevent economic waste stem from investors monitoring the behaviour of managers, incentivising managers through e.g. profit related bonuses and shifting their funds to the most profitable company. A complementary theory relates to public choice. It was explained that the proponents of public choice theory argue that public ownership, due to self-interest within government, causes an over-supply of output and raises economic costs. The resulting inefficient operations can be avoided by introducing private capital.

The next issue reviewed was the rationale for intervening in competitive markets. It is argued in market economics that markets, when left alone, will not always produce the most efficient distribution of economic outcome. This is especially so in industries with a dominant supplier, where markets are prone to higher prices and lower outputs. Traditional forms of market intervention saw the state regulating or even owning monopoly suppliers. It was then noted that state intervention is subject to several shortcomings. These are in essence based on problems with monitoring policy makers, inconsistency of policies in the light of periodically changing governments, and an information advantage that markets have over the state. To administer market intervention so as to reduce such problems, principal-agent theory proposes the establishment of dedicated regulatory authorities at arm's length from political contract.

This understanding turned attention to the relationship between the national regulatory authority and the government, or to the subject of 'regulatory governance'. It is argued in the associated literature that policy credibility is at risk when regulatory responsibilities and powers are passed to a dedicated regulatory authority by government. Due to incomplete contracts, governments may be reluctant to delegate powers. It was argued, however, that governments may be more willing to pass on powers when trust and reputation exist. However, due to policy credibility being at risk, the government may still desire to exert some form of control over the regulator. Two different forms of governance were identified. Firstly, the proceduralist approach is concerned with a stronger state involvement in reg-

ulatory decision-making and the appointment of the regulator. Secondly, the substantive approach leaves greater independence to the regulator, who is appointed primarily on the basis of his/her expertise. It has been suggested that this approach may be preferable when the primary objective is to achieve economic efficiency rather than to pursue wider social interests, such as poverty reduction.

However, reflecting some freedom in the form of governance adopted, it is recognised in the related literature that countries may develop different regulatory policies from other countries. Indeed, some countries may not favour an 'independent' regulator or the opening of markets to competition at all. It is further argued in the literature that the issues underlying policy transfer become of interest in this context. This can be expected to be true of the EU with its fifteen member states, shortly to be increased to twenty. The arguments drawing from policy transfer suggest that, over time, countries can adopt policies and procedures that were applied in other countries, which may occur even if there is opposition in a country to the policy. The literature on policy transfer provides the context to any discussion of the establishment of uniform policies or the creation of a harmonised form of market intervention in the European telecoms market.

After the principles underlying regulatory governance were explored, the next area of the literature reviewed was the interaction between the regulatory authority and the market. In principle, while possibly trying to achieve a multitude of social and economic objectives, the regulator has different levels of information available than the regulated industry, which in turn can introduce regulatory risk for the industry by promoting regulatory changes leading to increased uncertainty. To minimise such risks, it has been emphasised that a regulator should not be open to summary dismissal. In addition, there should be a clearly defined set of rules as the basis of the regulatory game. Moreover, the budget of the regulatory authority should not be under direct governmental control to avoid the regulator being captured by interest groups.

It was further argued that in the relevant literature regulatory intervention is looked at in two different ways, namely through market-driven and non-market-driven approaches. In practice, a mix between these approaches may be administered. Firstly, a non-market-driven approach to regulation argues that markets are flawed. This contention calls for permanent state of intervention to meet wider economic and social interests. Secondly, a market-driven approach generally considers regulation and competition as mutually exclusive, but recognises the need to tackle the dominance of companies to ensure durable competition. To achieve this, market-driven economics leads to the administering of price and/or profit regu-

lation to tackle market power. The most common methods of such regulation were reviewed and it was concluded that, regarding consumer charges, price caps are usually seen as providing the best approach to tackling market power, while at the same time promoting efficiency incentives and allowing sufficient profits to be earned to fund investment and continued service quality. Other approaches reviewed were rate of return regulation, sliding scales, and benchmarking. Benchmarking is not so much different from price and service regulation, rather it is a way to set the rate of return under rate of return regulation, or the X factor under a price cap regime. The sliding scale regime is interpreted as a hybrid of rate of return and price cap regulation with the potential advantages and disadvantages of both methods.

The discussion of regulatory methods also looked at the more specialised matter of the setting of charges for interconnection in telecoms markets. Regarding these charges, the available literature was found not to agree on one method. Reflecting this, the telecoms directives of the European Commission facilitate interconnection charges to be based on cost, and preferably long-run average incremental costs, but leave a degree of latitude regarding the precise price set to be based on negotiation. In addition, regulatory authorities are recommended to use European benchmarking to set interconnection charges and enforce separate costs accounts for each business activity a telecoms operator pursues.

This review of the available literature on competition, privatisation and market intervention has emphasised the complex issues that need to be taken into account when conducting research on telecommunications regulation.

The understanding achieved now allows the identification of the central research question for this thesis and the associated sub-hypotheses, which will be researched in subsequent chapters.

3.6 Proposed Contributions, Analytical Framework and Hypotheses

The telecoms directives of the EU were reviewed in chapter 2, and the present chapter has discussed the literature on regulation and related issues. This section combines the directives and the understanding obtained from the literature reviewed to form a conceptual framework for analysis. But before this is provided, a gap in the theoretical understanding should be identified. Despite the theoretical understanding discussed in this chapter and despite the provisions of telecoms directives reviewed in chapter 2, three issues remain largely unknown.

Firstly, how have the member states of the EU transposed the telecoms directives and what state of transposition has been achieved? Secondly, the degree of harmonisation awaits clarification. Thirdly, an explanation as to *why* harmonisation is achieved or is not achieved by the telecoms Directives has not yet been provided. Given these issues, it is appropriate to ask whether the telecoms directives are a suitable tool to achieve, as intended by the European Commission, a high degree of harmonisation between the member states of the EU. This is expressed by the question underlying this research, which has been set down in chapter 1:

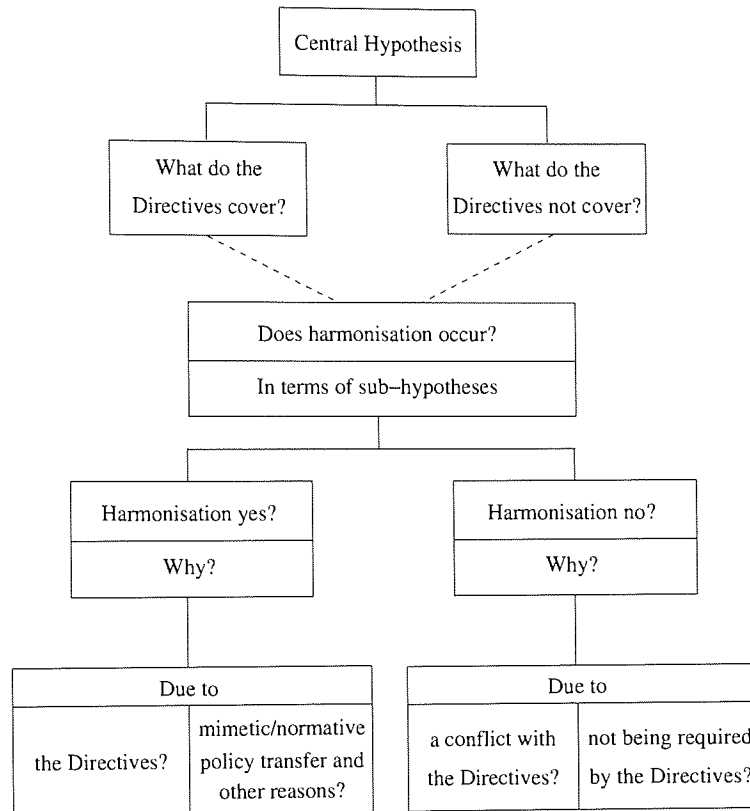
Are the telecoms directives of the European Commission creating harmonised regulatory systems for telecommunications across the member states of the European Union and if differences continue to exist, why is this so?

To address this question, a central hypothesis can be established. It is assumed within the EU that the telecoms directives are an appropriate tool to achieve harmonisation. Therefore, the central hypothesis is as follows:

Central Hypothesis: The telecoms directives of the European Commission are creating harmonised regulatory systems across the member states of the European Union.

To accomplish the testing of the central hypothesis, figure 3.2, below, sets down the framework for analysis in subsequent chapters. Theories used are regulatory control (Majone, 1996), as well as the different approaches to regulatory intervention (Trebing, 1987). Especially the aspect of regulatory accountability, defined earlier in this chapter as 'being responsible for ones actions' (see page 84), will be used in chapter 10 to complement Majone's earlier work to develop a new framework for analysing regulated industries worldwide. This framework is composed of a combination of Trebing and Majone, which has not been undertaken previously. The proposed framework establishes, on a formal basis, how regulatory systems differ and illustrates, therefore, why harmonisation has or has not been achieved in the member states of the EU. However, In addition to the theories of Majone and Trebing, the different levels of mimetic policy transfer established above — national, cross-national and EU — will play an important part in chapters 5 to 7.

Figure 3.2: *The theoretical framework of this thesis*



Given the understanding reflected in figure 3.2, eight sub-hypotheses, relating to particular issues of the directives and the literature, can be developed as follows:

Sub-hypothesis 1: In accordance with the telecoms directives, the regulatory framework was *in place in full by 1 January 1998*.

Sub-hypothesis 1 is based on the provisions of the telecoms directives discussed on page 53. In addition, sub-hypothesis 1 is linked with the literature on policy transfer and different historical developments between countries, discussed in section 3.3.3.

Sub-hypothesis 2: The telecoms directives of the European Commission have created harmonised *control over national telecommunications regulatory authorities* across the member states of the European Union.

Sub-hypothesis 2 is based on the provisions of the telecoms directives discussed on page 54, i.e. the 'legal distinction from and functional independence of' telecoms regulators. But at the same time the literature on the different forms of 'regulatory control' above, and in particular with Majone and Ogus, who suggest that control models may vary across the EU. Specifically, even if all telecoms regulators are, for example, semi-independent, there may still be certain differences in the way the chief regulators are appointed and in the way decisions are made within the regulatory offices.

Sub-hypothesis 3: The telecoms directives of the European Commission have created harmonised *responsibilities for granting market access* in telecommunications across the member states of the European Union.

Sub-hypothesis 3 is based on the provisions of the telecoms directives discussed on page 54, and is linked with the literature on trust and reputation, policy credibility and the delegation of powers, again considered in section 3.3.3.

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union.

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

Sub-hypotheses 4 to 6 draw from the provisions of the telecoms directives discussed on pages 54f and are related to the literature on market intervention by regulatory authorities (see section 3.4).

Sub-hypothesis 7: The telecoms directives of the European Commission have created a harmonised *state of competition and regulation* in telecommunications across the member states of the European Union.

Sub-hypothesis 7 draws from the intention of the telecoms directives, summarised on page 63. The intention of creating harmonised regulatory intervention in European telecoms relates to the literature on market failure, discussed in section 3.3.1, in the sense that the purpose of regulation is to remove the sources of market failure emerging in telecommunications.

Sub-hypothesis 8: The telecoms directives of the European Commission have created harmonised *benefits for telecommunications users* across the member states of the European Union.

Sub-hypothesis 8 draws from the intention of the telecoms directives, summarised on page 63. The intention of creating harmonised benefits for users, stemming from opening telecoms markets to competition and facilitating market regulation in this sector, is linked with the literature on market failure (section 3.3.1), regulatory intervention (3.4) and the proposed benefits for consumers in competitive markets (section 3.2.1). These benefits are a better choice, increased value for money, new technologies or services being available more quickly, and the provision a better quality of service.

As shown in figure 1.2 on page 26, the above hypotheses are considered through a questionnaire analysis of regulatory offices for EU telecommunications. In addition, a number of

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country case studies attempt, (also shown in figure 1.2), to provide an explanation as to *why* harmonisation has been or has not been achieved by the telecoms directives.

Besides the main theme of analysis, the following chapter looks at productivity performance in telecommunications to provide a fuller and more informed understanding of the issues involved in regulation, privatisation and market liberalisation. This draws from the lack of understanding identified in section 3.2.2, where it remains largely unknown whether productivity performance in telecommunication improves with privatisation and market liberalisation. Solely for this purpose, two additional hypotheses are used, which stem from the literature reviewed in sections 3.2.1 and 3.2.2 and relate to the following chapter only. These hypothesis are:

Hypothesis A: Market liberalisation and privatisation created an environment more conducive to pursuing efficiency gains in telecommunications.

Hypothesis B: The performance of telecommunications in the countries that reformed their telecommunications sectors first was better than in those countries that delayed reform.

Chapter 4

An Analysis of Performance in European Telecommunications

4.1 Overview

This chapter provides an analysis of operating performance in the telecoms sectors in ten member states of the EU, plus Japan, Switzerland and the US. The objective is to place the later chapters on telecoms regulation in a broader and more informed context for analysis. In addition, an understanding is provided as to how privatisation and market liberalisation manifest themselves in performance change. Chapter 10 then combines the results of this chapter with the findings from chapters 5 to 9 to form an overall understanding of regulation, privatisation and market liberalisation in telecommunications. The results below were published in 2002 in the *European Business Review* (Dafler et al., 2002),¹ looking at 'profit margin' (PM), 'labour productivity' (LP) and 'total factor productivity' (TFP). The sections below look at operating performance in the European telecoms sectors, plus the three non-member states (Switzerland, Japan and the US for benchmark purposes), in more detail than in the paper. Although Belgium, Finland, Portugal and Sweden were included in the questionnaire survey in chapters 5 to 7, these countries are not part of the performance analysis in the remainder of this chapter because of unreliable or missing data.

Table 4.1 provides details of the key dates of privatisation (where applicable) and full market liberalisation in each of the European countries considered in the analysis.

¹The paper was originally published in the Aston University working paper series (Dafler et al., 2001a) and subsequently accepted for presentation at the Esrie annual conference (Dafler et al., 2001b).

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Table 4.1: Years when incumbent telecoms operators were privatised and markets opened to full competition

Member State: Incumbent Operator	Year of Privatisation (a)	Year of Full Market Liberalisation (b)
Denmark: Tele Danmark	1993	1994
France: France Télécom	1997	1998
Germany: Deutsche Telekom	1996	1998
Greece: OTE	1996	2001
Ireland: Eircom	1999	1998
Italy: Telecom Italia	1994	1998
Japan: NTT	1985	1993
Luxembourg: P&T	No privatisation to date	1997
Netherlands: KPN	1994	1997
Spain: Telefónica	1995	1996
Switzerland: Swisscom	1995	1998
UK: BT	1984	1991
USA: AT&T and 'Baby Bells'	Not applicable	1984

Source: Dafler et al. (2002), CEC (1996) and websites of operators.

(a) Date of privatisation is the year of the first major share sale to the private sector. Some enterprises had a small private shareholding before the dates shown. This is ignored because it did not affect the status of the enterprise as state-owned and controlled. In addition, some governments, such as those of Germany, Italy and Japan, retain shareholdings in their incumbent operators. Therefore, privatisation is defined as the first significant share sale that indicated transfer to the private sector.

(b) Year of Full Market Liberalisation reflects the date when member states allowed full competition. In a number of countries, e.g. Spain, the Netherlands and the UK, competition was allowed in some telecoms sectors prior to the dates shown.

As shown in table 4.1, the five largest European countries and their incumbent operators — British Telecommunications (BT), Deutsche Telekom, France Télécom, Telefónica of Spain and Telecom Italia — are included in the study, alongside Tele Danmark, Eircom of Ireland, Organismos Telefonou Elladas of Greece (OTE), Luxembourg's l'Entreprise des Postes and Télécommunications (P&T) and Koninklijke Post, Telegraphy & Telecom Nederland (KPN). In addition, Switzerland and two non-European countries, namely Japan and the US, are also included in the study for comparative purposes. In the US, telecommunications operations were always privately provided, but until 1984 the sector was dominated by AT&T ('Ma Bell') and heavily state regulated. In 1984, AT&T was divided into separate regional companies ('Baby Bells') and a provider of trunk and international services AT&T.² In Japan the state-owned company Nippon Telegraph & Telephone (NTT) was privatised from 1985. In both countries, competition was gradually extended. In other words, the USA and Japan experienced similar technological and economic pressures to liberalise

²These operations were Ameritech, Bell Atlantic, Bell South, NYNEX, Pacific Bell, South-West Bell and US West. In addition, there was GTE, which had not been owned by AT&T. Due to mergers and acquisitions, less than eight telecoms operators compete at present.

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their telecommunications markets as their European counterparts. Trends in economic performance in telecommunications in these countries should provide a useful benchmark for judging changes in performance amongst the European telecommunications operators.

Drawing from these propositions, privatisation is championed as a means of achieving a more efficient allocation of resources by removing the 'dead hand' of state control and increasing managerial incentives to run businesses efficiently. Vickers and Yarrow (1988) and Megginson and Netter (2002) suggest that the following are the main arguments for privatisation:

- (1) improving efficiency;
- (2) reducing public sector borrowing;
- (3) reducing government involvement in enterprise decision making;
- (4) easing problems of public sector pay determination;
- (5) widening share ownership;
- (6) encouraging employee share ownership;
- (7) gaining political advantage.

In the EU, the government debt requirements for adoption of the €, established at Maastricht in 1991, have been a significant driver of privatisation in recent years. But otherwise the main consideration across Europe has been improving efficiency by reducing government involvement in enterprise decision-making (Parker, 1998).

Before the analysis is presented, the following section looks briefly at the literature associated with operating performance.

4.2 The Literature on Operating Performance

As was discussed in section 3.2.2 in chapter 3, the incentive to prevent economic waste is provided by managers/entrepreneurs having the property rights in their businesses. In large firms, where ownership and control is divided between managers and shareholders, incentives are created by fund movements of shareholders and various performance-based enumerations for managers. Besides these arguments for private, rather than public, ownership drawing from *property rights/principal-agent theories*, *public choice theory* provides further arguments as to why state ownership should be abolished. As was seen in the previous chapter,

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public sector management may lead to an over-supply of public sector output and, hence, to economic waste.

Drawing from these theories, the arguments for market liberalisation and privatisation have been discussed in a large number of studies (eg.g. Vickers and Yarrow, 1988; Parker, 2000) and in chapter 3. They do not need to be detailed here. In essence, however, competition usually benefits consumers in terms of lower prices and a higher quality of service. Competition also stimulates firms to reduce costs and to innovate in terms of both new products and more efficient methods of production. In the context of financial and operating performance, it can then be argued that state owned firms do not, like entities operating in private capital markets, pursue economies of scale and scope as consistently or have a higher asset base than would be most efficient. This causes a tendency to trade a wider range of outputs for lower profits (Pint, 1991), which should be reversed in a competitive environment.

Despite these theoretical propositions, it remains uncertain whether the proposed performance improvements have materialised in European telecommunications, after the former monopolies have been transformed into private joint stock companies, and after markets were opened to competition. The purpose of this chapter is, therefore, to identify the scope of study and the main findings in the literature providing empirical evidence on whether performance improvements did materialise with privatisation and market liberalisation. The discussion below distinguishes between two areas, namely the investigation of 'financial ratios and statistical modelling', as well as the literature applying 'cost functions and total factor productivity'.

4.2.1 Overview of the Literature Applying Financial Ratios and Statistical Modelling

Financial and economic ratios, such as leverage (also commonly known as 'gearing')³, sales per employee, profitability, return on investment, labour productivity and the like are widely used in financial control of companies. In addition, statistical modelling can be used, such as data envelopment analysis or panel data techniques. The usefulness of these studies is to provide insights into the sources of performance improvements within companies.

The first study reviewed (Bortolotti et al., 2002) examined financial and operating performance of thirty-one national telecoms companies in twenty-five countries, fully or par-

³Gearing is a measure of debt to equity financing.

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tially privatised between 1981 and 1998. By comparing pre- and post-privatisation periods applying statistical significance tests, it was found that labour productivity, capital investment, output and profitability increased significantly after privatisation, while employment and capital leverage declined significantly. A second part of the study explored the same ratios combined with random and fixed-effect panel data models to separate the effects of privatisation, competition and regulation. It is found thereafter that, in overall terms, financial and operating performance of incumbent telecoms operators improve significantly after market changes were implemented. This was due to ownership and/or regulatory changes, rather than due to privatisation alone, emphasising the importance of issues studied at length in this thesis. In specific terms, competition caused declining profitability, employment and efficiency, but independent regulation increased output. Moreover, providing leased line capacities to entrants slowed down incumbents' investment and increased their employment, whereas retained government stakes caused an increase in capital leverage and a decrease in employment. Price regulation, however, boosted profitability. The study suffers from potential data problems because developing countries are included, for which reliable data is notoriously difficult to obtain.

In a comparison of post- and pre-privatisation performances of eighty-five economies during 1990 and 1996, D'Souza and Megginson (1999) concluded that mean values of profitability, output and operating efficiency increased significantly after privatisation, whereas leverage ratios were reduced. However, this study, using mean figures for financial and economic variables, does not control for trends in the data. For example, profitability may have been rising over time independently of ownership change. In addition, aggregated data for a number of economies is used, which means that possible differences in data collection and reporting between countries or regions could occur. These effects may lead to data heterogeneity and to misleading results. The same shortcomings apply to a study by Denwenter and Malatesta (2001), who used a methodology similar to D'Souza and Martinson. Eighty-three firms, privatised between 1981 and 1994, were considered and the authors concluded that profitability and productivity increased due to improvements in return on sales and return on assets. However, profitability declined.

In a study of twenty-three OECD countries, Boylaud and Nicoletti (2001) applied factor analysis to investigate the effects of liberalisation, privatisation and regulation on performance, prices and quality of long-distance and cellular phone services. They found that prospective and actual competition created, in conjunction with regulation, improvements in performance and quality, and accounted for lower prices in telecoms services. No clear

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effect was found for privatisation. The study suffers, as the ones reviewed above, from a short period covered, which does not sufficiently capture possible time trends. The strength of this study is, however, that it does not suffer from potential data collection and reporting problems because the OECD is known for having agreed common standards.

Another study by Pentzaropolous and Giokas (2002) looked at the operational efficiency of the main European telephone operators using data envelopment analysis. The main conclusion was that efficiency was equally achieved by operators with large revenues as well as by operators with medium and small revenues. This study was based on the 1999 OECD Economic Outlook and is, therefore, prone to the criticism that only one year is covered. Hence, time trends could not be taken into account at all.

4.2.2 Overview of the Literature Applying Cost Functions and Total Factor Productivity

In contrast to the use of accountancy ratios and statistical modelling based on accountancy ratios, cost functions and total factor productivity (TFP) are a more general measure of operating performance. This is so because one measure usually takes into account several variables, namely capital, labour and other inputs. Although these variables may be subject to shortcomings, such as the notorious difficulty in estimating capital stocks or the inability to measure the impact of a single input on the overall output, there is a range of literature that attempts a link between privatisation, market liberalisation and efficiency gains, using cost functions and TFP measures (e.g. Dunsire et al., 1991; Martin and Parker, 1997).

Cost functions are complex derivatives reflecting a company's production function and are usually applied in logarithmic or polynomial form. Cost functions are mathematically linked with TFP and both methods have been used together (e.g. Gort and Sung, 1999; Verspagen, 1995). Total factor productivity (TFP) can be extracted from a cost function and tests the effects on trends in total outputs caused by trends in overall inputs. In other words, the more efficient an entity operates, the less input is needed to produce a given amount of output or, vice versa, the more output can be produced using a given amount of inputs.

Turning to specific findings, one study on the US telecoms market applying TFP and cost functions (Gort and Sung, 1999) found that efficiency improved in AT&T's competitive long-distance market. In contrast to these findings, studies on the European telecoms sector have revealed a mixed picture. For example, Martin and Parker (1997) and Parker (1994a)

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pointed to a lacklustre TFP performance after BT was privatised in 1984, but showed a quick response to competition after 1990 in terms of increased labour productivity. A similar conclusion was drawn by Florio (2003), in the sense that there is no real evidence that BT's performance improved as a result of privatisation. Rather, the performance improvements occurred as a result of regulatory pressures and competition after 1991.

Freeman (1996), in a study of six incumbent European telecoms operators between 1982 and 1986 measuring TFP and labour productivity, found that smaller organisations appeared to perform more efficiently than larger ones. A similar study applying TFP, along with financial ratios and labour productivity (Dunsire et al., 1991), tried to link performance with agency status and concluded that private ownership alone did not necessarily increase productivity. These findings are supported by, for example, (Parker, 1992), who established a link between organisational status and performance. Parker also suggested that these links are far more complex than commonly assumed by politicians.

A study sponsored by the Office of Telecommunications (OFTEL), the UK telecoms regulator, compared the performance of BT with US local exchange carriers between 1995 and 1998 (NERA, 2000). To compare total costs of telecoms operators, the study applied ordinary least square regression, stochastic frontier analysis, panel data analysis and data envelopment analysis. The study found that BT operated close to the upper quartile in the sample or in eleventh position overall regarding total costs. But where comparisons of unit costs were made with other European operators, the results were more mixed. The study, however, covered a very short period only.

4.2.3 A Discussion of the Literature on Operating Performance

Overall, two conclusions stand out from the empirical literature. Firstly, despite improved financial and operating performance, privatisation is not a sufficient condition on its own for improved economic performance. Foreman-Peck (1989), Foreman-Peck and Manning (1988), Duch (1991), Kwoka (1993), Parker (1994a) and Martin and Parker (1997) have questioned whether privatisation alone leads to an immediate performance improvement in telecommunications. Only when privatisation occurs together with market liberalisation do significant efficiency gains seem to be obtained. However, regarding European telecoms excluding especially the UK, it should be born in mind that market liberalisation measures were often implemented soon after privatisation (see table 4.1, above) and managers would be aware of this during the privatisation period. Therefore, the most noticeable performance

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changes might be expected to materialise during privatisation in preparation for market liberalisation.

Secondly, it has been suggested (Parker, 2003b) that performance may change because of other factors such as the economic cycle, unrestricted capital movements or market intervention. Separating these effects becomes problematic in the absence of data and modelling that allow the identification of such effects. Issues associated with market intervention are of particular relevance in European telecommunications. Some countries, such as Denmark, Ireland and Italy, have introduced price caps after market liberalisation to regulate the revenues of the incumbent telecoms operator (see chapter 6). Therefore, revenues from services covered by price caps are lowered significantly and this may impact on performance. Such regulatory intervention should, in particular, apply to an analysis covering only short periods. It has therefore been suggested that moves along an operator's long-term production function should be taken into account (Parker, 2003b). This can then prevent an over-estimation of productivity growth due to effects such as capacity building in expectation of future demands. If these capacities are not used during the short research period, then inputs go up significantly, whereas corresponding outputs do not. The exploitation of a new technology, such as Internet access via mobile phones (UMTS) requiring large-scale investments in licences and network infrastructure, provides an example along those lines. Analysing longer periods should capture these effects. This research project has, therefore, looked at long-term efficiency growth applying a TFP analysis to member states of the EU plus Switzerland, Japan and the US as comparators.

It is very likely that the full impact of the economic reforms in the European telecommunications sector will not be evident for some time and the research reported below covers only a short period since full competition was permitted. In particular, full dynamic efficiency gains are to be expected only as competition matures. Future years may therefore reveal a clearer picture in terms of productivity based on total inputs and total outputs. Moreover, it has also to be borne in mind that some member states of the EU have introduced liberalisation more enthusiastically than others suggesting that telecoms restructuring relates to wider national attitudes towards competition and state ownership (Hulsink, 1996) and with probable effects on performance. Some studies (Bös, 1993; Galal and Nauriyal, 1995; Hartley et al., 1991), even see a complex relationship between competition, ownership and performance that cannot be measured directly. Nevertheless, the industry in the EU has already undergone some major restructuring. Privatisation and market liberalisation should, therefore, have had some impact on efficiency already. It has been suggested (Parker,

2003b) that there might be a 'demonstration effect' where short-term performance boosts are obtained from restructuring.

4.3 The Scope of the Performance Analysis

Drawing from some of the shortcomings identified above, in particular the short periods covered, the analysis below investigates a much longer period. More specifically, as said earlier in this chapter, profit margins, labour productivity and total factor productivity are applied to a 21-year period beginning in 1978. Alongside an extended period that takes into account long-term changes in operating performance, the measure of total factor productivity reflects the effects of all inputs on output. This should be beneficial because studies using financial ratios, though taking into account capital and labour inputs, tend to neglect the impact of 'other inputs'. Especially in the light of management streamlining operations to improve efficiency in telecommunications, it is expected that some activities, such as trench digging and estate management, will not be performed with the own workforce of telecoms operators. Hence, 'other inputs' would increase, an effect which should be captured when the measure of total factor productivity is applied.

In most of the thirteen countries studied below, market liberalisation and privatisation occurred in or from the mid-1990s and therefore towards the end of the data period. Consequently, as will be seen below, inadequate data exist to test for changes in performance over a number of years after the event. However, studies on the impact of privatisation on performance (e.g. Martin and Parker, 1997) have reported that important efficiency gains may occur in the years immediately before the companies are sold off. A similar trend might be expected for market liberalisation in the EU, given that governments and companies were given notice that market entry would have to be permitted, in the form of the telecoms directives of the European Commission (see chapter 2). It is expected, therefore, that the 'threat' of competition and privatisation will have impacted on the performance of European telecommunications operators in the years running up to the reforms. This is referred to here as an 'anticipation effect'. At the same time, it would be expected that in the countries which introduced reforms early, notably the UK, Denmark, Japan, and the USA, performance will already have responded. This understanding provides the basis of two hypotheses explored in the remainder of this chapter:

Hypothesis A: Market liberalisation and privatisation created an environment more condu-

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cive to pursuing efficiency gains in telecommunications.

Hypothesis B: The performance of telecommunications in the countries that reformed their telecommunications sectors first was better than in those countries that delayed reform.

The following section details profitability and productivity measures employed, as well as the data used. Following this discussion, the results are reported. Finally, the main conclusions and limitations of the study are discussed and issues for future research are outlined.

4.4 Data and Performance Measures

The analysis below builds on earlier works, such as the NERA study undertaken for OFTEL (NERA, 2000), but is more extensive both in terms of the period covered and the number of European telecommunications operators included. The main purposes of the analysis below are

- (1) To assess the extent to which market liberalisation and privatisation have so far impacted on the efficiency with which telecommunications services are provided in Europe,
- (2) To assess changes in the performance of the different telecommunications operators over time,

with a view to providing an insight into the comparative efficiency of ten different telecommunications operators in the EU, plus those in Switzerland, Japan and the US. The results should be of interest to policy makers and managers at government and company levels and to academics studying telecommunications and privatisation.

As emphasised earlier, the full impact of the economic reforms in the telecommunications sector will not be evident for some time. In particular, full dynamic efficiency gains are to be expected only as competition matures. Nevertheless, the industry has already undergone some major restructuring, suggesting that privatisation and market liberalisation should already have had an impact on performance. Indicators of trends in efficiency over time should capture the effects on performance. The indicators provide a useful context for the study of regulation in the EU later in this thesis.

To assess performance, data were collected from a number of sources. The main source was the International Telecommunication Union (ITU) in Geneva. In its *World Telecommunications Indicators '98*, data is provided covering 1978–1998 on full-time staff,

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operating cost, depreciation, investment (capital expenditure), traffic and number of main telephone lines, as well as revenue and profit (ITU, 1999). The ITU figures are for the entire telecoms sector in each economy, but in most of the countries a single firm accounted for all or most of the outputs and inputs until 1998, the year of full market liberalisation in the EU. Until 1998, the data can, therefore, be interpreted as representing largely or wholly the activities of the dominant operator. Where appropriate, occasional missing values in the ITU data were estimated on the basis of existing data trends. However, the latest publications of the ITU no longer provide data on depreciation, operating costs and profits in telecoms sectors. Likewise, alternative sources, such as the OECD, do also not publish these data. Therefore, calculations of PM, LP and TFP end in 1998.

The ITU data were supplemented by 'weekly hours worked' and 'hourly labour costs per employee' from the *Basic Statistics of the Community*, published by the European statistics office, Eurostat (Eurostat, 2000). Before 1988, hours worked per week in the member states of the EU were only available for industry as a whole and these were used on the assumption that changes in hours of work elsewhere in the economy would broadly reflect changes in hours worked in telecommunications. Later, Eurostat statistics report hours worked in 'transport, storage and communication' and these figures were used together with the figures prior to 1988 to obtain a consistent series. Regarding labour costs per hour and employee, data for industry as a whole was used in the absence of more specific sectoral data. However, as for the years after 1998, employment data are no longer available to update labour productivity figures. Despite numerous contacts with Eurostat, it was impossible to obtain further data. It seems that changes in reporting by countries and changes in data collection by Eurostat account for this. Therefore, as said above, labour productivity figures end in 1998.

The *United Nations National Accounts: Main Aggregates and Detailed Tables* (UN, 2000) were the source of investment deflators and the IMF's *International Financial Statistics Yearbook* (IMF, 2001) provided data on interest rates and consumer prices. In addition to these sources, the *National Statistics* of Switzerland (SBfS, 2003), Japan (SB, 2003) and the US (USBOC, 2003) provided hourly labour costs per employee for industry as a whole, weekly hours worked and number for employees in the telecoms sectors of these countries. However, data from the United Nations suffered from similar problems like those from Eurostat and the ITU. More specifically, contacting the United Nations statistical office revealed that the 2002 indicators will not be published until 2004. Hence, the total factor productivity calculations cannot be undertaken for years after 1998.

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Finally, where figures were reported to other accounting dates, i.e. Ireland, Japan and the UK, data were standardised to financial years ending on 31 December. Although the objective was to assess performance in all of the member states of the EU, some countries, namely Austria, Belgium, Finland, Portugal and Sweden, were omitted from the analysis because of inadequate or unreliable data. For the remaining ten member states of the EU plus Switzerland, Japan and the US, performance was measured using indicators of profitability and productivity.

Profit measures, such as the profit margin

$$PM = \frac{\textit{Profit or Loss}}{\textit{Revenue}}, \quad (4.1)$$

are open to serious objections, especially in monopoly enterprises, because high profits reflect market dominance as well as efficient operation. Also, prices in telecommunications were set by government fiat and more recently, for example in Denmark, France, Germany, Ireland and the UK, by regulatory price caps (see table 6.5 in chapter 6), which have an effect on the profits generated. In addition, profitability is affected by state subsidies and differing accounting practices, such as including or excluding value added tax and sales tax from turnover. Nevertheless, profit margin figures in telecommunications for each of the countries studied, computed through equation (4.1), are reported below because they provide an indication as to whether privatisation and market liberalisation have had an effect on performance. More emphasis is, however, placed on the two sets of productivity indices — labour productivity (LP), and total factor productivity (TFP) reported later in this chapter.

The calculation of LP and TFP requires the availability of a satisfactory output measure for telecommunications services. As the most consistent available data are for the number of main lines supplied by telecom operators, this measure was employed. Using main lines, however, may be open to the objection that it does not necessarily reflect the quality of service (connection times or connections not accomplished), volume and type of telecommunications traffic, or value added services. Given this potential objection, output indices based on number of calls, call minutes, and meter pulses⁴ were also calculated as a cross-check on the results, where permitted by data availability. None of these alternative measures is perfect, however. Measures of telecommunications traffic do not reflect the type of call made. For example, private, business, local, long-distance and international calls can be distinguished in principle, but not all telecoms regulators, such as RegTP of Germany,

⁴A meter pulse is a billing unit applied by operators.

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have implemented all these market segments (for more detail see chapter 8). Likewise, if meter pulses are used, it can be difficult to obtain a consistent series across countries because billing units may vary in length.

In an early study of comparative performance in a small number of European telecommunications enterprises, undertaken in the mid-1980s, Foreman-Peck and Manning (1988) use main lines as an output series alongside other indices including deflated revenues. Revenues will include services that are not reflected in other potential output indices, such as value-added and mobile services. Given this, deflated revenues were also used as a cross-check on the results for main lines. Ideally, telephone charge price deflators would be used, but these were not consistently available and therefore revenues were deflated by each country's consumer price index. This will over- or under-deflate revenues depending on whether telephone charges vary differently over time to general consumer prices.

Comparison of the alternative output measures, reveals, as shown in table 4.2, that they are highly correlated, which strongly suggests that an output index based on the number of main lines can be used as the principal output series.

Table 4.2: *Correlation of alternative output indices*

	Traffic / Main Lines (a)	Traffic / Deflated Revenues	Main Lines / Deflated Revenues
Denmark	0.83	0.86	0.93
France	0.98	0.90	0.94
Germany	0.98	0.94	0.96
Greece	0.99	0.96	0.93
Ireland	0.99	0.92	0.96
Italy	0.96	0.96	0.95
Japan	0.96	0.91	0.91
Luxembourg	0.98	0.95	0.98
Netherlands	0.96	0.99	0.96
Spain	0.93	0.91	0.99
Switzerland	0.98	0.91	0.97
UK.(b)			0.76
USA	0.99	0.99	0.97

- (a) Traffic refers to calls, minutes of calls or meter pulses, depending on the data available for the economy.
 (b) No traffic index was available for the UK.

As shown in table 4.2, the correlation coefficients were generally in excess of 0.9. The only exceptions were Denmark, where the correlation between calls and main lines was 0.83 and calls and deflated revenues 0.86, and the UK, where the correlation between lines and deflated revenues was 0.76. The latter result is to be expected given that, since BT's privatisation, price rises have been limited to below the rate of inflation by price cap

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regulation. Nevertheless, alternative LP and TFP estimates employing traffic and deflated revenues for the 1978–1998 period did not significantly alter the conclusions drawn below, even for Denmark and the UK. Hence, only results based on the more reliable main lines output measure are reported. Table 4.3 shows the number of main lines in the countries studied and changes in the number of main lines, between 1978 and 1998.

Table 4.3: *Main lines in telecommunications between 1978 and 1998*

a) Number of main lines

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
1978	2,055,144	12,010,000	17,305,000	2,025,307	430,000	11,456,000	38,261,750	122,000	26,766	6,185,000	2,677,000	17,084,000	88,431,000
1979	2,155,253	13,959,000	18,917,000	2,156,046	471,250	12,172,000	39,603,250	127,000	27,395	6,698,000	2,755,000	17,952,250	91,265,000
1980	2,225,774	15,898,000	20,431,600	2,270,406	522,750	13,017,000	40,190,326	131,660	27,902	7,228,800	2,839,000	18,638,000	94,282,000
1981	2,288,634	17,743,000	21,645,900	2,401,169	568,700	13,860,000	41,194,593	135,000	27,936	7,654,200	2,925,000	19,130,000	105,559,224
1982	2,351,452	19,478,000	22,571,600	2,534,413	604,994	14,697,780	42,534,686	138,808	27,457	8,017,690	3,010,000	19,713,500	107,519,216
1983	2,403,245	20,942,000	23,385,600	2,714,395	655,315	15,601,029	43,688,731	142,134	27,677	8,453,700	3,095,057	20,377,250	110,612,688
1984	2,465,993	22,086,286	24,420,600	2,926,885	694,567	16,520,763	44,964,456	147,074	27,760	8,881,727	3,184,401	21,017,750	112,550,736
1985	2,543,291	23,030,564	25,391,800	3,116,798	738,854	17,396,112	46,403,931	151,525	28,774	9,340,458	3,277,026	21,589,000	115,985,816
1986	2,628,371	23,911,096	26,189,300	3,291,971	784,854	18,252,972	48,007,451	157,112	29,674	9,785,300	3,381,492	22,429,750	118,289,120
1987	2,711,691	24,803,608	27,007,100	3,465,815	831,059	19,104,828	49,859,521	161,682	29,833	10,236,408	3,499,609	23,471,000	122,789,248
1988	2,791,740	25,827,282	27,823,200	3,618,065	897,669	20,091,532	51,925,131	167,159	29,142	10,971,635	3,632,765	24,532,750	127,086,768
1989	2,847,873	26,942,452	28,847,800	3,788,146	966,250	21,265,518	54,009,374	176,363	28,977	11,797,159	3,784,506	25,225,250	131,504,568
1990	2,911,198	28,084,922	31,887,000	3,948,654	1,031,750	22,350,000	55,826,928	183,700	29,262	12,602,600	3,942,701	25,775,250	136,114,208
1991	2,950,756	29,100,000	33,539,720	4,190,087	1,096,750	23,071,000	57,304,307	191,760	30,819	13,264,360	4,080,651	26,363,250	139,412,880
1992	3,004,944	30,100,000	35,420,844	4,496,544	1,155,750	23,709,000	58,535,666	206,205	32,327	13,792,156	4,184,841	27,130,500	143,341,584
1993	3,059,806	30,900,000	37,000,000	4,744,016	1,222,500	24,167,000	59,659,345	214,821	31,981	14,253,470	4,265,818	28,102,500	148,106,160
1994	3,123,026	31,700,000	38,800,000	4,976,205	1,292,500	24,542,000	60,813,322	222,846	31,671	14,685,406	4,257,596	29,148,059	153,447,952
1995	3,193,412	32,400,000	42,000,000	5,162,772	1,370,000	24,845,000	62,620,960	233,924	30,548	15,095,377	4,480,000	30,361,170	159,735,216
1996	3,251,189	32,900,000	44,100,000	5,328,794	1,472,500	25,259,000	63,384,750	258,271	29,690	15,412,785	4,571,000	31,723,439	165,046,848
1997	3,340,561	33,700,000	45,200,000	5,430,855	1,500,000	25,698,000	63,552,750	279,736	32,088	15,854,448	4,688,000	32,618,000	172,452,496
1998	3,495,858	34,000,000	46,500,000	5,535,521	1,575,000	25,986,120	63,248,301	293,083	32,547	16,288,605	4,803,000	38,133,280	178,800,000

b) Averaged percentage changes

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
78-84	3.09	10.75	5.93	6.33	8.33	6.29	2.73	3.17	0.62	6.23	2.94	3.52	4.16
85-89	2.92	4.06	3.39	5.30	6.83	5.18	3.73	3.70	0.89	5.85	3.51	3.72	3.16
90-94	1.86	0.03	0.06	0.06	0.06	0.03	0.02	0.05	0.02	0.04	0.02	0.03	0.03
95-98	2.87	1.77	4.65	2.70	5.09	1.44	0.99	7.12	0.79	2.62	3.07	7.09	3.90
79-98	2.70	5.42	5.09	5.17	6.72	4.20	2.55	4.50	1.02	4.98	2.97	4.14	3.60

Source: ITU (1999).

From table a), year-to-year percentage changes in Main lines (ML) were computed and then averaged as shown in table b). To obtain the annual percentage changes (Δ %), the following formula was used (t representing time):

$$\Delta \% = 100 * \frac{ML_t - ML_{t-1}}{|ML_{t-1}|}$$

Turning to performance indicators, labour productivity (LP) is a measure of the efficiency with which labour inputs produce outputs and is, therefore, a partial productivity measure and the following equation was used.

$$LP = \frac{Index(Q_{real})}{Index(L_{real})}, \quad (4.2)$$

with Q representing output and L labour. In this method, labour productivity is measured as the ratio of the index of physical outputs to the index of physical labour. Labour input was, as shown in appendix A, adjusted for 'average annual hours worked' in order to control for variation in the intensity of labour employment. As a cross-check, labour productivity

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calculations using numbers employed not adjusted for working hours were also made. They produced similar results to those reported below.

LP will be affected by factors other than the efficiency with which enterprises are managed and this needs to be borne in mind when interpreting the results. In particular, the topography of a country, such as the mountainous terrains of Greece and Switzerland, population distribution, the technology used, legislation or trade union power regulating employment levels, can all have an impact on labour productivity. Germany, for example, is known for having influential trade unions. Moreover, output in LP will be affected by changes in other inputs, notably capital. Total factor productivity should, therefore, be applied as a fuller measure that reflects the effect of labour, capital and other inputs on output. Any changes in TFP then represent a measure of the impact of a more efficient management of all inputs.

Total factor productivity (TFP) relates to the concept of a production function defining the maximum output from given inputs. This is a function of engineering realities or production possibilities given existing technology, alongside management and organisation of the available resources. For the analysis below, TFP is calculated following a standard approach. More specifically, TFP is the ratio of an output index to a weighted composite index of inputs, namely capital, labour and other inputs. Other inputs usually comprise materials, office equipment, rental fees, maintenance and so on. It is perhaps worth noting that especially in telecommunications a clear distinction between capital and other inputs can be difficult. This is so because earth cable, for instance, should be considered as material before it is laid. Once it has been laid, however, the cable should be considered as capital because it is part of the communication infrastructure.

In the calculation of TFP below, the output and the inputs were used in the form of physical units as proxies of real costs. This is as follows:

$$TFP = \frac{Index(Q_{real})}{S_K * Index(K_{real}) + S_L * Index(L_{real}) + S_{OI} * Index(OI_{real})}, \quad (4.3)$$

again Q representing output and L labour. Furthermore, K meaning capital, OI 'other inputs' and S shares of the costs of each input in total costs:

$$S_K = \frac{OCK}{TC}, \quad S_L = \frac{LC}{TC} \quad \text{and} \quad S_{OI} = \frac{COI}{TC}, \quad (4.4)$$

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where OCT stands for 'opportunity costs of capital', LC means 'labour costs', COI represents 'costs of other inputs' and TC are 'total costs'. These ratios represent the share of each of the inputs in total economic costs. Further details on this method of calculating TFP are available from Heathfield and Wibe (1987), Diewert (1992), and Oum et al. (1992). Also, appendix A includes details on how the elements in equation (4.3) were calculated.

Calculations of TFP can alternatively be undertaken using a 'composite weighted input price deflator', where the appropriate deflators for each input are first multiplied by the same shares as those in equation (4.3), and the resulting products are then summed up. This deflator is then used to create a proxy real input by deflating total costs. This method of calculation of TFP is applied in Martin and Parker (1997), Molyneux and Thompson (1987), and detailed in Diewert (1992) and Oum et al. (1992). The TFP estimates using this method were very similar to those based on a physical input index for most of the countries, but showed a most unlikely trend of stagnant or downward TFP over much of the period for some countries. The results from this method were therefore considered less robust and are not reported. Another alternative to calculate TFP is the use of the Törnqvist index (originally published in Törnqvist, 1936), where the input shares are averaged for each year (for further details on this method see Diewert, 1976). For comparison, this index was also applied and results similar to the first method were again obtained. Although the Törnqvist index produced better results than the total cost method, trends still showed unlikely stagnant or downward productivity for some countries. Therefore, the results using this methods are also not reported.

While TFP is superior to LP as an efficiency measure, it is also more prone to error in calculation. In particular, the capital input is notoriously difficult to measure accurately. Appendix A provides details on how the capital stock was estimated using the 'perpetual inventory method'. In addition to issues of accurate capital measurement, TFP is affected by returns to scale, that is, the average costs of production fall as output expands. In this context, the input shares in equation (4.3) are ideally the proportional change in each input, which produce a given proportional change in output. Only with constant returns to scale will the input shares produce constant (fixed) proportional change.⁵ Where this is so, then, for example, S_{OI} in equation (4.3) goes up by 1 unit and Q_{real} responds by, say, 0.3 units. Where, however, economies of scale exist, then Q_{real} respond by *more* than 0.3 when S_{OI} increases by 1 unit. Hence, output responds over-proportionally and the shares affected will produce biased TFP measures, therefore. This limitation needs to be considered in

⁵In econometric terms, a proportional change is referred to as 'elasticity'.

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the interpretation of TFP below because it is to be expected that scale economies exist in telecommunications, at least up to some output level where managerial diseconomies set in. When, in addition, it is assumed that smaller countries enjoy lower economies of scale than bigger countries, then bigger countries will show a higher comparative TFP growth.

When interpreting TFP results, it is also useful to distinguish between the short-run production possibility set and the long-run set. The short-run is defined in the usual way, as a period in which one or more inputs (usually capital stock) are fixed. In the short-run, for example, there may be excess capacity as telecommunications operators invest in anticipation of future demand. Hence, current productivity is deflated because the added inputs are not used in the same period. The expectation is that TFP may show periods of low growth where there is high investment into capacity that is not fully utilised immediately. In a similar way, TFP is likely to be affected by the economic cycle. Short-term TFP changes may, therefore, reflect movements along a short-run production function because capacity building and output use are affected by the economic cycle. In the long-run, however, all inputs are variable and therefore optimal combinations of inputs can be selected at given factor prices. This means that a long-term TFP trend should, given capacity building and changes in the economic cycle, show periods of slower and faster change.

Another factor to be considered in the interpretation of TFP results is technological change, which can also be expected to have a significant impact on performance, namely in terms of generating new services. In telecommunications, examples of new service offerings are mobile communications and value added services. These impact on inputs typically requiring large-scale investment in latest technology, such as digital exchanges, satellite communications, optical fibre cable, ISDN⁶ lines, etc. This was emphasised by Harper (1989) and Curwen (1997). Therefore, technological change can be expected to have influenced profitability and productivity indices over the period studied. Precise modelling of the impact of technology is not straight forward, however, and proxy indicators have to be used, such as R&D spending. In the case of the countries studied below, no comprehensive data exist on R&D expenditures or other possible proxy indicators, such as the percentage of mechanical and electronic switches. Moreover, in telecommunications, equipment suppliers work in conjunction with service providers mainly to develop new technology. It takes the form of innovations that can be purchased and sometimes copied by other telecommunications operators. Therefore, arguably technological change has the potential to impact on all telecommunications operators in a similar way. Thus, the extent to which operators make

⁶ISDN stands for 'Integrated Services Digital Network'.

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use of new technologies is a function of their managerial competence and government policies when state owned. These are considerations that are intended to be captured in this comparative study of efficiency. In other words, there was no need to model technology separately. Nevertheless, it is recognised that it would have been helpful to have said something about the precise impact of technological change on efficiency over the period, had the data existed. This is an obvious area for future research, but requires the creation of a comprehensive technology database for European telecommunications.

Finally, TFP will be affected by the attainment of technical efficiency, that is, the efficiency of internal company processes and procedures administered. The attainment of technical efficiency primarily depends on managerial competence. Since this competence is a factor intended to be captured, the failure to satisfy explicitly the assumption of full technical efficiency is not a serious problem for the analysis below.

4.5 Statistical Results

4.5.1 Profit Margins

Profitability performance was first assessed by calculating changes in the profit margin in each of the countries over time. Table 4.4 summarises the results of equation (4.1). In the cases of Denmark and Luxembourg reliable data do not exist prior to 1984 and hence the period covered had to be truncated. Also, profit margins cannot be updated to include more recent years because the ITU stopped publishing profits in national telecommunications from 1999.

From table 4.4 it is evident that the most consistently profitable operator over the 21-year period has been Luxembourg P&T, although its profit margin shows a secular decline. Luxembourg is a small country and the telecommunications system is relatively tiny, which may explain the result. By contrast, the profitability of telecommunications in Italy has been low but steadily growing since 1991. Overall, however, three conclusions stand out. The first is the high variability in profit margins across operators and over time. There is no consistent trend of profitability across the telecommunications businesses and profitability in some of the European operations is higher than in Japan and the USA, two of the benchmark countries. Secondly, there is some evidence of a change in the trend of profitability that might be associated with market liberalisation, including anticipation effects. In particular, profitability declined slightly in the USA and Japan from the late-1980s. Profit margins in

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Table 4.4: Profit margins in telecommunications between 1978 and 1998, percentage

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
1978		18.56	25.82	9.27	-20.36	8.05	11.86		10.79	1.30	18.78	5.10	11.65
1979		17.64	17.60	4.44	-14.26	-8.28	10.55		10.32	1.49	18.12	3.91	12.08
1980		17.82	1.25	-3.03	-10.21	-5.36	9.15		5.85	1.39	17.92	7.17	12.36
1981		3.71	9.73	-17.16	-6.35	5.76	8.58		5.31	1.08	15.98	6.36	10.98
1982		4.37	10.34	7.82	-5.14	2.20	8.75		6.65	0.91	13.03	12.12	8.74
1983		-1.42	10.34	10.86	-18.53	5.15	7.77		8.42	0.70	13.48	12.97	8.88
1984	9.57	8.64	10.36	5.95	-11.47	3.48	12.69	60.49	11.02	0.62	16.49	12.78	15.06
1985	13.42	13.71	10.60	1.59	-3.53	0.43	13.87	53.37	13.10	0.59	16.78	13.75	13.45
1986	11.42	7.88	9.79	16.90	2.33	5.95	14.46	42.46	16.39	0.71	16.38	15.17	12.37
1987	6.50	9.71	7.71	16.37	8.51	5.61	16.79	41.42	17.13	0.81	14.91	15.55	12.17
1988	5.34	2.04	6.24	21.27	10.21	4.02	12.71	44.62	15.06	0.86	13.49	13.19	11.00
1989	8.06	4.81	5.11	18.51	10.96	4.20	10.10	56.33	27.05	0.84	14.43	15.07	9.41
1990	9.92	5.33	2.82	18.12	10.46	n/a	9.22	52.99	15.16	0.98	11.46	15.72	8.98
1991	4.18	1.76	4.70	18.93	6.26	4.25	11.00	49.43	12.79	0.96	7.06	14.41	8.64
1992	5.80	2.67	3.00	14.09	7.62	3.84	7.90	57.52	12.02	0.98	9.03	9.53	7.77
1993	9.49	3.74	-2.94	16.08	4.03	3.82	4.28	20.29	11.59	0.79	8.16	8.76	6.85
1994	36.94	2.74	2.02	15.90	5.95	4.96	1.52	29.07	10.95	0.75	10.89	9.61	10.90
1995	17.14	1.88	7.55	18.85	7.94	7.21	2.05	26.29	11.62	0.80	13.60	10.63	7.88
1996	14.03	1.39	2.35	19.62	9.47	8.63	2.40	22.68	12.30	0.79	13.71	10.70	10.23
1997	7.43	9.49	4.13	19.89	11.06	8.94	2.24	29.88	9.43	0.68	-3.09	10.73	9.03
1998	7.60	9.33	5.03	15.87	6.32	11.62	4.83	36.25	9.44	0.67	19.96	15.15	9.90

n/a: not available

Dk: Denmark; Ger: Germany; Lux: Luxembourg; Neth: Netherlands; Switz: Switzerland

the UK (i.e. BT's profit margin) rose after privatisation but began to fall in the early 1990s, in the face of more competition and tighter regulatory price caps. Thirdly, in the countries that privatised early, namely the UK, Denmark and Japan, there is no clear sign that profit margins improved or deteriorated in a way significantly different to margins in countries where the main operator remained state owned. The profit margins in the UK, Denmark and Japan are positive after privatisation but not substantially out of line with some other countries. In a number of the countries, profitability appears to have risen from the mid-1980s and declined in the 1990s, suggesting that common investment needs, government policies and market entry threats were impacting across operators irrespective of ownership. The most obvious exceptions are Greece, where market liberalisation and privatisation have been slow; Italy, where profitability is generally low, and Germany, where profit margins appear to have been under pressure from the late 1970s. In the US, where early restructuring of the always privately owned Bell System occurred in 1984, the same picture is revealed. It is particularly striking that despite much hype about the benefits of privatisation in the UK, profit margins in UK telecommunications compared to that of a number of other countries studied did not noticeably improve in the first years after BT's sell-off, in 1984.

It would be very premature, however, to draw strong conclusions on performance from this analysis of profitability. Profit margins are a crude indicator of efficiency, for the reasons outlined earlier. The results need to be considered alongside those based on the

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other efficiency measures, namely labour productivity and total factor productivity.

4.5.2 Labour Productivity

Table 4.5, below, details the number of full-time staff in each of the countries' telecommunications sectors and average employment growth rates.

Table 4.5: *Employment in telecommunications between 1978 and 1998*

a) Number of full-time staff

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
1978	11,950	150,000	183,000	28,700	17,698	101,000	334,750	621	26,766	68,620	15,969	237,550	994,800
1979	12,396	158,000	190,000	28,800	18,440	102,000	334,015	631	27,395	68,840	16,140	245,050	1,048,200
1980	12,665	156,400	195,000	30,200	18,626	104,000	333,887	629	27,902	70,610	16,323	246,087	1,072,200
1981	12,734	159,800	199,774	31,680	18,465	104,000	330,614	634	27,936	70,960	16,781	245,953	1,077,300
1982	12,685	163,900	203,751	31,148	17,860	104,480	325,825	639	27,457	71,170	17,292	246,519	1,071,800
1983	12,668	165,300	204,718	30,995	16,797	107,040	321,825	651	27,677	71,461	17,656	243,037	1,010,300
1984	17,024	166,200	207,693	30,602	15,761	108,782	313,712	663	27,760	71,199	18,019	236,838	953,400
1985	17,024	166,788	212,364	30,571	14,968	109,792	306,637	675	28,774	72,086	18,326	234,595	920,700
1986	18,492	165,198	214,349	29,595	14,463	110,232	301,269	745	29,674	63,021	18,733	236,500	883,400
1987	18,997	163,682	216,020	29,444	14,260	109,680	289,500	750	29,833	63,311	18,159	242,600	901,900
1988	18,556	159,521	216,156	30,327	13,841	113,676	279,244	775	29,142	66,062	18,920	245,375	901,100
1989	18,110	157,313	216,210	29,654	13,519	116,391	273,438	780	28,977	71,155	19,715	231,600	885,900
1990	17,710	155,814	212,205	28,086	13,212	117,986	267,603	812	29,262	75,350	20,170	220,975	913,000
1991	17,849	156,110	230,000	27,593	13,078	120,300	256,241	845	30,819	75,499	20,705	191,250	909,200
1992	17,195	155,300	232,600	26,716	12,838	120,000	243,507	850	32,327	74,437	20,857	173,000	885,200
1993	16,355	154,900	233,600	26,349	12,150	111,500	225,603	860	31,981	74,340	20,521	157,250	879,000
1994	16,280	152,455	227,600	26,140	11,684	105,500	215,360	870	31,671	72,207	20,998	147,000	893,400
1995	16,081	151,448	229,700	24,581	11,251	101,900	217,684	800	30,548	69,570	21,474	142,750	899,700
1996	16,126	164,720	222,000	23,808	11,628	100,005	191,636	816	29,690	67,216	21,951	147,250	897,700
1997	17,170	165,042	219,200	22,741	12,050	94,101	174,625	828	32,088	64,109	22,170	153,500	921,700
1998	17,336	169,099	219,700	21,925	12,156	93,391	236,200	861	32,547	61,107	21,946	178,250	1,021,800

b) Averaged percentage changes

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
78-84	6.72	1.74	2.14	1.11	-1.84	1.25	-1.07	1.10	0.62	0.62	2.04	-0.03	-0.62
85-89	1.33	-1.09	0.81	-0.60	-3.02	1.37	-2.71	3.37	0.89	0.24	1.85	-0.41	-1.43
90-94	-2.09	-0.62	1.11	-2.48	-2.86	-1.88	-4.65	2.22	1.83	0.34	1.28	-8.64	-0.19
95-98	1.62	2.69	-0.87	-4.29	1.04	-2.98	3.87	-0.15	0.79	-4.09	1.12	5.16	3.50
78-98	2.15	0.63	0.95	-1.30	-1.81	-0.35	-1.39	1.70	1.02	-0.49	1.62	-1.24	0.20

Source: ITU (1999).

As in table 4.3, above, annual percentage changes were computed first and then averaged for the periods shown.

Table 4.6 provides estimates of trends in labour productivity, using the number of main lines as the output index, as discussed above. Part a) of the table provides a productivity index for each country and part b) summarises the annual percentage changes over the period. Labour productivity is reported as an index to aid comparison across countries and over time. Absolute productivity levels between countries may not be especially meaningful given geographical and traffic differences, as discussed earlier.

It is evident from table 4.6 that most countries maintained steady upward growth in labour productivity levels, as should be expected given continued improvements in technology

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Table 4.6: *Labour productivity in telecommunications between 1978 and 1998*

a) Index of labour productivity (1995=100)

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
1978	93.10	35.07	46.91	35.95	19.39	46.76	36.08	65.68	39.37	40.64	74.54	36.18	55.10
1979	93.97	38.89	49.28	37.97	20.34	48.20	37.22	67.12	41.75	45.06	76.50	36.77	54.12
1980	94.83	44.96	52.23	37.98	23.05	51.20	37.89	69.12	44.46	47.89	78.56	38.38	55.28
1981	96.82	49.47	54.93	38.13	25.20	56.39	39.36	70.66	47.25	51.22	79.34	40.20	61.77
1982	99.70	54.42	56.58	40.76	27.62	59.21	41.19	72.18	50.36	53.50	79.86	41.43	63.97
1983	101.86	58.61	58.92	43.69	31.81	63.34	42.79	72.63	52.68	57.19	81.53	43.55	69.42
1984	77.65	61.80	60.05	47.51	36.19	64.95	45.14	72.54	55.59	61.74	82.47	45.87	74.43
1985	79.95	64.21	61.52	50.44	40.84	68.86	47.61	74.31	56.43	64.81	83.74	47.45	80.10
1986	75.94	67.48	62.55	54.80	44.68	70.72	50.12	69.64	57.37	77.46	85.72	48.90	85.39
1987	76.14	70.83	64.56	57.75	48.21	73.12	54.16	70.67	59.73	78.98	91.94	49.88	86.82
1988	80.12	75.88	67.05	58.53	59.46	72.96	58.47	70.19	65.58	79.47	91.60	51.29	90.20
1989	83.29	80.47	70.92	62.67	58.70	74.18	62.78	76.36	81.21	77.75	92.01	51.68	85.12
1990	86.83	84.04	81.33	68.97	64.92	77.10	67.47	76.40	86.41	76.89	93.48	55.72	86.16
1991	86.85	86.80	77.17	73.72	70.07	76.13	73.62	76.63	85.13	80.77	94.69	66.16	88.61
1992	92.06	90.13	82.42	80.87	75.40	81.24	81.07	82.86	84.87	85.18	96.40	75.61	93.83
1993	98.82	93.25	85.95	85.92	84.48	88.67	91.75	86.31	88.40	88.58	99.88	84.79	95.14
1994	98.91	96.94	92.87	90.03	92.20	95.41	98.41	88.05	92.76	93.50	97.19	93.86	96.01
1995	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1996	106.78	93.36	107.51	106.33	103.50	103.59	114.40	108.52	103.85	105.42	100.05	101.29	103.03
1997	103.05	94.95	112.48	112.94	102.73	111.15	127.15	115.83	97.73	113.70	101.60	100.59	104.59
1998	106.51	93.74	114.25	119.67	109.06	114.12	137.64	117.61	100.70	123.15	105.15	101.73	98.31

b) Averaged percentage changes

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
78-84	-2.45	9.95	4.21	4.82	11.02	5.66	3.81	1.67	5.92	7.23	1.70	4.04	5.23
85-89	1.48	5.43	3.39	5.72	10.17	2.71	6.83	1.15	8.19	4.98	2.25	2.42	2.83
90-94	3.54	3.80	5.74	7.53	9.46	5.23	9.43	2.93	2.74	3.79	1.12	12.74	2.45
95-98	1.94	-0.76	5.35	7.40	4.35	4.59	8.85	7.59	2.20	7.13	2.00	2.07	0.67
78-98	0.91	5.14	4.62	6.24	9.08	4.60	6.98	3.04	4.95	5.79	1.75	5.41	3.03

Similar to employment above, year-to-year percentage changes in LP were computed from table a) and then averaged as shown in table b).

and the organisational structure of the industry. Moreover, a steady upward trend is not surprising given that, as shown in table 4.5, labour shedding or moderate employment growth characterised almost all thirteen countries. Six countries had negative 1978–1998 average employment growth rates, while Denmark's moderate average employment growth rate of 2.2% over 1978–1998 is the highest and can be largely attributed to employment growth that occurred between 1978 and 1987.

Despite this continued upward trend in labour productivity, the results show no consistent increase in labour productivity growth rates across all countries. Substantial differences exist between countries in their average rate of labour productivity improvement. For example, Ireland had the highest productivity growth rate across the entire 1978–1998 period, averaging 9.1% per annum, although much of this growth occurred before 1995. Annual rates of growth were also high in Greece (6.2%), Spain (5.8%), the UK (5.4%), Japan (7.0%), and the Netherlands (5.0%). The lowest average growth rates were experienced in Denmark (0.9%), Switzerland (1.8%), Luxembourg (3.0%), and finally, the USA (3.0%).

Turning to sub-periods, BT's labour productivity growth following privatisation in

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1984 was initially relatively poor, at 2.4% per annum. Productivity growth greatly accelerated, however, in the first half of the 1990s, rising to almost 13% a year. This suggests that labour efficiency gains were delayed. The early 1990s saw a liberalisation of the telecommunications market that introduced considerable competition in BT's markets. In other words, it appears to have been market liberalisation rather than privatisation per se that led to restructuring within BT and a marked improvement in labour productivity. In the case of Japan, however, there is evidence of a sustained improvement in labour productivity growth following the privatisation of NTT in 1985. So in Japan privatisation may have been more immediately beneficial. By contrast, labour productivity did not increase markedly in Switzerland in the run-up to the privatisation of Swisscom in 1998. The Netherlands, which privatised in 1994, saw a fall in labour productivity growth in both the 1990–1994 and 1995–1998 periods relative to 1985–1989, as was also the case in Italy after privatisation in 1994. Denmark, which privatised its telecommunications enterprise in 1990, did experience a lower increase in average labour productivity growth from 1.5% during 1985–1989, compared with 3.5% in 1990–1994. Overall, the evidence is mixed as to whether productivity growth was higher in those countries that privatised early relative to those that delayed privatisation.

Economists would usually expect productivity performance to improve with the arrival of competition and this appears to have been true in the UK and in Japan, where annual labour productivity growth rates rose substantially after markets were opened in 1991 and 1990 respectively. However, Denmark experienced a small decline in average labour productivity growth to 1.9% during 1995–1998, following its market liberalisation in 1994. Similarly, the USA experienced declining labour productivity growth after liberalisation in 1984. In the case of most of the European countries, appreciable market liberalisation occurred only towards the end of the study period. However, there is no consistent evidence of significant performance improvements resulting from any possible liberalisation anticipation effect. In the Netherlands, Ireland and France, average productivity growth rates were lower in the 1990s than in the 1980s when state monopoly provision seemed secure. In Germany, Greece, and Italy, growth rates improved in the first half of the 1990s, but remained fairly stable as the date of market liberalisation approached. More generally, rates after 1995 are comparatively poor even though this was the period when market liberalisation intensified in Europe. Only in Spain and Luxembourg were labour productivity growth rates markedly higher from 1995 than between 1990 and 1994. Thus, it should be concluded that neither the actual introduction of market liberalisation nor its anticipation is consistently associated with improvements in labour productivity growth. However, as the introduction of market

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liberalisation requires the entry of new firms that must staff up in the expectation of future sales growth, it is quite plausible that labour productivity growth will only increase after sufficient time has passed to allow for the potential dynamic efficiency gains of market liberalisation. As will be seen, the conclusions regarding TFP growth further reinforce this conclusion.

4.5.3 Total Factor Productivity

Table 4.7: Total factor productivity in telecommunications between 1978 and 1998

a) Index of total factor productivity (1995=100)

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
1978	64.90	42.82	65.47	56.81	29.86	64.15	76.53	75.49	45.77	51.65	96.73	63.36	71.32
1979	66.91	47.21	70.18	59.83	32.09	66.50	78.47	77.28	49.38	56.49	99.66	64.92	69.92
1980	72.45	52.94	74.61	61.04	35.23	71.56	79.18	79.14	53.29	60.74	102.62	67.59	70.59
1981	75.63	57.92	78.22	61.00	38.08	77.99	79.76	80.68	56.75	64.18	103.86	68.82	76.29
1982	77.83	62.99	78.74	61.87	40.57	78.14	81.43	83.41	60.26	66.85	104.50	69.38	74.04
1983	79.61	66.41	79.92	63.83	44.42	77.39	82.38	85.45	63.75	70.82	105.64	70.76	76.10
1984	81.94	70.11	80.39	68.10	48.87	80.42	83.84	88.76	67.31	74.42	105.74	73.09	77.12
1985	82.88	71.76	80.48	72.29	53.68	80.77	85.55	91.49	67.67	77.80	105.82	74.46	78.08
1986	77.98	74.17	79.91	77.67	58.74	82.03	86.90	91.04	66.50	83.19	105.26	75.65	77.76
1987	79.84	76.90	80.19	81.60	62.86	83.16	88.75	90.77	69.66	85.49	106.77	76.00	80.22
1988	80.24	80.48	80.84	84.68	68.36	84.99	91.05	90.49	73.74	88.51	106.34	76.81	83.11
1989	80.98	84.40	82.35	87.97	73.40	84.02	93.67	93.48	77.04	89.01	105.31	78.04	84.59
1990	81.76	87.86	89.23	93.10	79.38	83.53	95.94	94.01	83.48	88.47	103.05	82.91	88.43
1991	82.45	90.60	88.62	96.57	84.91	88.02	97.35	93.67	88.34	89.30	101.28	90.85	90.16
1992	86.65	93.90	87.03	100.80	88.70	91.64	98.02	98.14	92.81	91.99	100.57	95.24	92.72
1993	90.88	95.73	89.64	100.88	91.72	94.42	98.20	97.76	95.09	94.82	100.78	97.04	94.44
1994	94.98	98.00	93.54	99.87	95.62	97.19	98.73	98.07	97.51	97.44	97.56	98.68	96.85
1995	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1996	103.63	100.33	105.80	100.70	105.99	103.34	99.55	101.73	101.49	102.05	99.39	100.63	102.91
1997	104.49	102.71	105.80	101.78	105.99	104.90	98.59	106.15	102.82	105.44	100.78	101.09	107.38
1998	104.77	102.60	106.46	102.28	109.97	104.21	101.42	105.99	104.65	108.70	104.35	114.79	110.01

b) Averaged percentage changes

	Dk	France	Ger	Greece	Ireland	Italy	Japan	Lux	Neth	Spain	Switz	UK	USA
78-84	3.98	8.59	3.51	3.09	8.56	3.90	1.53	2.74	6.64	6.29	1.50	2.42	1.37
85-89	-0.19	3.78	0.49	5.26	8.48	0.89	2.24	1.06	2.78	3.67	-0.08	1.32	1.88
90-94	3.26	3.04	2.65	2.60	5.45	2.97	1.06	0.98	4.85	1.84	-1.51	4.84	2.75
95-98	2.50	1.16	3.33	0.60	3.58	1.77	0.69	1.97	1.78	2.77	1.71	4.00	3.24
78-98	2.46	4.51	2.50	3.01	6.77	2.49	1.42	1.73	4.26	3.82	0.40	3.07	2.22

As before, year-to-year percentage changes in LP were computed from table a) and then averaged as shown in table b).

TFP cannot be updated because the ITU data base does not include depreciation and operating costs from 1999 any longer.

Table 4.7 part a) provides TFP indices for each year since 1978, with part b) summarising average percentage changes in sub-periods and for the entire 1978-1998 period. The table shows growth rates similar to labour productivity in table 4.7, above. More specifically, while TFP levels have continued to increase in general, there is as yet no consistent evidence of substantially higher TFP growth resulting from privatisation and market liberalisation. Thus, the six countries that privatised and/or liberalised sufficiently early to offer

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adequate evidence of the post-privatisation and/or liberalisation period, provide very mixed evidence. The USA shows a progressive improvement in TFP growth rates after market liberalisation in 1984. The UK provides evidence of declines in TFP growth after privatisation in 1984, but improvements after liberalisation in 1991, thereby complementing the earlier studies of Foreman-Peck and Manning (1988) and Parker (1994a) that found little evidence of a noticeable improvement in performance in BT immediately after privatisation. In contrast, Japan provides evidence of a small increase in TFP growth rates after privatisation in 1985, but steady declines after liberalisation in 1990. Similarly, Denmark provides evidence of an increase in productivity growth after privatisation in 1990, but a small decline after liberalisation in 1994.

Finally, the Netherlands, which privatised in 1994, experienced a decline in average TFP growth from 4.9% in 1990–1994 to 1.8% during 1995–1998, while Italy's privatisation in 1994 was followed by lower TFP growth. While the remaining countries in the analysis privatised and/or liberalised too late to look at their post-privatisation performance, it can be considered, nonetheless, whether the anticipation of privatisation and liberalisation resulted in an improvement in TFP performance during 1995–1998. This evidence is once again mixed, with France, Greece, and Ireland experiencing declines in TFP growth after 1995. It is also revealed that TFP growth was most robust in these countries before 1990, well before privatisation and market liberalisation began. By contrast, Germany, Luxembourg, Spain, and Switzerland experienced increases in TFP growth during this last period, suggesting that privatisation and/or the anticipation of market liberalisation had a positive influence on TFP growth. It is, therefore, once again difficult to find a consistent pattern of performance improvement linked to either privatisation or the anticipation of market liberalisation.

It is worthwhile to note that country specific trends in TFP growth rates are sometimes contrary to trends in LP growth, as is perhaps best evidenced by Greece and Japan. These countries generally demonstrate increasing LP growth but declining TFP growth. This suggests that while Greece and Japan have both shed labour at a rapid rate (table 4.5), these sheds have been more than offset by large scale capital investment projects that by 1998 had not yet resulted in respective increases in output. In Japan the stagnation of the economy throughout the 1990s may also help to explain the productivity results. In Greece, it is possible that the process of economic modernisation, which accelerated after joining the EU, has resulted in a level of telecommunications investment that is based on anticipated demand rather than current output levels.

In contrast, the decreasing LP growth but increasing TFP growth for the USA suggest

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that the country, which realised lower rates of investment growth than many of the countries in the sample, had already invested in a relatively modern telecommunications system by the 1980s. As a result, the country was able to expand output without corresponding capital investment and rapidly increase its rate of TFP growth.

These results are therefore consistent with telecommunications companies making large capital investments in response to technological change, and the need to expand their networks in anticipation of future demand. This investment may deflate TFP growth, at least until output fully responds. This in turn suggests that this study may well underestimate the longer-term productivity impacts of privatisation and liberalisation. Changes to date in inputs may be associated with anticipatory investment that will facilitate future output growth. Thus, one possible interpretation of the inconclusive findings is that a substantial period of time is required before the full dynamic efficiency gains are realised in European telecommunications. However, pursuing research in this area has now been made much more difficult because of changes in the data gathered by the ITU and Eurostat. This, as explained earlier, has prevented the extension of profit margins, labour productivity and total factor productivity measurement beyond 1998.

4.6 Conclusions

This chapter has analysed the economic performance in European telecommunications over the period 1978 to 1998. Three performance measures have been used: profit margin (PM), labour productivity (LP) and total factor productivity (TFP). As the study was designed to shed light on the comparative performance of European telecommunications operators in response to the changing structure of the telecommunications industry, two main hypotheses were considered:

Hypothesis A: Market liberalisation and privatisation created an environment more conducive to pursuing efficiency gains in telecommunications.

Hypothesis B: The performance of telecommunications in the countries that reformed their telecommunications sectors first was better than in those countries that delayed reform.

The results show that there is considerable variation in profitability and productivity of telecommunications operators across Europe, and compared with Switzerland, Japan and the USA, three countries introduced as international benchmarks. Some countries in Europe have

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embraced market liberalisation and privatisation of telecommunications more enthusiastically than others. In particular, Denmark and the UK were quick to liberalise, whereas the other European countries in this chapter have been more hesitant. Greece only opened its telecoms market to full competition recently, in 2001 (see table 4.1).

The form of telecommunications restructuring in member states of the European Community reflects wider national attitudes to competition and state ownership (Hulsink, 1996; Parker, 1998). Nevertheless, these different attitudes are not directly reflected in the performance differences. The chapter has therefore provided scant evidence that privatisation has had a reliable and favourable impact on economic performance in telecommunications in the absence of market liberalisation. In addition, there is no consistent evidence that market liberalisation has had a generally depressing effect on profit margins or that market liberalisation, until 1998, had obviously led to an improvement in labour or total factor productivity growth.

Regarding hypothesis A, the conclusion that privatisation alone does not appear to have had a marked effect on performance is consistent with other studies of privatised industries. These have found a complex relationship between competition, ownership and performance (e.g. Kay and Thompson, 1986; Vickers and Yarrow, 1988; Hartley et al., 1991; Bös, 1993; Fraquelli and Erbetta, 2000). In terms of hypothesis B, the UK was the first European country to privatise and liberalise its telecommunications market. The UK has recorded a steady growth in TFP, but the improved performance lagged behind privatisation and is more closely timed to the introduction of full competition in 1991 (again, see table 4.1). However, as this experience has not been replicated in several countries including Japan and Denmark, which liberalised sufficiently early for firm conclusions to be drawn, this chapter does not provide conclusive evidence that market liberalisation is associated with performance improvement.

The results are broadly consistent with earlier studies of international telecommunications, ownership and competition. Duch (1991) in a study of change in international telecommunications concluded that performance was not obviously related to ownership. Parker (1994a) and Martin and Parker (1997) point to lacklustre TFP performance in BT in the years immediately after privatisation. In contrast, performance, especially labour productivity, rose quickly in response to increased competition after 1990. In their studies, profitability, expressed as rate of return on capital, was sharply higher in BT after privatisation, but fell back as competition developed. Foreman-Peck and Manning (1988, p.54), after studying the performance of six European telecoms operators in the mid-1980s (Denmark,

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Italy, Norway, Spain, Germany and the UK), concluded: 'Smaller telecom organisations appear to be more productive than larger ones, and networks that have private equity capital participation do not invariably perform better than state-owned enterprises. Privatisation as such is apparently no panacea, as yet.'

At the same time, the research results must be viewed as provisional. Performance research across a number of telecommunications systems is hampered by possible inconsistencies in data, including differences in reporting standards. In addition, the measure of TFP, though being a standard approach, depends, as detailed above, on some restrictive assumptions, leading to possible biases. Equally, it is not possible to say with any certainty whether performance changes are attributable to changes in market competition and/or ownership over other factors, such as scale economies and technology. In particular, productivity in telecommunications is affected by demand and therefore levels of network loading. It is also affected by output changes. For example, in recent years mobile telephone services have expanded quickly and are not directly captured in the main output measure. Moreover, differences in productivity growth in telecommunications may be affected by differences in national productivity, in particular the German and the US economies are known to have comparatively high productivity. In contrast, Japan's productivity growth has been slack because of persistent economic stagnation throughout much of the 1990s. These various reservations must be borne in mind when interpreting the research results.

In this chapter, a non-parametric method of TFP growth was used, rather than a parametric approach, because the focus was primarily on identifying trends in TFP growth. The research has therefore provided some broad indicators of performance trends across European telecommunications. However, future research would be usefully directed at studying the effect of technology and the propensity to innovate in European telecommunications, compared with telecommunications elsewhere, especially the US. Future parametric analysis could therefore be directed at analysing the actual determinants of telecommunications TFP growth in Europe, and whether technological effort or other factors, such as differences in national productivity levels, have a greater impact on telecommunications productivity growth than privatisation and/or market liberalisation.

It is finally suggested that the results are consistent with the argument that in a period of rapid technological change, which triggers large-scale network investment and restructuring, it is to be expected that TFP growth will be depressed by capacity building. Moreover, the same argument applies where market liberalisation leads to new market entrants and retaliatory investment by incumbent operators. This very probably explains some of the

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poor productivity performance in recent years.

The results of the performance analysis in this chapter relate to the second stage of the research, presented next, in the sense that a fuller understanding was obtained about the economic performance in EU telecommunications. As was mentioned earlier, a link between the main part of this thesis and the performance analysis in this chapter appears in chapter 10. This link emerges only after two theories on regulation, namely the approach to regulatory governance and the treatment of regulation, have been combined in a matrix, in which the member states of the EU are placed according to their regulatory systems in telecommunications. But attention first turns to regulatory governance or, in other words, the relationship between the telecoms regulators in the EU and their governments.

Chapter 5

Analysis of Regulatory Governance

This chapter analyses issues associated with regulatory governance. In particular, the analysis is concerned with the relationship between the telecoms regulators and their governments in the member states of the EU. In other words, the discussion relates to the exertion of control over a national telecoms regulatory authority, as considered by the associated literature in section 3.3.3 in chapter 3. The telecoms directives of the European Commission, reviewed in chapter 2, include a central theme that is of particular relevance for this chapter. More specifically, Directives 88/301/EEC (terminal equipment liberalisation) and 97/13/EC (licensing) facilitate the requirement for institutions administering market intervention to be ‘legally distinct from and functionally independent of’ companies supplying telecoms networks and/or services.

A second issue associated with regulatory governance are the basic powers and responsibilities, which legislators may or may not pass to their regulatory offices. The relevant theoretical consideration was discussed in section 3.3.3, regarding the extent to which governments delegate responsibilities to their regulators. The telecoms directives, and in particular Directive 97/13/EC on licensing, have facilitated responsibilities associated with granting market access, which telecoms regulators across the member states have to meet. These powers are related to allowing telecoms operators to commence operations and were reviewed in chapter 2.

In addition to regulatory control and the basic powers and responsibilities of a telecoms regulator, this chapter is concerned with whether the regulatory framework was in place on

time. This question draws from the deadline of 1 January 1998 by which the regulatory offices had to be operational and telecoms markets had to be open to full competition. The transposition of the telecoms directives is a necessary condition for designing a system of regulatory governance in the member states of the EU and is linked with the literature on policy transfer, again reviewed in section 3.3.3. Of particular relevance in the context of establishing a regulatory system for telecommunications are the different speeds at which policies from other countries are incorporated into national legislation.

Drawing from the central hypothesis for this research project established in chapter 3,

Central Hypothesis: The telecoms directives of the European Commission are creating harmonised regulatory systems across the member states of the European Union,

this chapter analyses whether the telecoms directives of the European Commission have created harmonisation of issues associated with regulatory governance. To enable an analysis of regulatory governance, chapter 3 extracted three sub-hypothesis from the central hypothesis, as follows:

Sub-hypothesis 1: In accordance with the telecoms directives, the regulatory framework was *in place in full by 1 January 1998;*

Sub-hypothesis 2: The telecoms directives of the European Commission have created harmonised *control over national telecommunications regulatory authorities* across the member states of the European Union;

Sub-hypothesis 3: The telecoms directives of the European Commission have created harmonised *responsibilities for granting market access* in telecommunications across the member states of the European Union.

Table 5.1 shows the questions that were asked in the questionnaire to allow an assessment of these three sub-hypotheses. The questionnaire was detailed and explained in section 1.4. The first issue to be analysed in this chapter is the transposition of the telecoms regulatory framework, built on the telecoms Directive of the European Commission. Questions 1, 10 and 11 in table 5.1 are used to analyse sub-hypothesis 1. To analyse sub-hypothesis 2, questions 2 to 5 and 7 to 9 are used, while questions 12 to 18 are the basis of the analysis of sub-hypothesis 3 in section 5.3. Also, it is worth mentioning that because the telecoms

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Table 5.1: *Questions asked in the questionnaire that are analysed in this chapter*

<i>Number (a)</i>	<i>Question (b)</i>
1	In which year did the NRA become operational?
2	Who appoints the chief regulator? (c)
3	How is the chief regulator appointed?
4	To whom is the NRA accountable?
5	To whom does the NRA directly report?
6	What are the responsibilities of the NRA?
7	How are key members of staff appointed?
8	Are key members of staff trained regularly?
9	Who makes decisions within the NRA?
10	Who transposes the telecoms directives?
11	Were there any directives not transposed by 31/12/01?
12	Who grants authorisation in fixed markets?
13	Who grants authorisation in mobile markets?
14	Were there any restrictions on the percentage of foreign capital?
15	Who allocates frequencies?
16	Who assigns frequencies?
17	Who grants digging rights?
18	Who grants antenna-building permits?

NRA: national regulatory authority

(a) The analysis of these questions below does not always follow the chronology in the questionnaire.

(b) The questions have been truncated for reasons of consistency. See appendix B for the full questionnaire.

(c) Member states have different names for what is essentially the same position.

regulators of Austria and Spain did not reply to the questionnaire, they are omitted from all subsequent tables subsequent to table 5.2, below.

Before the analysis of these sub-hypotheses is provided, it is worth mentioning that some answers to the questions in the questionnaire are provided in the Eighth Implementation Report of the European Commission (CEC, 2002f), which was published after the questionnaire was returned. This overlap between the Eighth Report and the questionnaire in particular regards the appointment of the telecoms regulators (questions 2 and 3), granting authorisation (questions 12 and 13) and frequency matters (questions 15 and 16). The results are consistent with the findings of the Eighth Report, which adds confidence regarding the other results from the questionnaire. In addition, as regards the overlap, the questionnaire expands on information that is available more superficially in the Commission's Report. All other questionnaire answers reported below provide information that is not available in the Implementation Report. However, attention now turns to the analysis of sub-hypothesis 1.

5.1 Transposition of the Telecoms Regulatory Framework

This section is concerned with the first sub-hypothesis derived from the central research hypothesis:

Sub-hypothesis 1: In accordance with the telecoms directives, the regulatory framework was *in place in full by 1 January 1998*.

To provide evidence on this sub-hypothesis, three issues were examined and their results are presented below. These issues are:

- Question 1: In which year did the NRA become operational?
- Question 10: Who transposes the telecoms directives?
- Question 11: Were there any directives not transposed by 31/12/01?

These are questions 1, 10 and 11 listed in table 5.1 and allow the investigation of whether member states had transposed the telecoms regulatory framework on time. The underlying thinking is as follows. The ultimate test of whether the 1 January 1998 deadline was met by the member states is if national telecoms markets in the EU were opened to full competition at or before this date (subject to any agreed deferment). In addition, the national telecoms regulators had to be operational and all directives had to be transformed by 1 January 1998. Information relevant to allow an analysis of these issues was collected in the questionnaire and will be analysed next.

5.1.1 The Years in which the Telecoms Regulators Became Operational

Table 5.2 presents the dates when the regulatory authorities in the member states of the EU became operational, alongside the years in which the telecoms markets of in the EU were opened to full competition.

The reason why the years in which telecoms operators became operational were included in the questionnaire was to clarify information previously available. More specifically, the national Telecommunications Acts, which established regulatory authorities, usually contain clauses such as 'the telecoms regulator is established by way of this Act', and a year

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Table 5.2: *The years in which telecoms regulators became operational and markets were opened to full competition, by member state*

<i>Member State</i>	<i>Year Telecoms Regulator Becoming Operational</i>	<i>Year Market Opened (a) to Full Competition</i>
Austria	1997	1998
Belgium	1993	1997
Denmark	1991	1994
Finland	1988	1994 (b)
France	1997	1998
Germany	1998	1998
Greece	1992	2001
Ireland	1997	1998
Italy	1997	1998
Luxembourg	1997	1997
Netherlands	1997	1997
Portugal	1981	2000
Spain	1996	1998
Sweden	1992	1993
UK	1984	1991

(a) *Year Market Opened* reflects the dates when member states allowed full competition. In a number of countries, e.g. Spain, the Netherlands and the UK, competition was allowed in some telecoms sectors prior to the dates shown. Source: CEC (2000a), Gibbon (2000) and email correspondence with regulators prior to the questionnaire analysis.

(b) Although Finland never had a single telecoms monopoly, not all liberalisation requirements of the telecoms directives, as reviewed in chapter 2, were met before 1994.

is given. It is not clear if this date refers to the year when the Act entered force or the year when the telecoms regulator became operational. Therefore, a respective question was included in the questionnaire to clarify the issue.

Focusing on the years in which regulators became operational, it is evident from table 5.2 that, firstly, **eight** member states established their regulatory authorities close to or at the date of full market liberalisation, on 1 January 1998. Secondly, a number of countries established their regulator significantly well before this date, with Portugal and the UK having set up national regulatory authorities for telecommunications before the first telecoms Directive was issued, on 16 May 1988 (Directive 88/301/EEC on terminal equipment liberalisation). Thirdly, despite the trend of establishing regulatory offices towards the date of full market liberalisation, there has been a considerable degree of variation between the member states.

There are two possible explanations for these findings. The first explanation is that member states may have interpreted the early directives in different ways. This could be so because early documents, such as Directive 88/301/EEC on terminal equipment liberalisation, only facilitated the broad requirement of establishing an 'institution independent of telecommunications companies'. Later directives, however, such as Directive 97/13/EC on li-

censing, refined and clarified this broad requirement and facilitated ‘an institution legally distinct from and functionally independent of suppliers of telecommunications networks and/or services’. Moreover, as reviewed in chapter 2, the harmonisation directives, issued between 1990 and 1998, extended the scope of the Commission’s policy to all areas of telecommunications and set down specific tasks for regulators to administer. Therefore, the scope for discretion at the national level was substantially reduced over time.

5.1.2 Directives not Transposed by 31 December 2001

Looking at question 11 in table 5.1 provides the second possible explanation for why dates differ in table 5.2 (31 December 2001 was chosen as the ‘cut-off’ date for information collected from the telecoms regulators). The answers confirmed that countries responded to the provisions of the directives at different speeds. More specifically, France and Ireland reported that they had yet to transpose several provisions of Directive 97/66/EC on data protection, although the deadline for this Directive had passed on 24 October 1998. Moreover, **one** member state, which asked to remain anonymous, did not give specific answers as to which directives/specific provisions were not transposed, but indicated that there are several infringement procedures of the European Commission pending.

5.1.3 The Years in which Telecoms Markets were Opened to Full Competition

A further indicator of member states complying with the telecoms directives at different speeds are the years in which the telecoms markets in the EU were opened to full competition. These dates were readily available from secondary sources, such as CEC (2000a) and Gibbon (2000), and a specific question in the questionnaire was not required. The secondary data was used to support the information on the years in which the telecoms regulators were established, which was collected through the questionnaire.

The dates when telecoms markets in the member states were opened to full competition are shown in table 5.2, above. Firstly, **nine** member states had opened their telecoms markets close to or at the deadline of 1 January 1998. Secondly, Finland, Sweden and the UK had opened their telecoms markets to competition substantially before this deadline. Thirdly, Greece and Portugal had exceeded the 1 January deadline. The reason for this is that these **two** countries had, alongside Ireland and Spain, applied for a deferment to open their telecoms markets to full competition, and were initially granted an extension to

2003 (Lewington, 1997). As reviewed in chapter 2, deferments were allowed under Directives 96/19/EC (full competition) and 98/10/EC (new voice telephony). Ultimately, as shown in table 5.2, Ireland and Spain committed themselves to open their markets on 1 January 1998, Portugal complied in 2000, and Greece followed in 2001 (CEC, 2000a; Lewington, 1997).

Despite the obligation for member states to open their telecoms markets to full competition on 1 January 1998, Parker (1994b, 2002a) stresses that national circumstances need to be taken into account when assessing precisely how policies are adopted. Indeed, the major argument of the countries requesting deferment was that time was needed to bring the tariffs of the incumbent telecoms operators into line with costs (CEC, 2000a; Gibbon, 2000; Lewington, 1997). In other words, arbitrary monopoly pricing had to be abolished and replaced with pricing closer to that of a competitive market. Likewise, the establishment of regulatory offices required, as reviewed in section 3.3.3, the redefinition of control mechanisms, and the transfer responsibilities between institutions at the national level had to be undertaken. These issues will be analysed later in this chapter.

The phenomenon of member states having complied with the telecoms directives at different speeds will be taken up again in the conclusions to this chapter, where a discussion of the findings related to regulatory governance and harmonisation of telecoms regulation in the EU is provided.

5.1.4 Institutions Responsible for Transposing the Telecoms Directives

Question 10 (see table 5.1) was asked in the questionnaire to test the argument in Thatcher (1999), that varying policies and attitudes can emerge over time due to different historical developments. In addition, there may be a link between the phenomenon of member states complying with the telecoms directives at different speeds, and the institution that is responsible for transposing the telecoms directives. It could be argued that the higher an institution is placed in the state hierarchy, the slower is the speed of transposition. This may be so because a different set of tasks is administered and because the detail the tasks conducted decreases while the range of tasks increases. Vice versa, if the regulator deals with the transposition directly, then it could be argued that the transposition occurs at a faster speed.

Unfortunately, the question was not adequately worded to ensure that the questionnaire answers reflected who in government was responsible for initiating and drafting the

Table 5.3: *Institution(s) transposing the telecoms directives, by member state*

<i>Member State</i>	<i>Institution(s) Transposing</i>
Belgium	Ministry, telecoms regulator
Denmark	Parliament, Ministry, telecoms regulator
Finland	Parliament, Ministry
France	Parliament, Ministry
Germany	Parliament, Ministry
Greece	Ministry
Ireland	Ministry
Italy	Parliament
Luxembourg	Ministry, telecoms regulator
Netherlands	Parliament, Ministry
Portugal	Parliament, Council of Ministers
Sweden	Parliament
UK	Parliament

legislative changes rather than simply passing laws. However, table 5.3 shows that in **nine** member states the Ministry responsible for telecommunications transposes the telecoms directives. Of these **nine** countries, **five** reported that the Parliament reserves the right, alongside the Ministry, to draw up and implement legislation for national telecommunications.

Overall, table 5.3 provides no apparent support for the argument that the speed at which a member state complied with the telecoms directives is correlated with the institution that transposes the directives. For example, in Greece, where the telecoms regulator was established in 2001, and required the longest amount of time of all member states (see table 5.2, above), the Ministry is responsible for transposing the telecoms directives. In contrast, Portugal, which, as shown in table 5.2, established its telecoms regulator in 1981 ahead of all other member states, the Parliament and the Council of Ministers are involved in drawing up telecoms legislation. Alongside Greece and Portugal, in the remaining **eleven** member states, there is also no apparent correlation between the body transposing the telecoms directives and the speed of response.

There is, however, some support for the argument in Thatcher (1999), in the sense that different policies and attitudes between countries emerge over time. The finding that different bodies are involved in drafting and implementing telecoms legislation across the EU points to an issue that is explored next: the different forms of state involvement in telecoms regulation or, in other words, the issue of regulatory control.

To conclude this section, sub-hypothesis 1,

Sub-hypothesis 1: In accordance with the telecoms directives, the regulatory framework was

in place in full by 1 January 1998,

cannot be rejected, although some care is needed when making this assessment, which will be taken up again in the conclusions to this chapter.

5.2 Control Over National Regulatory Authorities

As the literature review in section 3.3.3 suggested, regulatory governance is a two-fold issue. In particular, theory discusses control over a regulatory authority and the delegation of responsibilities and powers from the state to the regulator. The main provision in the telecoms directives on regulatory control was set down as requiring 'an institution to be 'legally distinct from and functionally independent of' suppliers of telecommunications networks and/or services. This provision is part of the telecoms Directives on terminal equipment liberalisation (88/301/EEC) and licensing (97/13/EC), and requires the establishment of telecommunications regulatory authorities in the member states of the EU to replace traditional control by government departments. Regarding this issue, the telecoms directives do not require specific institutional forms. This means that establishing the precise regulatory control mechanisms is mostly left to the member states. Nevertheless, regulatory control has received, as shown in section 3.3.3, considerable theoretical attention. If the telecoms directives fail to account for regulatory control, it could be argued that this is a flaw in the design of telecoms policy in the EU. In contrast, although the provision of 'legal distinction and functional independence' does not explicitly facilitate specific forms of regulatory control, it is expected that harmonisation will be achieved, not least because of the degree of independence discussed in section 3.3.3 in chapter 3 (the degrees of independence were formalised by Ogus, 2003). Given the provision of 'legal distinction and functional independence' of telecoms regulators, and given the degree of control governments are likely to maintain, it is to be expected that regulatory authorities will be semi-independent entities. This is so in the strict theoretical sense discussed in section 3.3.3, although some telecoms regulators in the EU, such as those of Greece and the Netherlands, consider themselves as 'independent' institutions (this will be discussed in detail in chapters 8 and 9).

Another reason why harmonisation is to be expected is because of the effects of policy transfer, reviewed in section 3.3.3, and it is expected, therefore, that harmonisation is to be achieved regarding the issues of 'regulatory control'.

The remainder of this section links the provision of 'legal distinction and functional

independence' with the literature on regulatory governance, discussed in section 3.3.3. The section will be guided by sub-hypothesis 2:

Sub-hypothesis 2: The telecoms directives of the European Commission have created harmonised *control over national telecommunications regulatory authorities* across the member states of the European Union.

To assess regulatory control and possible harmonisation of this issue between the member states of the EU, the questionnaire collected data on questions 2 to 5 and 7 to 9 in table 5.1.¹

- Question 2: Who appoints the chief regulator?
- Question 3: How is the chief regulator appointed?
- Question 4: To whom is the NRA accountable,
- Question 5: To whom does the NRA directly report?
- Question 7: How are key members of staff appointed?
- Question 8: Are key members of staff trained regularly?
- Question 9: Who makes decisions within the NRA?

5.2.1 Key Personnel and Appointment of the Chief Regulator

Table 5.4 shows the answers collected in the questionnaire regarding the appointment of the president/the director general.

Information shown in table 5.4 points to the following issues. **Seven** member states, namely Belgium, Denmark, Ireland, Luxembourg, the Netherlands, Portugal and the UK, appoint their telecoms regulator by Ministerial decision. Given that the national telecoms regulator is an institution run by the government, the Ministry is the lowest body within the state hierarchy that has authority over the regulatory office. It is therefore the case that these **six** countries allow some devolving of decision-making powers when it comes to appointing the chief regulator. The remaining **seven** countries, however, concentrate these powers at a higher hierarchical level. This is particularly evident in the cases of France, Italy

¹As was noted in table 5.1, the sequence of analysis does not always follow the chronology in the questionnaire.

Table 5.4: *Appointment of the Chief Regulator, by member state*

<i>Member State</i>	<i>Chief Regulators Appointed by</i>	<i>Chief Regulators Appointed on Recommendation of</i>	<i>Positions Publicly Advertised?</i>
Belgium (a)	Ministry	Ministry	yes
Denmark	Ministry	Ministry	no reply
Finland	Council of the State	Ministry	yes
France	President of the Republic	Staff of NRA, Ministry	no
Germany	Federal President	Government and Advisory Council of NRA	no
Greece	Parliament	Parliament	no
Ireland	Ministry	Ministry	yes
Italy	President of the Republic	Prime Minister, Ministry	no reply
Luxembourg	Ministry	Ministry	no reply
Netherlands	Ministry	Ministry	yes
Portugal	Ministry	Ministry	no
Sweden	Government	Ministry	no
UK	Ministry	Ministry	yes

(a) Although BIPT, the Belgian telecoms regulator, has a chairman, the chief telecoms regulator in Belgium is the Minister in charge of telecommunications (BIPT, 2003).

NRA: national regulatory authority

and Germany, where the right of decision as to who will be the chief telecoms regulator is reserved for the head of government.

In addition to providing evidence on who appoints the chief telecoms regulator in the member states, table 5.4 shows that a decision to appoint a regulator is in **nine** member states seemingly solely based on Ministerial recommendation, whereas in Italy, the Ministry forwards its recommendations alongside those of the Prime Minister to the President of the Republic. In France and Germany, key members of staff of the national regulatory authority can forward their suggestions alongside those of the Ministry. The expertise of a regulator will be, in **eight** member states plus France, Germany and Italy, an important consideration when appointing to the position and the Ministry is regarded as the appropriate institution to assess the qualification of candidates. Greece and Luxembourg, however, may not regard the expertise of a regulator as the primary objective because these countries do not appear to rely on the recommendation of the Ministry. Hence, political patronage, according to Fenno (1959), Noll (1997) and Parker (2001), may play a more important role when the chief regulator of telecommunications is appointed in these countries.

Where ministry and/or government is involved in the appointment of the chief telecoms regulator, then there may always be an element of ‘political patronage’, in the sense that not the skills of the regulator are of foremost concern, but rather how he/she follows government targets. This issue can be assessed by investigating, whether the position of the chief regulator is publicly advertised. Where it is not, then there will always remain

some question marks about political patronage and, hence, the independence of the telecoms regulator. Given the benefit of hindsight, a question addressing this issue should have been included in the questionnaire. Therefore, the question, if the position of the chief telecoms regulator is publicly advertised, was investigated by means of a telephone call to the regulators, after the questionnaires were returned. Although questionnaires were returned from Denmark, Italy and Luxembourg, no reply could, despite numerous attempts, be obtained on the follow up question. However, table 5.4 shows that, of the member states replying, **five** indicated that the position of the chief regulator is publicly advertised, whereas the remaining **five**, that is, France, Germany, Greece, Portugal and Sweden appoint the position through internal government procedures. Also, it is evident that in those countries (except Portugal), the decision to appoint the chief telecoms regulator is reserved to institutions above the Ministries. Hence, regarding these four countries, there might be an element of political patronage in the appointment of their chief telecoms regulators. It should be acknowledged, however, that this conclusion can only be regarded as preliminary, since the available evidence from the questionnaire study is insufficient to allow a final judgement. For example, although the Ministry may be identified as the appointer of the regulator, the Ministry may take soundings from higher political levels for what is a key appointment.

In addition to illustrating who appoints the telecoms regulator and according to which procedures, table 5.4 also provides evidence that the practice of telecoms regulation within the EU has applied two different models of control, in terms of the approaches adopted by Majone (1996). These models were introduced in section 3.3.3 as *substantive* and *proceduralist*. This issue is discussed later, in chapter 10.

The next indicator was the level of expertise in the regulatory authorities, for which information was collected by the questionnaire on how decision-making personnel besides the chief regulator are appointed. The expertise of a regulator was discussed in section 3.4. In principle, competitive selection should be an appropriate measure to appoint skilled staff, whereas recommendation may indicate political patronage. Moreover, staff appointed can be categorised as civil servants and non-civil servants. Shortly after the regulators were established, member states transferred personnel from the Ministry to the regulator (e.g. Gibbon, 2000; Lewington, 1997). Some divisions of the Ministries in question were, prior to establishing the telecoms regulators, responsible for telecommunications matters. The European Commission has in the past expressed concern about this process, in the sense that such personnel transfer may compromise the requirement of 'legal distinction and functional independence'. This concern is enhanced where member states maintain majority

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shareholdings in their incumbent telecoms operators, for which the Ministries in question are responsible (CEC, 2000a). In addition, concerns about regulatory independence might be particularly enhanced in Belgium, where the Minister is also the head of the telecoms regulator (BIPT, 2003).

Table 5.5, below, shows the answers collected through the questionnaire regarding the appointment of key regulatory personnel. Luxembourg is the only country in the study that appoints decision-makers other than the president/the director general through recommendation of civil and non-civil servants. It should be emphasised that Luxembourg has the smallest telecommunications system within the EU. Moreover, the country's regulator only employed 21 full-time staff on 1 August 2001 (CEC, 2001a, Annex 2, p.104), being the smallest of fifteen national regulatory authorities. Therefore, skilled staff might be difficult to hire, and/or it is likely that appropriate applicants come from a small circle and are known to the Ministry, which, as shown in table 5.4, appoints the head of the regulatory office.

Table 5.5: *Appointment of key regulatory personnel, by member state*

<i>Member State</i>	<i>Civil Servants</i>	<i>Non-civil Servants</i>
Belgium	CS	
Denmark	CS	CS
Finland	CS	CS
France	CS	CS
Germany	CS	CS
Greece	CS	CS
Ireland		CS
Italy	CS	CS
Luxembourg	Recommendation	Recommendation
Netherlands	CS	CS
Portugal		CS
Sweden	CS	
UK	CS	CS

CS: competitive selection

The answers given by the remaining member states are as follows. Belgium and Sweden exclusively appoint regulatory staff from civil servants through competitive selection. By contrast, Ireland and Portugal exclusively appoint key personnel through competitive selection of non-civil servants. In **eight** member states, namely Denmark, Finland, France, Germany, Greece, Italy, the Netherlands and the UK, competitive selection for key personnel is used in the appointment of decision-making personnel from civil and non-civil servant recruits.

These findings point to two issues. Firstly, it is evident that some of the personnel are recruited from civil servants in most of the countries. This may reinforce the con-

cern expressed by the European Commission about the impact on regulatory independence, given that many member states maintain major shareholdings in their incumbent operators. Secondly, given that competitive selection is the predominant method used to appoint decision-making personnel, achieving the appropriate expertise in regulatory offices seems an important issue in the member states.

The finding that governments seem to have a strong interest in the appointment of their regulatory authorities' skilled personnel receives support from the literature on market intervention, reviewed in section 3.4. Parker (2001) emphasises the importance of skilled staff to satisfy the needs of the complexity and the multiplicity of regulating telecommunications markets. Therefore, regulators were asked in the questionnaire if their key members of staff receive regular training in the economics of regulation. Only **three** regulators, namely those of Finland, Sweden and Italy, answered 'no'. In contrast, the remaining **ten** member states reported that their key staff is trained regularly, on some occasions even through university courses.

At this stage, evidence is mounting that a high degree of harmonisation of regulation has already been achieved in telecoms regulation across the member states of the EU. Although civil servants appear to be members of the regulatory bodies, the predominance of competitive selection is an encouraging sign that expertise, rather than political favour, drives employment in the national telecoms regulators.

5.2.2 Regulatory Accountability

It is important that the requirement for 'legal distinction and functional independence' for regulators is not confused with proper regulatory accountability.² Haskins (2000) argues that a regulator should be accountable to government and parliament. This is so because it has been emphasised by Foster (1992), Kydland and Prescott (1977) and Majone (1996), among others, that a regulatory office may use its information advantage in the light of periodically changing governments. These issues were discussed in chapter 3. However, to obtain further evidence and to enable an assessment as to the extent with which the telecoms directives are leading to harmonisation of regulatory control, the questionnaire investigated the accountability of the regulatory authority. The need for regulatory accountability was emphasised in section 3.4. Haskins (2000) argues that a regulator should have a certain degree of accountability towards institutions higher up in the state hierarchy to avoid 'shirking away' from control. It was emphasised by Foster (1992), Kydland and Prescott (1977) and Majone

²On page 84 in chapter 3, the terms was defined as 'being responsible for ones actions'

(1996) that such a danger may exist due to a regulatory office using its information advantage in the light of periodically changing governments. Hence, the requirement of ‘legal distinction and functional independence’ may be used by regulators as an excuse to escape regulatory accountability.

Table 5.6 shows to whom the regulators are accountable and to whom they report directly. Direct reporting stems from the requirement of all telecoms directives to keep the European Commission informed on the progress of transformation and implementation of the provisions. It could be argued that regulators will always report to the institution to which they are accountable, and collecting information on direct reporting is redundant, therefore. However, on accountability, the regulatory authorities may have just indicated ‘the public’ for reasons of convenience when completing the questionnaire. Asking also to whom they report helps to provide a cross-check on the answer.

Table 5.6: *Accountability and reporting of the telecoms regulator, by member state*

<i>Member State</i>	<i>NRA Accountable to Whom</i>	<i>NRA Directly Reporting to Whom</i>
Belgium	Ministry	Ministry, the Public
Denmark	Ministry	Ministry, the Public
Finland	Ministry, Parliament	Ministry, the Public
France	Ministry, Parliament	Government, National Assembly, the Public
Germany	Parliament	Parliament
Greece	Ministry	Ministry, the Public
Ireland	Ministry, Parliament	Ministry, the Public
Italy	Parliament	Parliament
Luxembourg	Ministry, Parliament	Ministry
Netherlands	Ministry	Ministry
Portugal	Parliament	Parliament, the Public
Sweden	Government	Ministry, the Public
UK	Parliament	Parliament, the Public

NRA: national regulatory authority

Turning to the information shown in table 5.6, answers on accountability and direct reporting are broadly consistent. In addition, it can be concluded that a considerable degree of harmonisation has been achieved, since only the **five** regulators of France, Germany, Italy, Portugal and the UK report to an institution above the Ministry. Table 5.6 also shows that the regulators of **nine** member states report to the public, which takes the form of an annual report. These results indicate that the situation in the member states is broadly consistent with the provisions of the telecoms directives, which facilitate that regulatory action has to be ‘transparent and publicly available’. In contrast, the regulators of **four** member states, namely Germany, Italy, Luxembourg, and the Netherlands, do not consider that they report

to the public, although they do produce an annual report. It should be acknowledged that these answers may simply reflect differences in interpretation of the meaning of 'direct report' in the questionnaire. However, the requirement to produce annual reports has a theoretical basis. As introduced in section 3.4, regulation that is under constant public scrutiny, leads to an ongoing evaluation of regulatory legitimacy. Thus, it is concluded that **nine** member states have recognised this need to report to the public and hence have some form of direct public accountability.

Alongside the possibility of different interpretation of the question, another possible explanation for the mixed result on the reporting practices of the telecoms regulator is that in these countries there is a view on the part of the regulator and the government that the general public is not especially interested in economic regulation. Another possible explanation for this finding is that the accountability to superior institutions within each of these countries has a much greater priority. This would indicate, therefore, a more government-interventionist style of control over the telecoms regulator or, in other words, an emphasis on the proceduralist model of regulation, as identified by Majone (1996). These models were reviewed in chapter 3. To support the discussion of this issue, the questionnaire also collected information on who makes decisions within the regulatory authority. Table 5.7 shows the answers.

Table 5.7: *Decision-making within the national telecoms regulators, by member state*

<i>Member State</i>	<i>Regulatory Decisions Made By</i>
Belgium	Chamber/Council/Board (a)
Denmark	Chief regulator and key members of staff
Finland	Chief regulator and key members of staff
France	Chamber/Council/Board
Germany	Chamber/Council/Board
Greece	Chamber/Council/Board
Ireland	Chief regulator alone
Italy	Chamber/Council/Board
Luxembourg	Chamber/Council/Board
Netherlands	Chamber/Council/Board
Portugal	Chamber/Council/Board
Sweden	Chief regulator and key members of staff
UK	Chief regulator alone

(a) Member states have different names for what is essentially the same body.

As shown in table 5.7, regulatory decisions within **eight** telecoms regulators are reached in meetings of a chamber, a board or a council. This is consistent with a proceduralist approach to control, as part of which a democratic decision-making process for regulation is considered important. In contrast, it is evident that the northern countries

of the EU, namely Denmark, Finland and Sweden, have applied a decision-making process, in which the skills of the individual are more important than democratic decision-making. Similarly, Ireland and the UK concentrate decision-making powers within the telecoms regulatory authority, with the director general of telecommunications. Thus, these countries appear to have adopted a more centralised management style within the telecoms regulator, which points towards a more substantive mode of control. This conclusion will be discussed further in chapter 10.

Overall, this section has found that sub-hypothesis 2,

Sub-hypothesis 2: The telecoms directives of the European Commission have created harmonised *control over national telecommunications regulatory authorities* across the member states of the European Union,

is not rejected. This is so because, despite some disharmony of regulatory control remains between the member states, a considerable degree of harmonisation has been achieved. This becomes clear in the conclusions of this chapter, below. However, attention now turns to the analysis of issues related to basic powers of the national telecoms regulator.

5.3 Basic Powers and Responsibilities for Granting Market Access

Telecommunications in the EU are driven by the respective directives of the European Commission, and in particular by Directive 97/13/EC on licensing, which introduced specific and detailed provisions in terms of regulatory responsibilities associated with allowing operators into the market. It is expected, therefore, that the telecoms directives will have created a strong trend of harmonisation across the member states of the EU regarding market access. These considerations are related to the literature on regulatory governance, reviewed in section 3.3.3. More specifically, the literature associated with powers of the regulator argues that, although a dedicated agent is established, there might still be a delegation problem, in the sense that legislators might be reluctant to delegate powers due to policy credibility and issues of trust involved in the regulator-government relationship. However, the literature on policy transfer (Dolwitz and Marsh, 1997; Hood, 1994), also reviewed in section 3.3.3, suggests that the telecoms directives, as a form of coercive policy transfer, will override possible reluctance at the state level. Hence, telecoms regulators should be empowered according to

the directives of the European Commission and sub-hypothesis 3 was, therefore, established at the end of chapter 3 as:

Sub-hypothesis 3: The telecoms directives of the European Commission have created harmonised *responsibilities for granting market access* in telecommunications across the member states of the European Union,

To assess sub-hypothesis 3, the following information, which corresponds to questions 12 to 18 in table 5.1, was collected through the questionnaire. The questions are:

- Question 12: Who grants authorisation in the fixed markets?
- Question 13: Who grants authorisation in the mobile markets?
- Question 14: Were there any restrictions on the percentage of foreign capital?
- Question 15: Who allocates frequencies?
- Question 16: Who assigns frequencies?
- Question 17: Who grants digging rights?
- Question 18: Who grants antenna-building permits?

In addition to these questions, question 6 of the questionnaire collected answers on the responsibilities of the national telecoms regulatory authorities. The answer to 'Who provides operators with telephone numbers?' will be used in this section (other parts of question 6 will be discussed in chapter 6).

5.3.1 Licences, General Authorisations and Telephone Numbers

Directive 97/13/EC on licensing facilitates that an institution which allows telecoms operators to commence operations, and which provides companies with telephone numbers, has to be 'legally distinct from and functionally independent of' companies supplying telecoms networks and/or services. To assess the compliance of the authorisation regimes and if harmonisation between member states has been achieved, the following discussion presents the answers of the national regulatory authorities in regard to who grants general authorisations/licences, and who allocates telephone numbers.

Turning to the questionnaire results, table 5.8 shows the answers given on which institution is responsible for allocating telephone numbers and granting authorisations. It

is revealed that there are no surprises as far as allocating telephone numbers is concerned. The expectation associated with the telecoms directives is confirmed. This is so because the explicit provision of institutions allocating telephone numbers have to be 'legally distinct from and functionally independent of' telecoms operators has been fully implemented. The finding that **twelve** of the thirteen member states included in the study have solely empowered their telecoms regulatory authorities to allocate telephone numbers is a clear indication of harmonisation across the member states of the EU.

Table 5.8: *Institution(s) authorising operators, by member state*

<i>Member State</i>	<i>Licence/General Authorisation Granted by</i>	<i>Telephone Numbers Allocated by</i>
Belgium	NRA	NRA
Denmark	Ministry, NRA	NRA
Finland	Ministry	NRA
France	Ministry	NRA
Germany	NRA	NRA
Greece	NRA	NRA
Ireland	NRA	NRA
Italy	Ministry	NRA
Luxembourg	Ministry	NRA
Netherlands	Ministry	Ministry, NRA
Portugal	NRA	NRA
Sweden	NRA	NRA
UK	Ministry, DTI	NRA

NRA: national regulatory authority. DTI: Department of Trade and Industry

Regarding the granting of licences and general authorisations, table 5.8 shows a less clear picture, however.³ Of the member states replying, **four** countries, namely Finland, France, Italy and Luxembourg have reserved the right to grant licences by the Ministry alone. However, in Denmark and the UK, these powers are shared between the Ministry and the regulator, and in the Netherlands only the Ministry is responsible for these matters. The remaining **six** countries have solely entrusted their telecoms regulator to grant licences/general authorisations. It could be argued that Denmark, the Netherlands and the UK have applied an authorisation regime seemingly out of line with the other member states. However, the authorisation regimes in these three countries are not fundamentally different from the regimes in the other member states. Operators, which intend to make use of the public fixed line network and/or intend to construct their own network, only have to obtain a general authorisation from the Danish and the Dutch telecoms regulators (in the Netherlands, operators only have to register for the supply of fixed line networks and/or services).

³It was noted in chapter 2 that a general authorisation is granted without the need to acquire a licence. The distinction between a license and a general authorisation was made by the European Commission.

In contrast to this light regulatory regime, licences are required in Denmark, the Netherlands and the UK from the Ministry for the use and/or construction of mobile networks. In justifying this heavier regime, it has been argued by these countries (e.g. CEC, 2000a) that the needs of environmental protection have to be met, which requires a tighter control over the wireless sector than is pursued in the fixed line market.

5.3.2 Foreign Capital

An important issue related to granting authorisation is which operators are allowed into the national markets. As was emphasised in the General Agreement on Trade in Services (WTO, 1994), introduced in chapter 2, trade in telecommunications between member states should not be restricted by legislative obstacles. This provision has been implemented in the directives as follows. Operators which have received authorisation in one member state or a non-EU country should not be required to obtain new authorisation in another member state of the EU. This applies irrespectively of ownership. Hence, an obvious indicator of free trade in telecommunication is if there are any restrictions on the percentage of foreign capital a telecoms operator is allowed to have when entering the telecoms market of another member state. Of the regulators replying, only France indicated that foreign operators must be 80% nationally owned or, in other words, only 20% of an operator's assets are allowed to consist of foreign capital. This finding reveals that France is out of line with the other member states.

To provide an understanding of the French case, the country has in the past favoured a system of 'national champions', considered again in a different context in chapter 6. As part of this approach to industrial policy, representatives of the state and of trade unions have been present when decisions were made that affected the business activities of companies (e.g. Lewington, 1997, pp.69ff). Hence, applying a percentage limit on the foreign capital of telecoms competitors and preserving 'French' ownership probably reflects a widespread belief in France that the national telecoms market should be protected from foreign influence and that traditional decision-making processes are maintained.

5.3.3 Additional Conditions

Once an operator has obtained permission to commence operations, the suppliers of telecommunication networks may have, if they intend to build their own network, to obtain additional permission to lay earth cables or to build antennas. Such powers usually lie with local au-

thorities and are beyond the jurisdiction of regulators and Ministries. Therefore, Directive 97/13/EC on licensing facilitated the 'one-stop-shopping-procedure'. In essence, this procedure facilitates that operators should obtain authorisation from 'a single location' and after forwarding a 'single application'. This requirement was implemented to ensure that authorisation can be obtained easily and quickly, which in turn is regarded by the Commission as an essential feature to get competition under way.

It might be felt that this issue is of little importance and that it is just a formality for telecoms operators to obtain digging or antenna-building permits. However, experience shows that these 'rights of way' can act as a barrier to entry into telecommunications markets. This became evident in the Implementation Reports of the European Commission (e.g. CEC, 1999a, 2000a, 2001a), in which operators frequently expressed concern and discontent with the cumbersome and inconsistent procedures associated with obtaining 'rights of way' in Austria, Belgium, Italy, Luxembourg and Spain. For example, Belgian telecoms companies have repeatedly complained about inconsistent administrative charges and different procedures required for obtaining a licence between the regions of Belgium. In contrast, it is reported for the Netherlands that 'only a few' requirements have to be met if an operator intends to obtain authorisation.

Concerns about barriers to entry imposed by 'rights of way' were the reason why the questionnaire collected data on the requirements to be met in addition to obtaining authorisation. Turning to the findings, when asked what additional requirements have to be met to lay earth cables (question 17), ten regulators replied that digging rights have to be obtained from local authorities by means of application. Only the Dutch telecoms reported that digging rights are obtained automatically, a finding consistent with the light regulatory influence in this country as suggested by CEC (1999a) and Gibbon (2000). This leaves the UK and Sweden. In the UK, digging rights are granted by the Ministry when authorisation in the wire-based market is obtained. In Sweden, however, the telecoms regulator replied that the country's regulation does not specifically provide for digging right, since these powers have always been with local authorities. Therefore, operators have to apply for digging rights from these authorities and explicit legislation on the matter is not required. The consequences for operators are probably not different from those in other member states, in the sense that applications have to be put forward to obtain digging rights.

Regarding antenna-building permits in wireless communications (question 18), only the regulators of Portugal and the UK indicated that companies have to notify local authorities, which means that an application for a permit is not required. In contrast, the remaining

eleven member states indicated that operators have to apply for such permits. It is a common argument made by member states (e.g. CEC, 1999a) that environmental protection has to be ensured, for which local authorities are responsible. As noted earlier, environmental protection was the reason why Denmark and the Netherlands adopted a heavier authorisation regime in their wireless sectors. Nevertheless, difficulties in offering 'rights of way' could pose obstacles to the establishment of effective competition in telecommunications in the EU. This issue will be returned to in the conclusions to this chapter.

5.3.4 Frequencies for Mobile Communications

A special element of granting authorisation in wireless communications is, in addition to building networks, the need for frequencies. Frequencies are the medium through which information is transmitted, are a scarce resource and access to the available spectrum has to be limited, therefore. This is acknowledged by the telecoms directives, which allow tight regulations to be applied by the member states. Requirements for operators include, as set down by the telecoms directives, and Directive 97/13/EC (licensing) in particular, the 'efficient use' of frequencies. In cases where a supplier of mobile communications services does not comply with a requirement, regulatory authorities may apply a fine or even revoke a licence. This issue is discussed in detail in chapter 6.

To assess harmonisation of frequency allocation and assignment, the questionnaire collected information on which institution is responsible for allocating and assigning frequencies.⁴ This information was needed to assess the responsibilities of regulators and the degree of harmonisation on this matter within the EU. Turning to the answers collected in the questionnaire (questions 15 and 16), table 5.9 shows the situation in the member states of the EU.

Table 5.9 reveals that, as far as frequency assignment is concerned, almost complete harmonisation has been obtained across the member states reporting, with the national regulatory authority being responsible. Only Italy reserves the right to assign frequencies through the Ministry as well as the telecoms regulator, whereas in the UK, a separate institution, the Radio Communications Agency, is responsible for these matters.

In contrast, the allocation of frequencies reveals a somewhat diverging set of results. Belgium, Portugal and Sweden appear to have solely entrusted their telecoms regulators to make frequencies available for commercial use. This indicates a 'less tight' or less depart-

⁴Frequency allocation refers to 'making available for commercial use', whereas frequency assignment refers to the 'provision to operators'.

Table 5.9: *Institution(s) allocating and assigning frequencies, by member state*

<i>Member State</i>	<i>Frequencies Allocated by</i>	<i>Frequencies Assigned by</i>
Belgium	NRA	NRA
Denmark	Ministry, NRA	NRA
Finland	Ministry, NRA	NRA
France	National Frequencies Authority	NRA
Germany	Federal Government, NRA	NRA
Greece	Ministry	NRA
Ireland	Ministry, NRA	Ministry, NRA
Italy	Ministry	Ministry, NRA
Luxembourg	Ministry	NRA
Netherlands	Ministry	Ministry
Portugal	Ministry, NRA	NRA
Sweden	NRA	NRA
UK	Radio Communications Agency	Radio Communications Agency

NRA: national regulatory authority

mental approach to maintaining control over mobile communications. In contrast, in Greece, Luxembourg and the Netherlands, the Ministries reserve the right to administer these tasks, which indicates a 'tighter' or more centralised approach to maintaining control over the wireless sector. In this respect, Denmark, Finland and Ireland are somewhere in between because their telecoms operators allocate frequencies in conjunction with their Ministries.

This leaves France, Germany and the UK. France and the UK appear somewhat out of line because a separate frequencies authority other than the regulator and the Ministry is involved. Regarding France, this again suggests, alongside the restrictions on foreign capital referred to above, that France adopts an approach to some aspects telecommunications regulation that is distinctive within the EU. The UK, however, will undergo some change in telecoms regulation in the near future, when the newly formed Office of Communications will be entrusted with frequency matters. Turning to Germany, the country seems to have adopted an approach to making frequencies available for commercial use that is completely different from all other member states. It should be noted in this context that, after World War II, a Broadcasting Agreement between the German states was established. This agreement is a German peculiarity and the Federal Government has, among other issues, always been responsible for regulation and use of commercial frequencies in and between the states. The agreement has survived the restructuring of German telecommunications in the 1990s, although some powers associated with frequency allocation were passed to the German telecoms regulator (RegTP, 2001). It should be emphasised that, consequently, the agreement manifests a tight mode of control over the mobile communications sector because the powers

of frequency allocation are reserved to the German Federal Government.

However, to conclude this section, it appears that a considerable degree of harmonisation has been achieved between member states regarding the responsibilities for granting market access in telecommunications. Therefore, sub-hypothesis 3,

Sub-hypothesis 3: The telecoms directives of the European Commission have created harmonised *responsibilities for granting market access* in telecommunications across the member states of the European Union,

is not rejected. This conclusion is now discussed further, in the context of the overall purpose of this chapter.

5.4 Conclusions

This chapter has been concerned with reporting the questionnaire results relating to the first three sub-hypotheses as set down at the end of chapter 3. The discussion below highlights issues that arise and which will be taken up as part of the overall conclusions of this research project in chapter 10. The discussion of the above results starts with an assessment of each of the three sub-hypotheses individually, followed by a discussion on the overall assessment of regulatory governance. The assessment is provided on the basis of the framework for analysis, shown in figure 3.2, as developed on page 104 in chapter 3.

5.4.1 Assessment of Sub-hypothesis 1

This chapter started by exploring the questionnaire answers related to sub-hypothesis 1:

Sub-hypothesis 1: In accordance with the telecoms directives, the regulatory framework was *in place in full by 1 January 1998*.

Earlier in this chapter, namely in section 5.1, it was found that member states have responded to the telecoms directives at different speeds. More specifically, as shown in table 5.2, above, telecoms regulators across the EU were operational and markets were opened to full competition at different dates. This phenomenon supports some arguments provided by the literature reviewed in section 3.3.3. In particular, Thatcher (1999) points to different historical developments across countries, based on which varying policies and procedures develop. Despite these differences, Thatcher (*ibid*) also emphasises that harmonised approaches can emerge over time.

Certain harmonised approaches seem to have finally been achieved in European telecommunications. The telecoms directives, which pose a form of coercive policy transfer, using the terminology of Dolwitz and Marsh (1997) and Hood (1994) introduced in section 3.3.3, have forced member states to establish regulatory authorities and to open their telecoms markets to full competition. Although some delays occurred, which were allowed by the European Commission and used by Greece and Portugal (CEC, 2000a; Lewington, 1997), the fifteen member states have now established telecoms regulators and all markets are now open to full competition. In addition to the deferments, some member states, namely France, Ireland and a country whose telecoms regulator asked to remain anonymous, had yet to transpose several provisions of Directive 97/66/EC on data protection. The regulator of the member state which preferred to remain unnamed, indicated that there were several impeachments pending regarding the non-compliance with Directive 97/66/EC.

Overall, however, sub-hypothesis 1 is not rejected for the following reasons. Broad harmonisation between the member states has now been achieved and a common regulatory framework is in place. Delays related to opening national telecoms markets to full competition were allowed, and delays alone do not justify the rejection the sub-hypothesis. It is concluded, therefore, that a regulatory framework is in place and a high degree of harmonisation has been achieved between the member states of the EU in terms of the implementation of the regulatory framework as set down by the telecoms directives.

5.4.2 Assessment of Sub-hypothesis 2

Section 5.2 looked at issues related to regulatory control, which are summarised in table 5.1, above. This is linked to the literature reviewed in section 3.3.3, in the sense that policy credibility is at risk when regulatory authorities are established. Therefore, legislators may want to exert control over the regulatory authority. However, the requirement of 'legal distinction and functional independence' set down by the telecoms directives of the European Commission is expected to harmonise approaches across the member states. Therefore, sub-hypothesis 2 was established as:

Sub-hypothesis 2: The telecoms directives of the European Commission have created harmonised *control over national telecommunications regulatory authorities* across the member states of the European Union.

Before a discussion is presented as to whether this sub-hypothesis should or should not be rejected, it is beneficial to provide some explanation on the method of hypothesis testing used.

It is acknowledged that, in order to obtain a basis for judgement, only one indicator could be used to assess a sub-hypothesis. However, this principle is modified in the discussion below. Due to the complexity of issues involved in regulatory control in EU telecommunications, a range of indicators is used to assess sub-hypothesis 2. A combination of indicators is beneficial because the context of the issues discussed, in which the sub-hypothesis is assessed, would otherwise be lost. The approach of using more than one indicator will be used to test the remaining sub-hypothesis later in this thesis. The following indicators are used in the assessment of sub-hypothesis 2:

- appointment of the chief regulators;
- appointment of key members of staff other than the chief regulators;
- decision-making within the regulatory authorities;
- direct reporting and accountability of the telecoms regulatory authorities;
- degree of independence of telecoms regulators.

Appointment of the chief telecoms regulators. In terms of recommendation when appointing the regulator, shown in table 5.4, above, there is a considerable degree of harmonisation, since **eleven** member states do rely on the recommendation of the Ministry or key regulatory personnel when a decision is made as to who should be the regulator. This harmonisation cannot, however, be directly attributed to the telecoms directives because they do not include explicit provisions on this matter. It is concluded, therefore, that factors are in play leading to harmonisation in this respect that are beyond the directives of the European Commission. An explanation for the degree of harmonisation achieved is provided by DiMaggio and Powell (1991) and Dolwitz and Marsh (1996), who have argued that *normative* and *mimetic* policy transfer can account for consistent policy applications between countries. Especially the cross-country mimetic effects identified in section 3.3.3 appear to have played a part in the harmonisation discussed above. Recommendations on regulatory appointments are now commonly made based on an individual's experience and expertise and the new telecoms directives advocate cooperation between telecoms regulators to achieve a harmonised application of the telecoms regulatory framework.

Turning to who appoints the regulator, also reflected in table 5.4, the harmonisation achieved is less strong. **Six** member states, namely Belgium, Denmark, Ireland, Luxembourg, the Netherlands and the UK, appoint their chief telecoms regulators by Ministerial decision.

In contrast, the remaining **seven** member states reserve this decision for institutions above the Ministry. However, the provision of 'legal distinction and functional independence' does, at least in part, have an influence on regulatory appointments. This is so because member states may feel prevented from directly appointing politicians or Ministerial personnel as the chief telecoms regulator, also because it conflicts with the need for regulators to have the appropriate skills and expertise. In this way, political patronage should be prevented. In **seven** member states. Political patronage might not be an issue, because the position of the chief telecoms regulator is publicly advertised. But in the other **five** member countries, namely France, Germany Greece, Portugal and Sweden, the positions are appointed in internal processes and, hence, there might be an element of political patronage.

Overall, the appointment of the chief telecoms regulators does not provide conclusive evidence as to whether sub-hypothesis 2 should or should not be rejected.

Appointment of key members of staff other than the chief regulators. The questionnaire also collected information on key members of staff. Table 5.5 shows that competitive selection is the predominant method to appoint key regulatory personnel. Only Luxembourg uses recommendations by the Ministry and other governmental institutions. These findings reveal that there is a strong tendency towards harmonisation between the member states of the EU in this respect, which can be associated with the telecoms directives. The directives require 'legal distinction and functional independence' of regulatory authorities. Therefore, if only civil servants are transferred from the Ministry to the regulator, then the requirement of 'legal distinction and functional independence' might not be met. Drawing from this requirement, table 5.5, above, suggests that most member states may feel prevented from exclusively appointing civil servants to their regulatory offices. Hence, the telecoms directives should be held accountable for the harmonisation achieved.

Decision-making within the regulatory authorities. In regards to regulatory decision-making (see table 5.7), it was revealed that two basic approaches have been adopted by the member states. More specifically, in the northern European Countries, namely Denmark, Finland and Sweden, regulatory decisions in telecoms are made by the chief regulator alone or by key members of staff. A similar approach has been adopted by the Irish and the UK regulators, where decisions are made by the chief regulator alone. In contrast, the regulators of the remaining **eight** member states reach decisions in board, chamber or council meetings. This situation provides evidence for the existence of the two models of regulatory control, namely *proceduralist* and *substantive*, which were discussed in section 3.3.3. These models of control

will be discussed further in chapter 10, in the context of the overall conclusions of the research. However, to attribute the degree of harmonisation of regulatory decision-making directly to the telecoms directives is difficult because no specific provisions exist regarding the appropriate form of the regulatory decision-making process. Instead, once again, primarily cross-national mimetic and normative policy transfer seem more likely to account for the degree of harmonisation achieved between member states.

Direct reporting and accountability of the telecoms regulatory authorities. In terms of direct reporting, the requirement for telecoms regulatory authorities to report on their activities is facilitated by all telecoms directives, which require governments to keep the European Commission informed on national regulatory matters. In addition, there are the provisions of 'transparency' and 'public availability' of regulatory action. Since, as shown in section 5.3.2, all telecoms regulators produce some form of annual report, and, as shown in table 5.6, **eight** directly report to the Ministry, it is concluded that the telecoms directives account, at least in part, for harmonisation on this issue. In addition, 'good regulatory practice', drawing mainly from cross-national mimetic and normative policy transfer, is probably also important in terms of democratic accountability.

In terms of overall regulatory accountability, the picture is somewhat mixed. This is not least because of the provision in the telecoms directives for 'legal distinction and functional independence', which does not require specific forms of regulatory accountability. As reflected in table 5.6, the telecoms regulators of **four** member states, namely Belgium, Denmark, Greece and the Netherlands, are directly and solely accountable to their Ministries. Similarly, in Finland, France, Ireland and Luxembourg, the telecoms regulators are accountable to the Ministry and the Parliament. In the remaining **five** countries, however, telecoms regulators appear to be solely accountable to state institutions above the Ministry. The conclusion is, therefore, that a weak degree of harmonisation in telecoms regulation accountability within the political system has been achieved between the member states of the EU.

Degree of independence of telecoms regulators. Finally, the degree of independence of the telecoms regulators can be assessed when taking into account the categories set down by Ogus (2003), as discussed in section 3.3.3 in chapter 3. The analysis in this section has revealed that, firstly, the telecoms regulators are subject to some form of accountability. This is shown in table 5.6, above. Secondly, the recommendation and the decision as to who will be the chief regulator (see table 5.4) is in the member states of the EU commonly reserved to

institutions within the state hierarchy. Thirdly, table 5.5 indicates that key members of staff are recruited from governmental and non-governmental sources. Fourthly, the organisational structure of the telecoms regulators and, therefore, the way decisions are reached (shown in table 5.7), is determined by the Telecoms Acts of the member states. Hence, decision-making within the telecoms regulators is in accordance with the governmental guidelines.

These four indicators allow the conclusion that the telecoms regulators which replied to the questionnaire are *semi-independent* entities in the theoretical sense, though some may consider themselves as independent (e.g., as will be seen in chapters 8 and 9, the Greek and the Dutch telecoms regulators). This harmonisation can be attributed to the telecoms directives, and in particular to the provision of 'legal distinction and functional independence'.

Overall, it is concluded that sub-hypothesis 2 is *not* rejected. There is only one indicator (i.e. decision-making) that is in clear favour of a rejection, but three (i.e. appointment of key members other than the chief regulator, degree of independence, direct reporting and accountability) which clearly suggest that the sub-hypothesis should not be rejected. In addition, there is only one indicator (i.e. appointment of the chief regulator), which has provided inconclusive evidence, but even this contains some elements of harmonisation attributable to the telecoms directives of the European Commission.

5.4.3 Assessment of Sub-hypothesis 3

Section 5.3 analysed the answers given in the questionnaire regarding the powers and the responsibilities of regulatory authorities. These were discussed in terms of the literature on the delegation of responsibilities to regulatory authorities, reviewed in section 3.3.3, above. The discussion in this chapter regarding responsibilities/powers of telecoms regulators was concerned with sub-hypothesis 3:

Sub-hypothesis 3: The telecoms directives of the European Commission have created harmonised *responsibilities for granting market access* in telecommunications across the member states of the European Union.

To make an assessment, the following range indicators is used to ensure the context of the issues involved is not lost:

- allocation of telephone numbers;

- authorising operators;
- frequency allocation and assignment;
- 'rights of way';
- foreign capital.

Allocation of telephone numbers. Table 5.8 indicates a strong trend towards harmonisation. Only the Netherlands reserves the right to allocate telephone numbers through their regulator in conjunction with the Ministry. The harmonisation achieved draws directly from the telecoms directives, and Directive 97/13/EC on licensing in particular, which facilitates that institutions providing operators with telephone numbers should be 'legally distinct from and functionally independent of' telecoms operators.

Authorising operators. Regarding licences and general authorisations, table 5.8 indicated that there is still evidence of harmonisation even though in only **six** member states is the national telecoms regulator solely responsible for authorising operators. In **three** member states, these powers are shared between the Ministry and the regulator, and in the remaining **four** countries, the Ministries reserves the right to exercise these powers. This situation can be linked with the literature reviewed in section 3.3.3, in the sense that some legislators pass on more responsibilities than others to regulatory agencies. However, harmonisation of this issue again draws from Directive 97/13/EC, which facilitates that institutions providing authorisation have to meet the requirement of 'legal distinction and functional independence' of telecoms operators.

Frequency allocation and assignment. The next indicator to assess sub-hypothesis 3 is frequency assignment. This is linked with the telecoms directives on the common use of technology, reviewed in chapter 2, in the sense that the incumbent telecoms operators are not allowed to provide operators with frequencies. Regarding this issue, no real surprises were found in table 5.9. **Nine** member states have solely entrusted their telecoms regulators to assign frequencies. Only in Italy and Ireland are these powers shared between the regulator and the Ministry, and in the UK these powers lie with the Radio Communications Agency (though this will change when the Office of Communications commences operations in the near future). In the Netherlands, these rights lie with the Ministry. It seems that the country maintains a somewhat more obvious political control over telecommunications regarding telephone numbers and frequencies. Again, the provision of 'legal distinction and

functional independence' also applies to the provision of frequencies to operators and, hence, the directives can be held accountable for harmonisation of this issue. Also, the 'one-stop-shopping-procedure', facilitated by the same directive, is likely to be the reason why member states have placed the powers of authorising operators with one institution, that is, the telecoms regulator.

In terms of frequency allocation, the process of making frequencies available for commercial use (also shown in table 5.9), the picture is somewhat mixed. In **three** member states, namely Belgium, Portugal and Sweden, frequencies are solely allocated by the telecoms regulator. In contrast, in Denmark, Finland and Ireland, frequencies are allocated by the Ministry. In Greece, Italy, Luxembourg and the Netherlands, the right of frequency allocation is solely reserved to the Ministry. This leaves France, Germany and the UK, where institutions other than the Ministries or the telecoms regulators conduct these tasks. It is concluded, therefore, that the telecoms directives only account for a weak degree of harmonisation in this area. National legislators may be inclined to maintain a tighter control for reasons of upholding communications and national security (Solomon and Walker, 1996). Hence, no harmonisation has been found. But it should be emphasised that the directives do not specifically provide for frequency allocation and, hence, there is no apparent conflict. Also, given the variety of methods used internationally, it does not seem to be 'good regulatory practice', in the sense of normative and mimetic policy transfer, to place the responsibilities of frequency assignment solely with the telecoms regulators.

'Rights of way'. It is concluded that a focus on the 'one-stop-shopping-procedure' may be too narrow or even insufficient. This is particularly because member states struggle with harmonising the application of procedures associated 'with rights' of way. This is probably because these powers are usually held by local authorities that are beyond the jurisdiction of some national legislators and, consequently, of telecoms regulators. Arguably, 'rights of way' should have been included in the scope of the 'one-stop-shopping-procedure' because, as found earlier, operators have repeatedly complained about inconsistent and cumbersome procedures associated with obtaining digging rights and antenna-building permits (e.g. CEC, 2001a). However, to have included 'rights of way' in the scope of the directives would have proved highly problematic because of differences in central-local powers at the national level (Cave and Prosperetti, 2001).

It should be acknowledged at this stage that the questionnaire provides insufficient information regarding 'rights of way' to pursue this matter further. Further research would

have to be conducted to obtain more conclusive findings, guided by the following research questions:

- (1) Are inconsistent and cumbersome 'rights of way' a serious obstacle to market entry?
- (2) Do operators accept any requirements associated with obtaining 'rights of way' because the prospective returns on investment outweigh the inconvenience of cumbersome and tedious regulations?

Foreign capital. Operators which have received authorisation in one member state or a non-EU country should obtain authorisation in another member state automatically, which applies irrespectively of ownership. The analysis of this issue above has shown that only France requires foreign operators to be 80% French owned. Hence harmonisation has been achieved, which can be attributed to the directives directly.

To summarise the assessment of powers and responsibilities of telecoms regulators in the EU, the harmonisation found in the allocation of telephone numbers, authorising operators and foreign capital can be attributed to the directives. In contrast, differences have been noted regarding the issue of 'rights of way', which suggests a rejection of the sub-hypothesis. Regarding frequency matters, frequency allocation shows a considerable degree of disharmony, whereas the harmonisation achieved in frequency assignment can be attributed to the telecoms directives. Therefore, frequency matters provide inconclusive evidence as to whether sub-hypothesis 3 should be rejected. However, overall, three indicators suggest non-rejection, one suggests that the sub-hypothesis should be rejected and one provides inconclusive evidence. Therefore, sub-hypothesis 3 is not rejected.

5.4.4 Summary of Regulatory Governance

This chapter has analysed, based on the questionnaire included in appendix B, issues in European telecoms regulation that are related to harmonisation of regulatory governance. More specifically, the first part of this chapter has looked at the transposition of the telecoms regulatory framework, composed of the telecoms directives of the European Commission. This was followed by an analysis of regulatory control and finally, powers and responsibilities of telecoms regulatory authorities for granting market access.

Overall, this chapter has found that there is a considerable degree of harmonisation in telecoms regulation between the member states of the EU, which can, in many instances, be directly attributed to the telecoms directives. In some instances, however, mainly regarding

issues of regulatory control, the degree of harmonisation achieved appears to draw more from 'good regulatory practice' or, in other words, cross-national mimetic and normative policy transfer (Dolwitz and Marsh, 1997; Hood, 1994). This is so because the directives do not impose specific provisions for the many issues of regulatory control (see section 3.3.3 for the theoretical basis), and yet a degree of harmonisation has been achieved in the regulation of these matters across the member states of the EU. These findings are reflected in table 5.10.

Table 5.10: *The sources of harmonisation discussed in this chapter*

<i>Issue</i>	<i>Source of Harmonisation</i>
Transposition of the Telecoms regulatory framework	telecoms directives
Control over regulatory authorities	telecoms directives normative and cross-national mimetic policy transfer
Basic powers and responsibilities for granting market access	telecoms directives

Besides the degree of harmonisation achieved, some disharmony remains, which mainly relates to issues of regulatory control. This result seems to support the argument of Thatcher (1999), in the sense that different approaches and policies exist between countries because of historical and other inherited factors, though differences may diminish over time. This is particularly likely when coercive policy transfer occurs (Dolwitz and Marsh, 1997; Hood, 1994), which some of the telecoms directives represent (see section 3.3.3). Although it was found in the analysis of this chapter that the telecoms directives did not yet override some continuing differences in national regulatory control, a higher degree of harmonisation is to be expected as time goes on.

If these findings are linked with the framework for analysis in figure 3.2 on page 104, some explanation as to *why* harmonisation has been achieved can be provided. Firstly, the telecoms directives account for harmonisation. Secondly, normative and cross-national mimetic policy transfer, that is, 'good regulatory practice', have probably also contributed to the degree of harmonisation achieved. Thirdly, some issues, such as aspects of regulatory control and 'rights of way', have yet to be harmonised and, hence, no source of harmonisation has been identified. However, these explanations alone do not provide a satisfactory answer as to *why* some differences remain. Therefore, and to provide a fuller understanding, chapters 8 and 9 will take into account country-specific aspects more fully.

Before attention turns to the analysis of regulatory intervention in the following chap-

ter, it is noteworthy that a recurring theme in the analysis of this chapter was evidence on the two different forms of regulatory control, namely *substantive* and *proceduralist*. These modes of control were identified by Majone (1996). More specifically, and as discussed in section 3.3.3, these models are concerned with how much state involvement there is when regulators are appointed and when decisions are reached within the regulatory authority. Chapter 10 will combine the findings on the substantive and the proceduralist models with the findings on the approach to market intervention in the following chapter to form a new framework for analysing any regulated industry. The framework formally illustrates why complete harmonisation in EU telecommunications has yet to be achieved.

Chapter 6

Analysis of Market Intervention by Regulatory Authorities

After the analysis of issues related to market liberalisation and regulatory governance, this chapter considers the market intervention conducted by the regulatory authorities in the member states of the EU. The review of the literature in chapter 3 revealed that the overall objective of market intervention is to remove the sources of market failure, which then allows for effective and durable competition to develop. Drawing from this objective, the theoretical understanding obtained in section 3.4 provided a rationale for establishing regulatory authorities whose primary task it is to tackle the sources of market failure. When this understanding is put into perspective alongside the telecoms directives, it becomes clear why the European Commission has facilitated the establishment of national regulatory authorities to achieve harmonised telecommunications markets across the EU. As was discussed in chapter 2, some of the provisions are discretionary, and member states may have adopted different approaches to their implementation. However, as reviewed in section 3.3.3, the directives represent a form of coercive policy transfer because the member states have no choice but to transpose their provisions. It is for this reason that there should be a high degree of harmonised telecoms market intervention across the member states of the EU.

The assessment of the degree of harmonisation of regulatory intervention looks at the *overall approach* to regulation, *meeting wider economic interests* through regulation and satisfying specific economic interests in the form of *controlling market power*. The analysis of these aspects is guided by three sub-hypotheses as follows:

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Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union.

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

To provide answers to these areas, the questionnaire asked the questions listed in table 6.1.

Table 6.1: *Questions asked in the questionnaire that are analysed in this chapter*

Number (a)	Question (b)
6	What are the responsibilities of the NRA?
19	Are price caps used? If yes, for how long is X set?
20	Which operators have their consumer charges regulated?
21	Which operators have their charges for interconnection and leased lines regulated?
22	By which methods is effective competition assessed?
23	By which means/methods does the NRA enforce decisions?

NRA: national regulatory authority

(a) To allow for consistency, the analysis of these questions does not always follow the chronology in the questionnaire.

(b) For reasons of space, the questionnaire text has been truncated. A full copy of the questionnaire is included in appendix B.

The discussion begins by considering the overall approach to market intervention in the telecoms markets of the member states of the EU.

6.1 The Overall Approach to Telecoms Market Intervention

The basis of analysis in this section draws from the literature reviewed in sections 3.3.1 and 3.4, and is, in particular, associated with achieving effective and durable competition through removing the sources of market failure. Based on these intentions, the telecoms directives have introduced a set of overall provisions that are considered as necessary by the European Commission to achieve effective and durable competition. In detail, the telecoms

directives have set down the following broad responsibilities for national regulatory authorities: *enforcing competition*, *determining the effectiveness of competition*, and *monitoring the competitive behaviour of telecoms operators*. These are the aspects covered by sub-hypothesis 4 (as in the previous chapter, several indicators are used to assess one sub-hypothesis):

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

6.1.1 Enforcing Competition in National Telecommunications

The following discussion draws from answers provided by the regulatory authorities in the member states to the questionnaire in appendix B and especially questions 6 and 23:

- Question 6: What are the responsibilities of the NRA?
- Question 23: By which methods does the NRA enforce decisions?

Turning to the answers, the first indicator of the overall approach to market intervention is whether regulatory authorities are empowered to enforce competition in national telecommunications. This is one part of question 6. All member states recognise the need to entrust their regulatory authorities to enforce competition. This finding is generally expected given the intentions of the telecoms directives and the respective provisions to achieve harmonisation between the member states of the EU. Regarding Finland, however, the answer that the country's telecoms regulator is empowered to enforce competition is, at the first glance, somewhat unexpected, given that Finnish telecommunications were never subject to monopoly supply by a single firm. One possible explanation for this answer is that the Finnish regulator considers that there are competitors in the market that have 'significant market power'. To remove these powers as a possible source of market failure, as discussed in section 3.3.1, is likely to be an ongoing priority of the Finnish telecoms regulator.

The questionnaire also collected information about which means and methods are used by regulatory authorities to enforce decisions that concern competition. This corresponds with question 23 and its results are shown in table 6.2.

As reflected in table 6.2, **nine** member states have empowered their regulators to revoke authorisations of market access alongside fining operators, if an infringement of the conditions, under which licences and/or general authorisations were granted, occurs. Alongside these measures, Portugal and Sweden apply court injunctions. In addition, Ireland,

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Table 6.2: *Methods by which regulatory decisions are enforced, by member state*

<i>Member State</i>	<i>Revoke Authorisation</i>	<i>Fine Operators</i>	<i>Other Means</i>
Belgium			x
Denmark	x	x	
Finland	x		
France	x	x	
Germany	x	x	
Greece	x	x	x
Ireland	x	x	x
Italy	x	x	
Luxembourg	x		
Netherlands	x	x	
Portugal	x	x	x
Sweden			x
UK	x	x	x

Other Means includes court orders, decrees, injunctions, expert opinions.

Sweden and the UK use directions from the director general. Although it seems, at the first glance, that Sweden has applied a different approach to enforcing regulatory decisions, court injunctions and directions from the chief regulator may result in fines and/or the revoking of authorisation.

Interestingly, Belgium is the only other country in the study that seems to exclusively apply 'other means' to enforce regulatory decisions. These take the shape of Royal or Ministerial decrees, and directions of the regulator on the basis of expert opinions. Although this approach seems somewhat 'lenient' compared with the powers of revoking authorisations and fining operators used in the other eleven member states, it should be emphasised that none of the respondents has so far chosen to revoke a licence. This is so, as was emphasised in the questionnaire, because revoking a licence is reserved for severe infringements of conditions under which market access was granted, and such forms of non-compliance have not occurred to date. In contrast, it could be argued that a Royal Decree poses a bigger incentive to not infringe authorisation conditions than comparable regulatory action. This may in particular be the case in Belgium, where the monarchy still has a large influence on society.

It should be acknowledged, however, that the present state of understanding leaves much detail remaining by which means and methods competition is enforced in telecommunications markets across the member states of the EU. This issue is, therefore, be further investigated in section 6.3.

6.1.2 Determining the Effectiveness of Competition and Monitoring the Competitive Behaviour of Telecoms Operators

The European Commission in its telecoms directives has repeatedly stressed the importance of competition measures and these are regarded as an integral part of the reporting requirements of member states. Moreover, as analysed in the following chapter, determining the effectiveness of competition and monitoring the competitive behaviour of operators, are essential requirements to obtain the information needed to apply incentive measures, such as price cap regulation, if an operator has scope to generate unacceptable or supernormal profits. To investigate this situation, this section is concerned with the analysis of questions 6 and 22, listed in table 6.1:

- Question 6: What are the responsibilities of the NRA?
- Question 22: By which methods is effective competition assessed?

Turning to the questionnaire findings, another part of question 6 asked whether telecoms regulators monitor the competitive behaviour of telecoms operators. It appears that a considerable degree of harmonisation has been achieved because **eleven** regulatory authorities reported that they monitor the competitive behaviour of their telecoms operators. This only leaves Belgium and Sweden not administering this responsibility. On determining the effectiveness of competition, another part of question 6, **ten** member states indicated that their regulators are empowered to meet this requirement in the telecoms directives. Only the telecoms regulators of Belgium, Finland and Luxembourg do not determine the effectiveness of competition in their telecommunications markets. This may, in the Belgian case, suggest that the national regulatory authority is not interested in the effects of regulatory action. However, a more likely reason is that the regulator is not empowered under Belgian telecoms legislation to fulfil this requirement.

In terms of Luxembourg, although the competitive behaviour of operators is monitored, the regulator does not determine the effectiveness of competition in national telecommunications. This may be to do with the small size of the country's telecommunications system, which makes it unnecessary to determine which sectors have yet to become competitive because the system is easily overseen. Finally, the reason why the regulatory authority in Finland does not determine the effectiveness of competition may draw from the history of telecommunications in this member state. As mentioned before, telecoms services were never subject to monopoly supply by a single firm. Therefore, Finnish legislation may regard the

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effectiveness of competition only as a minor issue, assuming that competition was broadly effective before the telecoms directives of the EU took effect.

In addition to determining the effectiveness of competition and monitoring the competitive behaviour of operators, the questionnaire, and in particular question 22, collected information on the methods by which the effectiveness of competition is determined in telecommunications of the member states. Leaving aside Belgium, Finland and Luxembourg (these telecoms regulators do not determine the effectiveness of their markets), a strong trend towards harmonisation seems to have occurred for the remaining ten member states. This finding is summarised in table 6.3.

Table 6.3: *Methods by which the effectiveness of competition is determined, by member state*

<i>Member State</i>	<i>Market Share by % Revenue</i>	<i>Market Share by % Customers</i>	<i>Profitability</i>	<i>Other Means</i>
Belgium	n/a	n/a	n/a	n/a
Denmark		x		
Finland	n/a	n/a	n/a	n/a
France	x	x		x
Germany	x	x		
Greece	x	x	x	x
Ireland	x	x	x	x
Italy	no reply	no reply	no reply	no reply
Luxembourg	n/a	n/a	n/a	n/a
Netherlands	x	x		x
Portugal	x	x	x	x
Sweden	x	x		x
UK	x	x		x

n/a: not applicable.

Other Means refers to number of commercial agreements for leased lines, financial ratios as detailed in the main text of this section, and qualitative methods of assessment, also detailed in the main text.

Based on the answers to question 22, table 6.3 indicates that member states use market shares by percentage of revenues, market shares by percentage of customers, profitability, and other means to determine the effectiveness of competition. It should be emphasised that what is included in the column *Other Means* in table 6.3 is, to a considerable degree, subject to the discretion used by the telecoms regulators. For example, Ireland uses information on customer satisfaction and survey data, alongside the other indicators shown in table 6.3. In contrast, the Netherlands has applied an extensive system of specific indices. These comprise of percentage of revenues, the ability of an operator to control access to end-users, and the ability to influence market conditions. Likewise, Portugal's system of accountancy ratios consists of profitability, the percentages of revenues and users, minutes per user, revenues per user, and call duration. Finally, France, Greece, Ireland, Portugal, and Sweden use the number of commercial agreements between operators for leased lines and interconnection

when assessing the competitiveness of their telecommunications markets.

At a glance, the findings in table 6.3 reveal a mixed picture, and it is difficult, therefore, to make an assessment as to whether harmonisation has been achieved. This is so because the telecoms directives only facilitate, as a general theme, the rather vague provision that telecoms regulators should 'determine the effectiveness of competition'. This was discussed in chapter 2. However, the Independent Regulators Group, the association of telecoms regulators in the EU, has issued a document (IRG, 2001) committing the regulators to use more than one indicator to determine the competitiveness of markets. The answers provided in the questionnaire reveal that all member states, except Denmark, use at least two indicators. This leaves Denmark as out of line with the other member states of the EU, since the country only uses market shares measured through the percentage of consumers served.

Overall, sub-hypothesis 4,

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union,

is not rejected. Although it might be felt that more justification regarding this conclusion is required at this point, the conclusions of this chapter, below, will discuss this finding in more depth.

6.2 Meeting Wider Economic Interests

Besides controlling market power, which will be considered in section 6.3, Trebing (1987) has, as discussed in chapter 2, emphasised that industry regulation is targeted to meeting the wider interests of the economy. Complementary to such a view, the telecoms directives of the European Commission have facilitated measures in the form of provisions on universal services, ensuring the quality of telecommunications services, and the chance for consumers to complain to the telecoms regulator about poor service quality. Analysing these responsibilities in telecoms regulation across the EU provides an understanding on how member states have shaped regulation. To enable such an assessment, this section looks at *universal services*, *tackling information asymmetry* and *quality standards*. This analysis draws, again, from question 6 in the questionnaire: What are the responsibilities of the NRA?, and is guided by the following sub-hypothesis:

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union.

6.2.1 Universal Services

The first issue investigated in the context of meeting wider economic interest is the universal service obligation, which has been facilitated by the telecoms directives, and by Directive 98/10/EC on new voice telephony in particular. The provision of universal services is, as introduced in section 3.3.1, a form of *merit good*. Merit goods are, in the case of telecommunications, services whose availability should be ensured even if the market would discontinue their supply. To ensure their availability, the regulatory authorities are allowed under the telecoms directives, to include a condition in the authorisation of operators, which forces companies, such as the former monopolies, to supply universal services.

Table 6.4: *The situation regarding the universal service obligation, by member state*

<i>Member State</i>	<i>Situation Regarding USO</i>
Belgium	incumbent entrusted
Denmark	incumbent entrusted
Finland	not entrusted
France	incumbent entrusted
Germany	incumbent entrusted
Greece	incumbent entrusted
Ireland	incumbent entrusted
Italy	incumbent entrusted
Luxembourg	not entrusted
Netherlands	not entrusted
Portugal	incumbent entrusted
Sweden	incumbent entrusted
UK	incumbent entrusted

USO: universal service obligation

Turning to the answers in the questionnaire on the provision of universal services, table 6.4 reflects the situation in the member states. Finland, Luxembourg and the Netherlands emphasised that there has been, to date, no need to ensure the availability of universal service by regulatory means (although the regulators in these countries have the power to enforce provision, should this become necessary). Regarding Finland, it is important to remember that the country never had a single telecoms monopoly, and universal services have always been provided by means of competition. For Luxembourg, the small size of the country may be a factor in the regulator's answer, which makes enforcing the supply of universal services unnecessary. The Netherlands, however, has repeatedly been treated

as having achieved an advanced state of competition (e.g. CEC, 2000a; Gibbon, 2000). It is possible, therefore, that regulatory action to ensure the availability of universal services is considered redundant under Dutch telecoms market intervention. This finding, together with the Finnish situation, may indicate that competition is, without market intervention, able to avoid the discontinuation of merit goods and is, therefore, able to avoid this form of market failure. Chapters 8 and 9 look more closely at the state of competition achieved in Finland and the Netherlands.

In contrast to Finland, Luxembourg and the Netherlands, the regulators of the remaining **ten** countries have, as shown in table 6.4, entrusted their incumbent operators to provide universal services. Therefore, harmonisation has been achieved regarding this matter and in accordance with the telecoms directives of the European Commission.

It is interesting to note that, of those **ten** countries, only France and Italy have to date compensated their incumbent telecoms operators for the provision of universal services out of a national fund (CEC, 2002f, Annex 2, pp.27f). In France, the net costs compensated totalled €128.7m in 2000, whereas Italy refunded €85.90m in the same year. Although these **two** countries may be considered as out of line with the other member states, it needs to be emphasised that the telecoms directives, and in particular Directive 97/33/EC on interconnection, allow member states to implement a funding mechanism for the provision of universal services. This Directive allows the implementation of either a surcharge on interconnection or a national funding scheme, to which all telecoms operators have to contribute to fund universal service provision (see chapter 2). Curwen (1997) argues in this context that, even if costs arise from the provision of universal services, the access to a wide subscriber base associated with these services may outweigh these costs. However, although France and Italy are in line with the directives, the finding that these countries have implemented a different approach to compensating operators for the costs related to universal services may reflect the preference for favouring national champions. This may especially be so in France to support the companies in question to compete successfully in global markets and was initially considered in chapter 5 for France in the context of granting market access. The system may indicate that the French incumbent telecoms operator is favoured and supported by the state in the form of special subsidisation, funded by telecoms operators not providing universal services. The degree of the subsidy, however, must remain uncertain in the absence of a full analysis of the costs and benefits of universal service provision, which requires access to the operator's internal management accounts.

6.2.2 Tackling Information Asymmetry

The next indicator analysed is associated with tackling *information asymmetry*, another form of market failure reviewed in section 3.3.1. The Implementation Reports of the European Commission (e.g. CEC, 2002f, Annex 2, pp.7ff) provide a complete analysis of the enforcement of separate cost accounts. Therefore, a question on this matter was not needed in the questionnaire. Information asymmetry in markets occurs when one participant in economic activities uses its information advantage over another participant (see section 3.3.1 for relevant theory). Hence, companies in the telecommunications markets across the EU may use their information advantage over the regulatory authorities to negotiate favourable new regulations or to exploit existing regulations to their advantage. To help to avoid such effects, the telecoms directives have given the regulatory authorities the powers to enforce accounting separation, that is, telecoms operators with 'significant market power' have to keep separate cost accounts for their different trading activities. The requirement for operators with such powers to keep separate cost accounts draws in particular from Directive 90/387/EEC on the open network framework. Cost accounts can be used by the regulator to obtain essential information to administer, for example, price regulation and to control anti-competitive cross-subsidisation, or to determine whether operators are eligible to compensation for the provision of universal services.

Before analysis proceeds, it should be acknowledged that separate cost accounts as a tool to tackle information asymmetry are not limited to this issue. Cost accounts also provide information that is essential to enforcing regulatory decisions by which *market power* can be tackled. Tackling market power as a form of market failure and the methods administered by the telecoms regulators in the EU will be the focus of later sections in this chapter.

However, regarding the focus of the present section, it is found from the Implementation Reports of the European Commission (e.g. CEC, 2001a, 2002f) that all member states have enforced separate cost accounts. This finding can be attributed to the telecoms directives of the European Commission because the underlying provision is, as discussed in chapter 2, non-discretionary. It is, however, interesting to note that the Eighth Implementation Report (CEC, 2002f) also shows that complete harmonisation has yet to be achieved. This is so because, alongside accounting separation, regulators are required to ensure independent audit of cost accounts and, in turn, fair treatment of operators as part of the transparency of regulatory action. The Eighth Report (*ibid*) shows that twelve countries appear to have complied with the directives and independent auditing has been undertaken

at least once. Only Luxembourg does not audit cost accounts, and Austria has applied a procedure according to which an expert member of staff of the regulatory authority gives his/her opinion. In contrast to this, the earlier Seventh Report (CEC, 2001a) has shown that Luxembourg, Finland and Greece did not audit cost accounts, yet the Eighth Report (CEC, 2002f) shows that Finland and Greece now do so. This situation indicates that there is still an ongoing movement towards harmonisation to date regarding some aspects of telecoms regulation in the member states of the EU. Chapters 8 and 9 will provide a fuller analysis of the issues involved in the use of cost accounts for Finland and Greece, two of the countries chosen for the case studies presented at a later stage in this thesis.

6.2.3 Quality Standards

A major argument for abolishing monopoly supply in telecommunications was that telecommunications users do not have sufficient choice and that the monopolist may exploit its position by supplying quality that is below the level which consumers might reasonably expect. To provide consumers with value for money in telecommunications services, the directives introduce 'a good quality of service' requirement, in case competition fails to provide quality to an acceptable standard. However, the requirement may cause additional internal costs, which operators subject to quality standards have to bear. Additional internal costs arise when a participant in economic activities has to meet costs for the supply of certain goods, which it is forced to produce. In the interests of benefiting consumers, telecoms regulators are, however, prepared to accept such costs.

The questionnaire, and in particular one part of question 6, asked telecoms regulators: Does the NRA issue quality guidelines? Turning to the findings, only **three** of the regulators replying, namely Finland, Sweden and the UK, did not set quality guidelines for telecommunications services. It needs to be acknowledged that the Danish regulator has set some minimum quality requirements, which were only loosely agreed. Therefore, Denmark's regulator appears to consider quality guidelines only as a relatively minor issue.

The likely reason for the finding that some member states do not set quality guidelines is because they made use of the discretion allowed in the telecoms directives. Where competition is regarded as providing consumers with an acceptable quality of service, quality standards become superficial and are, therefore, not set by regulatory authorities. Chapter 7 considers this approach to quality of services in more depth.

The finding that some countries do not set quality guidelines through their regula-

tory authorities may point towards a market-driven approach to regulation. As introduced in section 3.4.2, a market-driven approach to regulation considers market intervention as essentially undesirable, except where market power should be tackled to achieve effective competition. Under this approach, setting quality guidelines is regarded as unnecessary, and these member states appear, therefore, to pursue a market-driven approach to regulation.

A further regulatory responsibility facilitated by the telecoms directives is closely related to quality standards. According to these, regulatory authorities should deal with consumer complaints about the poor quality of telecommunications services. The questionnaire, and in particular parts of question 6, asked regulators if they dealt with consumer complaints. It was revealed that **nine** member states have placed this responsibility with their regulatory authorities and have, therefore, complied with the telecoms directives.

In contrast, Belgium, Luxembourg and the Netherlands do not consider dealing with consumer complaints as a responsibility of their regulatory authorities, for which there is one possible explanation. Perhaps these **three** member states do not regard this issue as a necessary responsibility of the regulatory authority and they may, therefore, have left the issue of dealing with consumer complaints to consumer associations. However, given that the regulators are not dealing with consumer complaints is out of line with the telecoms directives. The question needs to be asked, should the directives have been more binding in this respect?

In sum, the discussion of meeting wider economic interests, according to,

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union,

has shown that this sub-hypothesis should not be rejected. More justification for this finding is provided in the conclusions to this chapter.

6.3 Controlling Market Power

Alongside the meeting of wider economic interests, the role of a regulatory authority is, as suggested in chapter 3, to remove the sources of market failure associated with *market power*. As was suggested in section 3.3.1, market power in telecommunications draws from the historically grown customer base and the ownership of most of a country's communications infrastructure (Burton, 1997). The result of this form of market failure is that competition

may be ineffective, in the sense that the economic outcome of competition may be distorted. To overcome this problem, and to allow for an efficient distribution of competitive outcomes, the telecoms directives of the European Commission allow national telecoms regulatory authorities to tackle market power.

It is important to emphasise that it is at the discretion of the regulatory authority to enforce the measures analysed in this section. This is so because only operators notified as having 'significant market power' should be exposed to price control and are obliged to provide network capacities in a non-discriminatory way and on the basis of costs. This condition was set down by the Commission to avoid unnecessary market intervention. Chapter 2 reviewed the concept of 'significant market power', first introduced in Directive 97/33/EC on interconnection, where it was determined that a telecoms operator should be deemed to have such power if it has a share of 25% or above in a particular market segment. Although this provision seems rather strict, a regulatory authority is allowed to alter this level if it regards this as appropriate. Hence, operators with at or above a 25% market share may not be notified as having 'significant market power'. Another possible scenario is that regulators can, despite having notified operators, suspend regulation if competition is considered effective. In both cases, operators would escape the requirements analysed below. However, research prior to the questionnaire revealed that regulators have commonly applied a general level of 25%. This conformity with the telecoms directives was obtained through telephone calls and email correspondence with the regulators in the member states to fill occasional gaps in an otherwise complete source of data provided by Gibbon (2000) and Lewington (1997).

Despite this understanding, it cannot, however, be assumed without further scrutiny that harmonisation in terms of controlling market power has been achieved in the member states of the EU. Therefore, the discussion in this section focuses on the *provision of leased lines and interconnection*, and the *control of prices*. The analysis of these aspects is guided by the following sub-hypothesis:

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

6.3.1 The Provision of Leased Lines and Interconnection

In the understanding of the European Commission, a suitable approach to tackling market power is to oblige competitors to provide leased lines and interconnection to rivals in a non-discriminatory way and on the basis of the costs incurred. While the first requirement aims at ensuring that any authorised operator requesting capacity will be provided with it, the second requirement is to prevent arbitrary pricing as a barrier to market entry and the development of durable competition. It is at this stage that the role of separate cost accounts, as reviewed in section 3.4.2 and analysed in section 6.2, above, becomes relevant. As said earlier, the purpose of separate cost accounts for the different parts of a business is not only to keep the regulator up to date and to prevent information asymmetry, but so that the regulator can assess whether operators do provide interconnection and leased lines on the basis of costs. On such a basis, regulatory measures can then be drawn.

When the regulatory authorities were asked in question 6 of the questionnaire (see table 6.1) whether they enforce the provision of leased lines and interconnection according to the telecoms directives, ten telecoms regulators replied that they do so. Only France, Germany and Italy did not consider this to be a responsibility of their regulators. As will be seen in chapter 9, there is a lack of empowerment of the German telecoms regulator, which might prevent more intervention in this area. However, these findings, despite indicating a considerable degree of harmonisation, point towards an interesting result. If this is linked with the findings here, then it is apparent that the model of regulatory control determines, to some extent, the responsibilities of the national regulatory authority. Moreover, Trebing (1987) emphasised that a non-market-driven treatment of regulation does not favour a single method such as controlling market power. Hence, evidence is emerging that France, Germany and Italy approach telecoms regulation according to a non-market-driven approach. These propositions will be combined in chapter 10 to characterise the systems of telecoms regulation in the member states of the EU.

The questionnaire collected further information related to the provision of network capacity. Again, answers are based on question 6, listed in table 6.1. As facilitated by the telecoms directives reviewed in chapter 2, regulators should leave it to the market to reach agreements on interconnection and leased lines. Only if operators are unable to close a deal within six months are regulators obliged to intervene, either in the form of enforcing agreements or in the form of functioning as a mediator in negotiations between the network owner and the operator requesting network access. Again, a high degree of harmonisation has been

achieved between the member states of the EU. Only Germany and the Netherlands did not indicate that this task is administered because, as will be seen in chapter 9, these regulators were inadequately empowered at the time the questionnaire was administered. The finding concerning the Netherlands supports the general perception (e.g. CEC, 2000a; Gibbon, 2000) of an advanced stage of competition achieved in the Dutch telecommunications. Although it might be felt useful at this stage to provide a better understanding of the competitive situation in Dutch telecommunications, a more detailed analysis is postponed to chapter 7 and to chapters 8 and 9 as part of the case studies conducted.

6.3.2 Price Control

Besides controlling access to leased lines and interconnection, another responsibility of telecoms regulators that draws from the telecoms directives, is related to removing *inequality* of market outputs. This form of market failure, introduced in section 3.3.1, stems from market power, in the sense that companies with a dominant position tend to generate higher economic rents than companies that do not have a dominant position. Drawing from these theoretical considerations, section 3.4.2 noted that price regulation is an appropriate form of market intervention to tackle the problem of dominant companies. Moreover, since price regulation can incentivise operators to save costs which then may be used to lower service charges, consumers can benefit in the form of 'value for money' for telecommunications services. It is for these reasons that the directives, and in particular Directive 98/10/EC on new voice, allowed, at the discretion of national regulatory authorities, the administration of price control in national telecoms markets.

When controlling the prices charged by telecoms operators, the regulator has to distinguish between consumer charges and prices for interconnections and leased lines. Therefore, the following sections provide a separate analysis for each of these charges.

6.3.2.1 Consumer Charges

The telecoms directives, and Directive 98/10/EC in particular, provide the national regulatory authorities with powers to control the prices charged to the consumer by the suppliers of telecommunications services. Since the directives did not set down which specific method should be used (see section 3.4.2 for the main methods discussed in the literature), member states have a considerable degree of freedom to implement methods by which consumer charges can be controlled. Therefore, the questionnaire collected the following information

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through question 19, listed in table 6.1: Are price caps used? If yes, for how long is X set?

Before the results are presented, it is perhaps worth noting that information on which regulators apply price caps is also available in the Eight Implementation Report of the European Commission (CEC, 2002f, Annex 2, pp5f), which has been published after the questionnaire was returned. Both sources are broadly consistent and this adds confidence to the questionnaire findings. The questionnaire, however, provided information on consumer price regulation that is not available in the Commission's Report or is available more superficially. Turning to the questionnaire findings, table 6.5 reflects the methods used in telecommunications across the member states of the EU.

Table 6.5: *Methods to regulate consumer charges, by member state*

<i>Member State</i>	<i>Method(s) Used (a)</i>	<i>Price Caps only: X set for</i>
Belgium	Price Cap for USO services	1 year
Denmark	Price Cap	3 years
Finland	Freely set by operators (b)	
France	Price Cap for USO services Ex-ante approval by Ministry for other services	1 year
Germany	Price Cap and NRA approval	3 years
Greece	Ex-ante approval by NRA	
Ireland	Price Cap	typically 2 to 3 years (c)
Italy	Price Cap and NRA approval	no reply
Luxembourg	Freely set by operators (b)	
Netherlands	Price Cap/Price Squeeze and NRA approval	3 years
Portugal	Freely set by operators (b)	
Sweden	Freely set by operators (b)	
UK	Price Cap	typically 3 to 4 years (c)

(a) Information on *Method(s) Used* was initially collected through the questionnaire and then verified by secondary data available from the Eighth Implementation Report (CEC, 2002f, Annex 2, pp.5f). As a result, the answers given in the questionnaire were confirmed. Price caps apply to regulators with 'significant market power'.

(b) Operators have to demonstrate that prices are based on costs regarding local calls. The principle of cost orientation in Article 17 of Directive 98/10/EC (new voice) is not applied to long-distance and international calls due to the Finnish regulator's judgement that these markets are effectively competitive (see also CEC, 2002f).

(c) At the discretion of the Irish and the British telecoms regulators.

Table 6.5 shows that member states have applied varying approaches to regulating consumer charges. Firstly, Greece exclusively approves consumer charges according to an ex-ante assessment, that is, price changes have to be confirmed with the regulator and/or the Ministry responsible for telecommunication before prices are changed. It should be emphasised that no specific tariff formula is prescribed under ex-ante price regulation. Secondly, telecoms operators in Finland, Luxembourg, Portugal and Sweden can freely set their charges if they announce price changes in advance. The only condition that applies to operators

with 'significant market power' is that prices charged are based on the costs incurred in service provision. In Finland, the principle of cost-orientation, which draws from Article 17 of Directive 98/10/EC (new voice), only applies to local call markets because the long-distance and the international segments are deemed competitive. The findings for Finland, Luxembourg, Portugal and Sweden drawing from question 19 in the questionnaire, were verified by the Eight Implementation Report from the European Commission (CEC, 2002f, Annex 2, pp.5f), which was published after the questionnaires were completed by the telecoms regulators. Thirdly, the regulators of Belgium, Denmark, Ireland, and the UK solely use price caps. Fourthly, the remaining **four** member states, namely France, Germany, Italy and the Netherlands, have applied a mix of price caps and ex-ante approval.

The questionnaire did not provide detailed information on how the price regulation regimes work, but some critical considerations are still possible. Belgium and France use 1-year caps applicable to universal services. Section 3.4.2 introduced that an essential feature of price caps is the period of more than a year (Littlechild, 1983), during which a cap remains stable. In contrast to this, section 3.4.2 also emphasised that under rate of return regulation, prices may be re-negotiated as frequently as every year. Therefore, the techniques used in Belgium and France to regulate charges for universal services appear, from a theoretical perspective, to be closer to rate of return rather than price cap regulation, though the regulators refer to their methods as price caps. Telecoms companies operating under rate of return regulation may extend their asset base beyond the economically efficient level. This is consistent with the argument in Averch and Johnson (1962), and may also result in quality levels for which consumers do not want to pay (see section 3.4.2).

The next question asked in the questionnaire was which companies have their consumer charges regulated according to the methods shown in table 6.5? It should be emphasised that the telecoms directives do not include specific provisions as to which companies should be exposed to retail price control, yet it is expected that common approaches have emerged over time. However, table 6.6, below, shows that the answers given by the regulatory authorities, drawing from question 20 in the questionnaire (see table 6.1), varied to some extent. **Seven** member states, namely Belgium, Denmark, France, Ireland, Italy, Luxembourg and Portugal, reported that only the former monopoly is subject to price control of consumer charges. Similarly, in the UK only the incumbent operator is subject to retail price control in the wire-based segment, whereas all operators in the wireless market, regardless of 'significant market power', have their charges for call termination regulated. In contrast to these circumstances, Germany and Greece regulate the charges of all operators with 'significant market power',

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while in Finland, the Netherlands and Sweden operators with 'significant market power' in wire-based communications have their prices regulated.

Table 6.6: *Operators subject to consumer price control*

<i>Member State</i>	<i>Operators Subject to Consumer Price Control</i>
Belgium	incumbent only
Denmark	incumbent only
Finland	operators with SMP in wire-based
France	incumbent only
Germany	all operators with SMP
Greece	all operators with SMP
Ireland	incumbent only
Italy	incumbent only
Luxembourg	incumbent only
Netherlands	operators with SMP in wire-based
Portugal	incumbent only
Sweden	operators with SMP in wire-based
UK	incumbent only in wire-based call termination of all operators in wireless, regardless of SMP

SMP: significant market power

A possible explanation for these differences between member states draws from the state of competition achieved. Competition in Belgium, Denmark, France, Ireland, Italy, Luxembourg and Portugal may be at a state where only the former monopoly operators are determined by the regulators as having 'significant market power'. In contrast, Finland, Germany, Greece, the Netherlands and Sweden may have concluded that there are operators alongside the incumbent that should be exposed to price regulation. However, another possible explanation is that there might be some pressure on the regulator to apply charging rules to competitors for reasons of equity of treatment. If the regulator then gives in to the demands of telecoms operators, and in particular to the incumbent companies, such a situation may, as was discussed in chapter 3, indicate 'regulatory capture'. Although this aspect of telecoms regulation is an interesting point to pursue further, the focus of the questionnaire did not allow a more detailed analysis.

6.3.2.2 Charges for Leased Lines and Interconnection

Alongside the control of consumer charges, the European Commission has put forward methods to control the prices of leased lines and interconnection charged to rivals. It should be emphasised that these methods do not draw from the directives, but only from a Recommendation of the Commission. More specifically, Commission Recommendation of 29 July 1998 (CEC, 1998b) facilitated benchmarking according to 'European best practice'. As part

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of this benchmark, regulators were encouraged to use the three lowest charges for leased lines and interconnection in the Community. It should be acknowledged that it would have been helpful to have collected information in the questionnaire, as to whether all telecoms regulators do apply European benchmarking. This omission, which was not revealed by the pilot, is unfortunate.

Table 6.7: *Methods to regulate interconnection charges, by member state*

<i>Member State</i>	<i>Method(s) Used</i>
Austria	FDC
Belgium	FDC
Denmark	FDC
Finland (a)	Company specific cost methodology, Ministerial orders, European benchmarking
France	Multi-standard costs methodology
Germany (a)	LRAIC, European benchmarking
Greece	LRAIC
Ireland	LRIC
Italy	FDC
Luxembourg	FDC
Netherlands (a)	Multi-standard cost methodology, European benchmarking
Portugal	FDC
Spain	Multi-standard cost methodology
Sweden	FDC
UK	Multi-standard cost methodology

Information given in this table was obtained from the Eighth Implementation Report of the European Commission (CEC, 2002f, Annex 2, pp.7f).

(a) The additional methods shown for Finland, Germany and the Netherlands were obtained as part of the case study analysis, presented in chapters 8 and 9, which cover these three countries plus Greece.

FDC: fully distributed costs — a regulatory technique where total revenue allowances are allocated across the firm's several services. The allocation is done on the basis of arbitrary accounting rules (see Kahn, 1988).

LRAIC: long-run average incremental costs (see chapter 3)

LRIC: long-run incremental costs

However, table 6.7 suggests that member states have complied with the telecoms directives, and in particular Directives 97/33/EC (on interconnection) and 97/51/EC (the Amendment of open network provision and leased lines), in the sense that interconnection charges should be regulated on the basis of costs. But Commission Recommendation 98/332/EC advocates that LRAIC should be applied as the costing method, based on which prices should be regulated (see chapter 3 for relevant theoretical considerations). In this respect, table 6.7 shows that some member states have yet to implement this methodology.

In the context of charges for the provision of leased lines and interconnection, question 21 of the questionnaire (see table 6.1) asked: which operators have their charges for interconnection and leased lines regulated? This question was included to provide a better understanding of country-specific aspects of telecoms regulation, which could be used as a basis for subsequent case studies presented in chapters 8 and 9. The analysis above revealed

that some degree of harmonisation regarding the regulation of charges for leased lines and interconnection has been achieved. Denmark and the UK regulate the prices of the former monopoly only, whereas France, Italy and the Netherlands regulate the charges for interconnection and leased lines of all operators with 'significant market power' in the wire-based sector. The remaining **eight** countries indicated that all operators with such powers in the wireless and the wire-based markets are subject to price control.

To summarise the discussion of the control of market power,

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union

is rejected. The reasons for this assessment will become clearer in the conclusions to this chapter, presented next.

6.4 Conclusions

The analysis in this chapter was aimed at the investigation of how national regulatory authorities intervene in their telecoms markets. This analysis was guided by sub-hypotheses 4 to 6:

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union.

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

Below, further assessments will be made as to whether these sub-hypotheses should or should not be rejected. As with the discussion of regulatory governance in the previous chapter, several indicators are used to assess each sub-hypothesis.

6.4.1 Assessment of Sub-hypothesis 4

First in this chapter was the discussion of the overall approach to telecoms market intervention, guided by sub-hypothesis 4:

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

The respective section earlier in this chapter looked at the following indicators:

- enforcement of competition;
- means and methods by which regulatory decisions are enforced;
- determining the effectiveness of competition;
- means and methods by which the effectiveness of competition is determined;
- monitoring the competitive behaviour.

Enforcement of competition. Answers to the question whether telecoms regulators are formally empowered to enforce competition (the respective methods used are discussed with sub-hypothesis 6, below) show a considerable trend towards harmonisation. All telecoms regulators of the member states consider this measure in the telecoms directives to be a responsibility of their national regulatory authorities. Even the Finnish regulatory authority, in a country with a long history of competition, indicated in the questionnaire that it is empowered to enforce competition in the country's telecoms market. Given these results, it is concluded that the telecoms directives of the European Commission are associated with complete harmonisation and, hence, sub-hypothesis 4 is not rejected on the grounds of this indicator.

Means and Methods by which regulatory decisions are enforced. In the context of enforcing competition, the related section above looked at the principal methods used by telecoms regulators to enforce their decisions. As the analysis above has shown, **nine** member states use the same methods, that is, to revoke authorisation and to fine operators if non-compliance with authorisation conditions occurs. However, alongside these measures, **four** countries, namely Greece, Ireland, Portugal and the UK, use supplementary methods, such as injunctions and expert opinions. In contrast, the regulators of Belgium and Sweden seem to rely

exclusively on injunctions and expert opinions. This result indicates a different empowerment of telecoms regulators in the member states of the EU, which the directives did not fully override. It is likely, therefore, that cross-national mimetic and normative policy transfer have played a significant role because the directives are silent on the methods to be used to enforce regulatory decisions. Thus, the indicator suggests that the sub-hypothesis should be rejected.

Determining the effectiveness of competition. The telecoms directives can be held accountable for harmonisation on this issue. Ten regulatory authorities indicated in the questionnaire that one of their responsibilities is to monitor competition, one of the requirements set down by the telecoms directives. Hence, regarding this indicator, sub-hypothesis 4 is not rejected.

Means and methods by which the effectiveness of competition is determined. Harmonisation appears less strong when the means and methods used by regulators to enforce competition are considered. As found in the analysis above, there is the possible inadequacy of the telecoms directives in terms of the determination of effective competition. As discussed earlier, the commitment of telecoms regulators, advocated by the Independence Regulators Group (IRG, 2001), shows that it is not sufficient to facilitate the broad measure that regulators 'shall determine the effectiveness of competition'. In other words, arguably the directives should have been more specific regarding the way in which competition is determined and the competitive behaviour of telecoms operators is monitored. Although it could be argued that the political, social and economic circumstances of a country have to be taken into account when designing regulation (Bradbury and Ross, 1991; Kilpatrick and Lapsley, 1996; Parker, 1999), the commitment by the telecoms regulators shows that it is possible to achieve a high degree of harmonisation despite country-specific differences. Although member states use at least two indicators for the assessment of competitiveness, this issue does not arise from the provisions of telecoms directives, which are silent on this issue. Rather, as was introduced in chapter 2, the use of more than one indicator stems from a commitment of the Independent Regulators Group. This finding suggests that cross-national mimetic and normative, rather than coercive policy transfer, posed by the directives (see section 3.3.3), should be held accountable for the harmonisation in telecommunications regulation in the EU, in terms of assessing competitiveness in telecoms markets. The commitment of regulators appears to have emerged from a common understanding of the needs of telecoms regulation or, in other words, 'good regulatory practice', drawing from the argument in Dolwitz and Marsh (1997)

and Hood (1994).

In sum, the evidence on this indicator suggests that sub-hypothesis 4 should be rejected. Although harmonisation has been achieved, the telecoms directives appear to have played a minor part. The guidelines of the Independent Regulators Group were found to account more for harmonisation of the means and methods used to assess effective competition.

Monitoring the competitive behaviour. Here, a considerable degree of harmonisation was found. **Eleven** of the thirteen regulators responding to the questionnaire reported that they do monitor competitive behaviour in their telecoms markets. Since the telecoms directives explicitly facilitated this requirement, the degree of harmonisation achieved can be attributed directly to the telecoms directives.

To summarise this assessment of the overall approach to telecoms market intervention, on balance, the conclusion is that there is inconclusive evidence as to whether sub-hypothesis 4 should or should not be rejected. Although two indicators used suggest a rejection, three others suggest otherwise. This result could be interpreted either way.

6.4.2 Assessment of Sub-hypothesis 5

Guided by

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union,

this section assesses how wider economic interests, that is, universal services, quality standards and consumer complaints, are met by telecoms regulation in the member states of the EU. The following indicators are used to reach an assessment.

- universal services;
- administration of cost accounts to tackle information asymmetry;
- quality of telecoms services.

Universal services. Turning to this indicator, it was found that the regulators in **ten** member states have entrusted telecoms operators with the provision of the universal service obligation.

Of these countries, France and Italy have compensated their incumbent telecoms operators for the costs incurred in the provision of these services. In contrast, Finland, Luxembourg and the Netherlands have not entrusted telecoms operators with the provision of universal services on the grounds that competition is deemed to provide this without intervention. Since these results are within the scope of the directives, it is concluded that the harmonisation achieved can be attributed to the directives.

Administration of cost accounts to tackle information asymmetry. The next issue investigated was whether the requirements associated with cost accounts had been met by the telecoms regulators. It was revealed in the analysis earlier in this chapter that all member states have now enforced cost accounting and it is concluded, therefore, that the respective provisions in the directives have been met. The same strong degree of harmonisation was revealed regarding the independent auditing of these cost accounts. Only Luxembourg appears not to have implemented this provision. Hence, the telecoms directives are found, once again, to account for harmonisation, in the case of cost accounting.

Quality of telecoms services. Finally, the directives provide loosely that member states have to ensure a 'good quality of telecoms services' to benefit consumers. Quality standards are a suitable measure to ensure that the requirement is met and **nine** member states indicated in the questionnaire that they had issued quality guidelines. Only the regulators of Finland, Sweden and the UK had not done so. Similarly, Denmark appears to regard quality of service as a minor issue because standards are only loosely agreed and of limited scope. Closely related to ensuring the quality of services is the requirement for regulators to deal with consumer complaints. The above analysis has shown that only the telecoms regulators of Belgium, Italy, Luxembourg and the Netherlands do not deal with consumer complaints directly. Nevertheless, some trend of harmonisation has been found drawing from respective provisions of the telecoms directives because they facilitate these requirements.

Overall, it is concluded that sub-hypothesis 5 is not rejected. This is so because of the harmonisation achieved regarding the universal service obligation, tackling information asymmetry through the enforcement and the auditing of cost accounts, and the requirements associated with quality standards. All of these can be directly attributed to the telecoms directives, in the absence of any other explanation. Therefore, the telecoms directives appear to have played a decisive role in achieving the degree of harmonisation found.

6.4.3 Assessment of Sub-hypothesis 6

Finally, the last indicator of a harmonised telecoms market intervention analysed in this chapter was the control of market power. The respective section above was guided by

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

As before, a range of indicators is used to assess whether the sub-hypothesis should or should not be rejected. These indicators are:

- provision of leased lines and interconnection;
- consumer charges;
- charges for leased lines and interconnection.

Provision of leased lines and interconnection. Firstly, when regulatory authorities were asked if they enforce the provision of leased lines and interconnection on the basis of costs and in a non-discriminatory way, **nine** telecoms regulatory offices replied they did so. Only the regulators of France, Germany and Italy do not consider this enforcement as a necessity, which leaves them out of line with the telecoms directives (though there might be some element of lacking empowerment, which will be discussed in chapter 9). Secondly, the directives facilitate that the basis of providing lines and interconnection has to be commercial agreements between operators. If such agreements cannot be reached within six months, the regulator should intervene to either enforce agreements or to act as a mediator. Again, a high degree of harmonisation was found. Only **two** regulatory authorities, namely the German and the Dutch regulator, do not intervene in commercial agreements. Again, chapter 9 shows that there is a lack of empowerment in the case of these two regulators. The majority of member states, however, follows the directives regarding the provision of interconnection of leased lines.

Consumer charges. Another aspect associated with controlling market power analysed in this chapter was if and how consumer charges are controlled by the telecoms regulators. Tackling market power, as reviewed in chapter 3, is allowed under Directive 98/10/EC (new voice), but the Directive leaves it to the discretion of regulators to choose the appropriate method or to choose not to regulate consumer charges at all. The analysis above revealed that there

is a considerable degree of harmonisation. A majority of **nine** member states applies some form of price regulation. Only the regulators of Finland, Luxembourg, Portugal and Sweden allow their operators with 'significant market power' to set consumer charges freely, if these companies demonstrate that prices are based on costs.

Despite this trend towards harmonisation, the form of price regulation applied revealed considerable differences (see table 6.5). While Belgium, Denmark, Ireland and the UK solely apply price caps, France, Germany, Italy and the Netherlands use a mix between price caps and ex-ante price approval, a form of price regulation that does not use a specific formula. This leaves Greece, which solely uses price approvals. These results show that regulators appear to be divided into two camps, one favouring price caps only and one favouring price caps alongside ex-ante approval. Although there is no apparent conflict with the telecoms directives, because they do not provide for a specific form of price control, it is not obvious why telecoms regulation in the EU remains divided on this issue. While different historic developments according to Thatcher (1999) may certainly play a part, a satisfactory explanation is only provided when two further arguments are drawn together. Firstly, it is likely that cross-national mimetic and normative policy transfer, as discussed in section 3.3.3, accounts for the favouring of only two approaches, rather than for a greater variety of methods. Secondly, telecoms regulation in the member states is likely to take into account social and economic circumstances according to Bradbury and Ross (1991), Kilpatrick and Lapsley (1996) and Parker (1999), as discussed in chapter 3.

Alongside the methods used by member states, the analysis above has investigated which companies are subject to retail price control. As emphasised earlier, the telecoms directives do not facilitate specific provisions regarding which companies should have their retail prices regulated. Therefore, a considerable degree of regulatory discretion can be used. However, despite this situation, it appears that some harmonisation has been achieved between the member states because in **seven** countries regulators control the retail prices of their incumbent operators only. Similarly, the UK uses price caps on the incumbent operator in the fixed line market alongside other forms of price regulation for call termination of all wireless operators. In contrast, Finland, Germany, Greece, the Netherlands and Sweden regulate consumer charges of operators with 'significant market power'. This situation again indicates that telecoms regulation in the EU appears to be divided into two camps regarding some aspects of market intervention. As before, it is likely that issues of cross-national mimetic and normative policy transfer account for the emergence of two approaches, while country-specific circumstances are taken into account when the regulatory system is designed.

Taking into account the evidence on consumer charges, it is concluded either no harmonisation has been achieved or harmonisation draws from cross-national mimetic and normative policy transfer.

Charges for leased lines and interconnection. Finally, to obtain a better understanding of the country-specific aspects of telecoms regulation in the EU, which will be used as the basis of the subsequent case studies in chapters 8 and 9, the analysis above looked at which companies are subject to the regulation of charges for leased lines and interconnection. Again, a considerable degree of harmonisation was found. More specifically, while Denmark regulates these charges of its former monopoly, the remaining member states target the charges of operators with 'significant market power'. Since especially Directive 97/33/EC (interconnection) provides for the control of these charges on the basis of the costs incurred, it is concluded that the telecoms directives directly account for harmonisation of this issue.

Overall, there is inconclusive evidence as to whether sub-hypothesis 6 should or should not be rejected. This is so because there is one indicator that suggests a rejection, but there are two indicators that do not. This is a result which could, again, be interpreted either way.

6.4.4 Summary of Market Intervention by Regulatory Authorities

This chapter has analysed the way market intervention is conducted by telecoms regulatory authorities in the EU. More specifically, three aspects were considered, namely the *overall approach* to telecoms market intervention, the *meeting of wider economic interests* through regulation, and the *control of market power*. The analysis of these aspects was guided by three sub-hypotheses as follows:

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union.

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

CHAPTER 6 Analysis of Market Intervention by Regulatory Authorities

As the previous sections have shown, the assessments of sub-hypotheses 4 and 6 remains inconclusive, while sub-hypothesis 5 should not be rejected. Overall, this situation reveals some degree of harmonisation, but, at the same time, indicates that a considerable degree of disharmony remains in terms of the issues discussed in this chapter. As in the previous chapter, this disharmony primarily draws from the role that cross-national mimetic and normative policy transfer play in the achievement of harmonisation regarding market intervention by telecoms regulatory authorities. This is shown in table 6.8, below.

Table 6.8: *The sources of harmonisation discussed in this chapter*

<i>Issue</i>	<i>Source of Harmonisation</i>
The overall approach to telecoms market intervention	telecoms directives cross-national mimetic and normative policy transfer
Meeting wider economic interests	telecoms directives
Controlling market power	telecoms directives cross-national mimetic and normative policy transfer

The findings of this chapter are linked with the framework for analysis, shown in figure 3.2 on page 104. Besides the decision as to *whether* harmonisation has been achieved, this figure calls for an explanation as to *why* harmonisation has been achieved in terms of regulatory intervention. In part, the reason why no complete harmonisation has been achieved to date is, as in the previous chapter, the existence of cross-national mimetic and normative policy transfer. More specifically, the guidelines of the Independent Regulators Group (IRG, 2001) were found to facilitate 'good regulatory practices', mostly in terms of the assessment of the competitiveness of telecoms markets. Hence, it is concluded that the telecoms directives of the European Commission are not the only source of harmonisation achieved. But this finding is not a sufficient explanation as to why some degree of disharmony remains. To clarify this issue and to obtain a satisfactory explanation, chapters 8 and 9 will take into account country-specific circumstances. This should, in turn, provide an insight into regulation across the EU that goes beyond the comparative level of information obtained through the questionnaire.

In addition to this conclusion, two different approaches to telecoms regulation, namely *market-driven* and *non-market-driven* within the EU, have recurred in this chapter. These approaches were introduced in section 3.4 and are used in chapter 10, alongside the findings on the approach to regulatory control (see chapter 5) to propose a new framework for analysis.

Chapter 7

Analysis of the Effects of Competition and Regulation

The analysis so far has focussed on issues that are directly associated with the regulatory framework in the member states of the EU. Chapter 5 investigated the relationship between governments and their regulators, and chapter 6 considered the way telecoms regulators intervene in their national markets. The present chapter now looks, based on the questionnaire included in appendix B, at the effects on users of telecoms regulation in the member states of the EU. Chapter 10 will then consider the analysis conducted in this study in its entirety. This permits an assessment whether the telecoms directives of the European Commission create harmonised telecoms systems and whether there is a way of regulatory intervention that is most conducive to achieving effective and durable competition, from which consumers benefit. In addition, a consideration of these issues together allows the drawing of recommendations for the design of telecoms regulatory systems across the EU, and perhaps elsewhere.

In essence, the analysis below is concerned with the *state of telecoms regulation and competition* in the member states of the EU and the *benefits for users obtained from competition and regulation*. The discussion of the benefits for users draws from the literature reviewed in section 3.2.1 and is associated with increased choice, lower service charges, better quality of service, and new technologies or services being marketed more quickly.

The way of thinking underlying this analysis is as follows. The telecoms markets in the EU were liberalised on 1 January 1998. Since liberalised markets, and in particular the telecoms markets with a dominant player, are prone to market failure, regulatory authorities

were established, which through market intervention are expected to prevent an abuse of market dominance and remove obstacles to competition. As a result, consumers should benefit, as proposed in section 3.2.1. That effective and durable competition should develop is a process in the EU driven by the telecoms directives issued by the European Commission.

If benefits for telecommunications users have materialised in the member states of the EU, then it could be argued that they draw from competition alone, and telecoms regulation has not played a significant part in their achievement. However, if the telecoms directives harmonise the regulation of telecommunications across the EU, regulatory activities draw, to a considerable degree, from these directives. In particular, as reviewed in chapter 2, the directives pronounce that telecoms regulation in the EU should create a harmonised platform, on which competition can develop and mature. Therefore, telecoms regulation should be driven, to a large extent, by the directives of the European Commission. It is for this reason that the effects of competition for telecommunications users cannot be analysed without taking into account the regulatory actions in this industry. This is the reason why the present chapter considers the proposed benefits of telecoms competition in relation to regulatory activities in the member states of the EU. Section 7.2 provides details on how regulation and competition are interlinked.

Before the findings of the questionnaire associated with the objectives of this chapter are presented, it is beneficial to provide some further explanation about the focus of the discussion below. This chapter provides a summary of the state of markets and the state of telecoms regulation in the member states of the EU. More specifically, the analysis below considers indicators that allow a comparison of member states on general grounds. Therefore, the questionnaire collected information that allows for such a comparison, which enables an assessment of whether, stemming from the telecoms directives of the European Commission, harmonisation has been achieved in terms of the effects of competition and regulation for telecommunications users. It is acknowledged that such an analysis may not provide answers to all questions associated with these issues, given the complexity and the multiplicity of telecoms regulation and competition in each member state of the EU. However, an assessment can still be made as to which form of regulatory governance, drawing from chapter 5, and the treatment of regulation, as analysed in chapter 6, is most conducive to achieving effective competition. Therefore, it is possible to draw policy recommendations. Given this understanding, table 7.1 summarises the questions of the questionnaire that are the basis of this chapter.

In relation to these questions, the analysis in this chapter is directed by the remaining

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Table 7.1: *Questions asked in the questionnaire that are analysed in this chapter*

Number (a)	Question (b)
24	Was there any effective competition by 31/12/01?
25	How is the status of telecoms regulation categorised?
26	What was the total number of fixed operators by 31/12/01?
27	Is the total number of fixed operators enough to achieve effective competition?
28	Does competition provide lower service charges?
29	Does competition provide better transmission quality?
30	Does competition provide better customer service quality?
31	Does competition provide new technologies and services more quickly?
32	Are arguments about the cost-based provision of interconnection removed under network and service separation?
33	Is effective competition achieved more quickly under network and service separation?
34	Are there stronger incentives to built alternative networks if networks and services were separated?
35	Can income from line rental, leased lines and interconnection be distributed more equally if networks and services were separated?
36	Is it principally possible to separate networks and services?

NRA: national regulatory authority

(a) As before, to allow for consistency, the analysis of these questions does not always follow the chronology in the questionnaire.

(b) For reasons of space, the questionnaire text has been truncated. A full copy of the questionnaire is included in appendix B.

two sub-hypotheses of this study, as set down at the end of chapter 3, namely:

Sub-hypothesis 7: The telecoms directives of the European Commission have created a harmonised *state of competition and regulation* in telecommunications across the member states of the European Union;

Sub-hypothesis 8: The telecoms directives of the European Commission have created harmonised *benefits for telecommunications users* across the member states of the European Union.

The discussion begins with the state of competition and regulation, drawing from sub-hypothesis 7.

7.1 The State of Competition and Regulation

This section pursues two main objectives. Firstly, stemming from the telecoms directives of the European Commission, an assessment is made as to whether harmonisation has been achieved across the member states of the European Commission in terms of regulation and competition. Secondly, an overview is provided regarding which segments of the national telecommunications markets have yet to develop effective competition. This overview in turn

allows conclusions as to whether the telecoms directives have tackled the right issues or have tackled problem areas using the right approach. This understanding allows the investigation of:

Sub-hypothesis 7: The telecoms directives of the European Commission have created a harmonised *state of competition and regulation* in telecommunications across the member states of the European Union.

To enable the assessment of the sub-hypothesis, the following questions from table 7.1, drawing from the questionnaire, were investigated in this section:

- Question 24: Was there any effective competition by 31/12/01?
- Question 25: How is the status of telecoms regulation categorised?
- Question 32: Are arguments about the cost-based provision of interconnection removed under network and service separation?
- Question 33: Is effective competition achieved more quickly under network and service separation?
- Question 34: Are there stronger incentives to built alternative networks if networks and services were separated?
- Question 35: Can income from line rental, leased lines and interconnection be distributed more equally if networks and services were separated?
- Question 36: Is it principally possible to separate networks and services?

7.1.1 Regulation and the State of Competition in Telecoms Market Segments

The first question investigated to assess sub-hypothesis 7 was question 25 in the questionnaire, listed in table 6.1: How is the status of telecoms regulation categorised? Table 7.2 shows the answers collected through the questionnaire.

Table 7.2 reveals an unexpected result. The Netherlands indicated that regulation is 'less advanced, mainly regulatory action required'. The same answer was given by Luxembourg, alongside 'advanced, some regulatory action and monitoring required', which indicates that Luxembourg's regulator considers telecoms regulation as in between the stages

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Table 7.2: *The status of telecoms regulation as assessed by the regulatory authorities*

<i>Member State</i>	<i>Status of Telecoms Regulation</i>
Belgium	advanced, some regulatory action and monitoring required
Denmark	advanced, some regulatory action and monitoring required
Finland	advanced, some regulatory action and monitoring required
France	advanced, some regulatory action and monitoring required
Germany	advanced, some regulatory action and monitoring required
Greece	advanced, some regulatory action and monitoring required
Ireland	advanced, some regulatory action and monitoring required
Italy	advanced, some regulatory action and monitoring required
Luxembourg	less advanced, mainly regulatory action required
Netherlands	less advanced, mainly regulatory action required
Portugal	advanced, some regulatory action and monitoring required
Sweden	advanced, some regulatory action and monitoring required
UK	advanced, some regulatory action and monitoring required

from less advanced to advanced. The remaining **eleven** member states answered ‘advanced, some regulatory action and monitoring required’.

Looking at the answer of the Dutch regulator first, the state of competitiveness in the Netherlands is generally held to be more advanced than competition in the other member states (e.g. CEC, 2000a; Gibbon, 2000). It therefore comes as a surprise that the Dutch regulator, when asked about the status of competition, answered ‘less advanced, mainly regulatory action required’. It should be acknowledged, however, that this finding could be misleading, since the question regarding the state of telecoms competition may be subject to a considerable degree of response bias. This is so because regulatory authorities may have different perceptions about their approach to regulation. Some regulators may apply general rules and then passively monitor the industry’s compliance with these rules. In contrast, other regulators may apply a more proactive approach, which means that they intend to actively shape their communications market. Hence, it is possible that the Dutch regulator adopts an active involvement and considers, therefore, that many aspects associated with telecoms regulation have yet to be resolved. If this is the case in the Netherlands, then the general perception that Dutch telecommunications have reached an advanced state, may be correct and the regulator’s response is misleading. Chapter 9 will look at this issue in more depth.

Regarding the other **twelve** telecoms regulators responding, it should be acknowledged that their answers regarding the state of telecoms regulation in the member states of the EU may also be prone to some degree of response bias. In other words, respondents may have provided inaccurate information that makes the present state of regulation appear

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in a favourable light. However, while some degree of response bias cannot be ruled out completely, there is still a possibility that the answers given by the telecoms regulators reflect the true state of telecoms regulation in the member states of the EU. This becomes evident when looking at those telecoms market segments, which were effectively competitive by 31 December 2001. The definition of *effective competition* was introduced in chapter 2 as (IRG, 2001):

“... the persistent absence of players with the ability to influence prices and [to] persistently enjoy higher profits than ... firms which do not possess ... [this ability].”

Table 7.3 shows the answers given by the national regulatory authorities in regard to question 24. The findings reflected in this table will be used in chapter 10.

Table 7.3: *Effective Competition in telecoms market segments, as indicated by the national telecoms regulators*

<i>Member State</i>	<i>Market Segment(s) Effectively Competitive on 31 December 2001</i>
Belgium	not known because effectiveness of competition not determined
Denmark	DSL, mobile calls, pricing in LL (not calls themselves)
Finland (a)	international, leased lines, long-distance calls
France	international, mobile calls
Germany	mobile calls
Greece	no segments effectively competitive
Ireland	international calls, leased lines, LL, mobile calls, UMTS, WLL
Italy	no reply
Luxembourg	no segments effectively competitive
Netherlands	leased lines faster than 2Mbit/s
Portugal	no segments effectively competitive
Sweden	no segments effectively competitive
UK	no reply

DSL: digital subscriber line; ISP: internet service provision; LL: local loop; UMTS: universal mobile telephone system; WLL: wireless local loop

(a) Although the Finnish regulator does not determine the effectiveness of competition, an answer was given in the questionnaire. It is likely that this answer draws from the determination of ‘significant market power’. This issue is discussed in the main text.

However, considering Belgium first in table 7.3, the country’s telecoms regulator indicated that effective competitive market segments are not known. This is consistent with one finding in chapter 6, where Belgium reports that the effectiveness of their telecommunications markets is not determined. Hence, the Belgian regulator was unable to answer question 24.

As in Belgium, the regulator in Finland was also found in chapter 6 not to determine the effectiveness of competition in its telecommunications market, yet the Finnish regulator indicated effective competitive segments, as shown in table 7.3. One possible reason why the Finnish regulatory authority indicated that their long-distance and international calls

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segments were effectively competitive by 31 December 2001 may be to do with the history of telecommunications in this country. Given that Finnish telecoms services were never subject to monopoly supply by a single firm, the country's regulator may know, without formally determining the competitiveness of its telecoms market, that long-distance and international calls have indeed reached a state which does not require regulatory attention. However, an alternative and more likely explanation is that by determining which operator does possess 'significant market power', it becomes automatically known to the regulator which market segments are not effectively competitive. This is so because any market segment in which there is at least one operator with 'significant market power' cannot be considered to have reached a state of effective competition. This reasoning draws from the definition of the state of telecoms markets introduced in chapter 2 as:

Harmonisation will be understood as the creation of equal conditions that allow for effective competition in the telecommunications sectors of the member states of the EU.

Turning to the information given by the telecoms regulator of the Netherlands, the situation in this country corroborates the answer given to the previous question on the state of competition, where the Dutch regulator indicated that the state of telecoms regulation has only reached a less advanced state and regulatory action is still required. More specifically, table 7.3 shows for the Netherlands that only leased lines of faster than 2Mbit/s¹ transfer speed do not require regulatory attention any longer. This is a surprising finding for the Netherlands, given the general perception associated with the country's telecommunications system (e.g. CEC, 2000a; Gibbon, 2000). One possible explanation for this finding is that the perception of the advanced state of market liberalisation in Dutch telecommunication is outdated. Other member states may have made substantial progress with their telecoms systems and, therefore, have caught up with the Netherlands.

This suggestion is reinforced by the findings for the other member states, as shown in table 7.3. Five member states, namely Denmark, Finland, France and Ireland, reported at least two market segments to be effectively competitive by 31 December 2001. Table 7.3 also shows that the regulators of Greece, Luxembourg, Portugal and Sweden reported no market segments with effective competition by 31 December 2001. At present, answers for Luxembourg, Portugal and Sweden are somewhat surprising and should, therefore, require more justification. The questionnaire did not provide in-depth and country-specific data on the matter. Chapter 10, however, looks will provide a reason why these three countries have not yet achieved effective competition in their telecoms market segments.

¹Mbit/s is a unit widely used in technical subject areas. The measure stands for 'mega bits per second', and refers to the amount of information that can be transferred during 1 second.

In contrast, the answer given by the Greek regulator appears less surprising because the transposition of the telecoms framework in the country has lagged behind other member states for some time (CEC, 2000a; Gibbon, 2000, e.g.). This perception is supported by the information given in table 5.2 in chapter 5, in the sense that Greece opened its telecoms market to competition in 2001, three years after the deadline of 1 January 1998. Given this evidence, it should be expected that the country also lags behind in terms of the achievement of effective competition in telecoms market segments. However, another possible reason for the lack of competition is that Greece has, unlike the other member states of the EU, a mountainous topography and many islands, which may pose serious obstacles to the development of effective competition. This proposition needs to undergo further scrutiny and is, therefore, included in the case study analysis, presented in chapter 8, which will look at the country-specific situation in telecoms regulation.

Alongside the findings above, table 7.3 shows that there is only a weak trend towards harmonisation between member states. More specifically, only Finland, France and Ireland show some consistency in terms of effective competition in international calls. Regarding mobile calls, only Denmark, France, Germany and Ireland consider these segments to be beyond the need for immediate regulatory attention.

Another aspect that is evident from table 7.3 is that the regulators of only **one** member state, namely Ireland, reported that effective competition had been achieved in the local loop by 31 December 2001. This finding provides support for the view that in the EU, despite the efforts of the Commission, such as through Regulation 2000/0185(COD) of 5 December 2000 (CEC, 2000b), competition in the local loop remains widely illusive. This finding is consistent with the Commission's own analysis in CEC (e.g. 2001a, 2002f) and may draw, as suggested by the analysis of Majone (1996) and Sarkar et al. (1999), discussed in section 3.3.1, from the market power of telecoms operators. Burton (1997) emphasises in this context that the incumbent telecoms operators enjoy a historically grown network infrastructure and, therefore, access to a consumer base that is significantly larger than the one available to entrants. Due to these circumstances, incumbent operators enjoy income from the ownership of networks that entrants cannot match. This income consists of line rental charged to consumers and of revenues from the provision of leased lines and interconnection provided to competitors. Even if this income is regulated in the form of cost-based supply and benchmarking, as suggested in section 3.4.2, incumbent operators may still enjoy such income at a level beyond the entrants' ability. Besides this reason, the European Commission in its Eighth Implementation Report (CEC, 2002f, pp.24f) emphasises

that the recent economic downturn of the telecoms industry has hampered the development of competition.

It is for these reasons that the questionnaire collected information to allow the assessment of a possible solution. Trebing (1994) has suggested the possible separation of networks and services in telecommunications. One way to do this would be to restrict operators to the supply of either networks or services. The questionnaire investigated this issue. If such measures were implemented, then the telecoms directives of the European Commission would have to be redesigned, since a separation of networks and services is not currently covered. Such conduct can be considered as justified if the measure leads to a faster development of competition, especially in the local loop, producing economic benefits that exceed the economic costs of network separation.

7.1.2 Separation of Networks and Services

Separation could encourage competition in services by removing the incentive for the network owner to discriminate when setting interconnection charges. However, this is, as said above, a particularly controversial area because its achievement would require incumbent firms (the former monopoly providers) ceasing to provide telecoms services or hiving off their valuable networks. Before the findings are presented, it is necessary to emphasise that the following answers are not attributed to individual member states. In other words, member states are not named, and only the frequency of answers is reported in the analysis below. The agreement not to name member states was made with the respondents of the questionnaire to increase the rate of response to questions that were clearly dealing with a very contentious and politically charged issue (even so Italy and Portugal still did not feel in a position to answer the questions). The analysis below considers economic issues and some legal matters associated with the separation of networks and services. The corresponding questions are listed in table 7.1: 32–36.

The initial question was whether it is possible in principle, in the view of the regulatory authorities, to separate networks and services. The result was that **nine** out of the **eleven** regulators responding considered it to be possible. At the same time, however, respondents indicated that it may not be economically and/or legally desirable to do so. In legal terms, regulators stressed that the freedom to provide networks and/or services should not be restricted by legal barriers, if an operator meets the requirements for an authorisation from the regulatory authority. Regarding economic issues, respondents indicated that a separation

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of networks and services may not be a desirable conduct. To enable a more detailed view on why regulators have doubts about the usefulness of separating networks and services, the questionnaire asked regulators to provide information on several indicators relating to economic desirability.

Firstly, telecoms regulators were asked if the income from line rental, leased lines and interconnection would be distributed more equally in the wire-based sector. This question was included because telecoms operators in the EU have frequently expressed concern about the income incumbents generate from the provision of network capacity in the wire-based market segments alongside the provision of retail services (e.g. CEC, 2000a, 2001a; Gibbon, 2000). The result on this question was that **two** member states answered 'yes, but only in a limited way', **six** countries were 'not sure', and **two** respondents indicated 'no'. One telecoms regulator, although replying to all other questions on the separation of networks and services, gave no answer to this question. However, these results suggest that there are considerable doubts among regulators as to whether the separation of networks and services would lead to a more equal distribution of network income.

The second question asked was concerned with whether arguments among operators would be removed if networks and services were separated. This question also stemmed from complaints by operators about the time taken to negotiate access/interconnection (*ibid*). More specifically, member states have in the past reported that telecoms operators have repeatedly exceeded the six months negotiation period laid down in the directives, and regulators have had to intervene to enable operators to close a deal. Turning to the answers, **two** regulators acknowledged, by answering 'yes', that these difficulties might be reduced, **five** were 'not sure', and **three** respondents by indicating 'no' did not consider that the separation of networks and services would be a suitable measure to address arguments about the provision of leased lines and interconnection. These **three** regulators considered that the incentive to provide interconnection and/or leased lines above costs will remain. This incentive occurs, as noted before, mainly for mobile operators in the interconnection market (Wright, 2002).

Alongside the view that separation of telecoms networks and services is not a suitable measure, **one** member state indicated that arguments between operators would probably be removed completely, since there would not be much competition when services and networks are separated! This regulator based its observation on concerns that operators would only be able to generate income from one business activity, that is, either network income or service revenues, when networks and services are separated.

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This concern relates to the question whether separation of networks and services creates incentives to build alternative network capacities or to provide more services. On networks, **two** member states indicated that incentives may be increased but only in a limited way, **five** countries were 'not sure', and **four** countries indicated that a separation of networks and services would not create stronger benefits to build alternative networks. The common arguments that have been made by the telecoms operators are, firstly, that incentives would be lowered because of possible returns on investment in an environment that separates networks and services. Under these conditions, the chance to make money from operating these two businesses together is removed. In other words, operators can then only generate income from either the provision of network capacity to rivals or from providing communications services to end users. The second argument made is that the overall incentive to build alternative networks will decrease. This is so because there is a higher incentive to exploit service revenues on existing lines, which causes a lower incentive to build alternative capacities. However, these two arguments appear to be main reasons why a number of telecoms regulators believe that a separation of networks and services is economically not desirable.

The argument receives further support from answers given to the question on whether effective competition in all market segments could be achieved more quickly in an environment that separated networks and services. This question complements the finding in table 7.3, where only **two** member states indicated effective competition in the local loop by 31 December 2001. Like in the answers given to the previous questions, similar doubts were revealed. More specifically, although **two** regulators (not the same two as those in table 7.3) felt that effective competition in services might be achieved more quickly if networks and services were separated, **five** were not sure, and **four** respondents rejected the possibility completely. This again indicates some doubt about the usefulness of separating networks and services.

Overall, there is some harmonisation among telecoms regulators in the EU on the issue of separating networks and services. Generally, regulatory authorities do not appear to be in favour of the separation as a measure to achieve effective competition more quickly. In addition, there is considerable doubt about the usefulness of such measures to distribute economic outcomes more evenly among operators, and it is not clear whether a separation of networks and services would create the necessary incentives to build alternative networks. The common problem regulatory authorities would expect is lower returns in an environment that separates business activities. Therefore, as suggested by the telecoms regulators in

the questionnaire, a better alternative is to promote competition in services over different infrastructures. More specifically, it has been suggested to promote competition in mobile markets, by which the incumbents position in the fixed segments could be tackled. Likewise, voice telephony over cable television networks could be promoted, which then may tackle the incumbents services over existing telephone networks. These considerations are, however, beyond the boundaries of this research project and should, therefore, be part of a separate study.

7.2 Benefits for Telecommunications Users

This section analyses if and how regulation and competition have benefited end users of telecommunications services in the EU. It should be emphasised that it is not possible to cleanly distinguish competition effects from the results of regulation. This is so because the telecoms directives drive regulation, competition and, therefore, the benefits for end users. More specifically, previous analysis has revealed in what way the telecoms directives determine regulatory activities, which then affect telecoms markets. The analysis of this section is concerned with:

Sub-hypothesis 8: The telecoms directives of the European Commission have created harmonised *benefits for telecommunications users* across the member states of the European Union.

This sub-hypothesis was assessed by investigating whether the proposed benefits of competition, which were introduced in section 3.2.1, have materialised in the telecoms markets of the EU. In other words, this section is concerned with whether the telecoms directives have, by opening the markets to competition and by facilitating the regulation of dominant incumbent operators, succeeded in creating an environment in which the proposed benefits for telecommunications users have been achieved. In more detail, the following analysis is concerned with *the total number of authorised operators* in the fixed line market segment, *service charges*, the *quality of service* and if *new technologies and services* are marketed more quickly. This corresponds to questions 26–31 in table 7.1:

- Question 26: What was the total number of fixed operators by 31/12/01?
- Question 27: Is the total number of fixed operators enough to achieve effective competition?

- Question 28: Does competition provide lower service charges?
- Question 29: Does competition provide better transmission quality?
- Question 30: Does competition provide better customer service quality?
- Question 30: Does competition provide new technologies and services more quickly?

7.2.1 The Total Number of Authorised Operators in the Fixed Line Market

The first question investigated, question 26 in the questionnaire, was, as listed in table 7.1: what is the total number of operators in the fixed sector by 31 December 2001? The wireless market segments were, however, not included in the questionnaire, which was for the following reasons. The first version of the questionnaire did include mobile communications, yet the pilot study, discussed in chapter 1, revealed that the final version of the questionnaire should be considerably shorter. Otherwise, regulators would not have taken the time to complete it. Questions on the number of mobile operators and their market share were omitted from the questionnaire because the Seventh Implementation Report (CEC, 2001a), which became available at the time the pilot study was undertaken, reported figures on the number of mobile operators. Hence, the number of mobile licensees that provide networks and retail services could be estimated from the Seventh Report. Only two to five licensed mobile operators compete in each member states because of the scarcity of the frequency spectrum. Therefore, no further licences are likely to be issued in the foreseeable future, and no further entry will occur. Ultimately, a question if the number of two to five authorised mobile operators is enough to achieve effective competition, was regarded as not particularly meaningful and was, therefore, omitted from the final version of the questionnaire. The figures for operators providing mobile networks and services have not changed in the Eighth Report (CEC, 2002f), which was published after the analysis of the questionnaire was finished.

Turning back to the number of operators in the wire-based sectors, it should be emphasised that the service authorisation requirements, which primarily draw from Directive 97/13/EC reviewed in chapter 2, can, due to the discretion allowed, differ substantially between member states. This means that operators in one member states may require a licence, whereas they only require a general authorisation in another. Therefore, the number of licensed operators alone, as published in the Implementation Reports of the European Commission (e.g. CEC, 2001a, 2002f), provides less comparable information than the total

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number of operators authorised. However, table 7.4 shows the total number of operators in the wire-based markets by 13 December 2001, as provided by the telecoms regulators through the questionnaire.

Table 7.4: *Total number of operators supplying voice services in the wire-based communications sector, as provided by the telecoms regulators*

<i>Member State</i>	<i>Total Number of Wire-based Operators by 31 December 2001 (a)</i>
Belgium	317
Denmark	60
Finland	97
France	107 licensed, non-licensed not published
Germany	432
Greece	268
Ireland	40 licensed, non-licensed unknown to the regulator (b)
Italy	no reply
Luxembourg	29
Netherlands	300
Portugal	100
Sweden	145
UK	95 licensed, non-licensed unknown to the regulator (b)

(a) Note: the figures shown may deviate from other commonly available figures (e.g. CEC, 2001a). The reason for this is that this table shows the total number of operators providing voice services in the wire-based sector, while other sources may only provide figures on the number of licensees in the wire-based sectors.

(b) The Irish and the UK regulators keep no record on the number of generally authorised operators. This indicates differences between member states, which the telecoms directives do not address.

Where the telecoms regulators do publish the figures shown in table 7.4, such as in Germany and in the UK, the answers to question 26 in the questionnaire were cross-checked and no differences between the questionnaire and the websites were revealed. However, the figures shown in table 7.4 are broadly correlated with the size of the telecommunications markets in the EU. This is evident when looking at the number of main telephone lines in the member states, which were used as an output measure for the performance analysis in chapter 4 (see table 4.3). These figures allow an assessment as to whether choice for consumers has materialised. Promotion of choice, as reviewed in section 3.2.1, is one of the reasons why the telecoms directives replaced monopoly supply with competition in the member states of the EU.

Besides reflecting the size of the telecoms markets and besides indicating choice for consumers, these figures do not tell much on their own and were, therefore, linked with question 27 (see table 7.1): is the total number of fixed operators enough to achieve effective competition? The answers to this question are shown in table 7.5.

While only the regulators of Denmark, Ireland and Sweden indicated 'not sure' and

Table 7.5: *Is the total number of operators enough to achieve effective competition?*

<i>Member State</i>	<i>Number of Operators Enough to Achieve Effective Competition?</i>
Belgium	yes
Denmark	not sure
Finland	yes
France	yes
Germany	yes
Greece	yes
Ireland	not sure
Italy	yes
Luxembourg	yes
Netherlands	yes
Portugal	yes
Sweden	not sure
UK	no

while the UK regulator answered ‘no’, the remaining **nine** regulators indicated ‘yes’, which shows a considerable degree of harmonisation. It is interesting to note that in the regulators of Denmark, Ireland, Sweden and the UK more competition is favoured. In contrast, the **nine** other regulators, by answering ‘yes’, felt that the present number of companies was enough and pointed to two issues. Firstly, consumers may not benefit from more choice because, due to incomplete information in markets, end users are not always aware of the best deal. Such effects, they felt, were beginning to emerge, and could be reinforced by further entry. Secondly, there is a tendency for new competitors to compete fiercely amongst each other, rather than checking the dominant position of the incumbent operator. Therefore, further entry may simply encourage competition amongst entrants for each other’s market share, rather than winning market share from the incumbent.

7.2.2 Service Charges

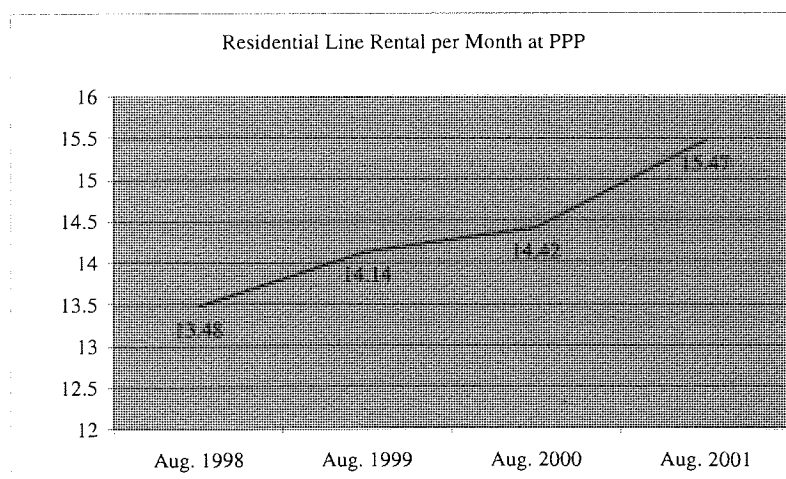
Question 28 in the questionnaire, listed in table 7.1, was: does competition provide lower service charges? Lower charges are, as reviewed in chapter 2 and in section 3.2.1, another main reason why the telecoms directives introduced competition in national telecoms markets of the EU. It should be acknowledged that this question is not a particularly meaningful one for Finland because, as emphasised by the Finnish regulator in the questionnaire, the country never provided telecoms services through a single firm. Hence, the answers given by Finland were conditional and are, therefore, not reported here. The remaining **twelve** member states replying provided information that shows harmonisation, since these countries all considered competition to account for lower service charges, from which consumers benefited compared

with the previous monopoly situation.

This unanimous finding has to be handled with care, however, since lower service charges may have resulted from price regulation rather than from competition. Therefore, the question whether competition accounts for lower service charges may not be particularly easy to answer for countries that currently administer price caps. As shown in table 6.5 in chapter 6, this applies to seven member states, namely Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Sweden and the UK. However, these countries argued that price regulation only provides an initial impetus to lower services charges. In other words, price caps set a price ceiling (Littlechild, 1983) and competition among operators occurs below this ceiling, in the sense that prices are under-cut repeatedly until a new price cap is set. Therefore, it is likely that even under price cap regulation it can be said that competition accounts for some decline in service charges across the member states of the EU. Hence, the telecoms directives, through promoting more effective regulation and competition, do seem to have achieved their intention of creating market environments in which consumers benefit from lower service charges.

To illustrate and to corroborate these results, data on residential line rental, and data reflecting the price of 3 minute calls (based on a basket comprising local and long-distance calls), are presented in figures 7.1 and 7.2. The source of this data is the Seventh Implementation Report of the European Commission (CEC, 2001a, Annex 1, p.22 and p.27).

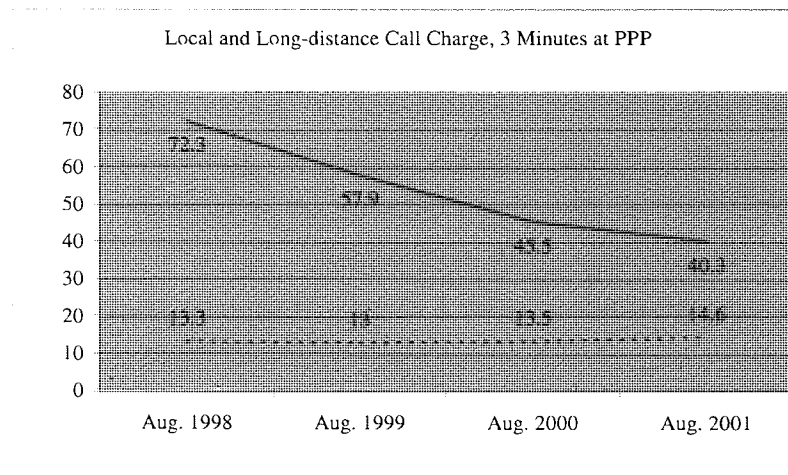
Figure 7.1: *Trend in residential line rental, EU average*



PPP: purchasing power parity; VAT: value added tax

A Similar trend is shown in CEC (2001a, Annex 1, p.22) for business line rentals.

Figure 7.2: *Trend in 3 minute local and long-distance calls, EU average*



PPP: purchasing power parity; VAT: value added tax

A similar trend is shown in CEC (2001a, Annex 1, p.27) for 10 minute local and long-distance calls.

The reason why 3 minute baskets were chosen is because billing differs between member states and operators remain. The average price of 3 minute calls overcomes some difficulties, such as initial minimum charges/no initial minimum charges and per second/per half minute charges.

It is noteworthy that the trends in line rentals and long-distance calls, shown in figures 7.1 and 7.2, below, move in opposite directions. This suggests that telecoms operators have steadily increased line rentals as competition has gradually brought call charges down. Hence, suppliers of telecommunications services have tried to recover lost revenue on call charges by increasing line rentals. During the period covered in figures 7.1 and 7.2, namely August 1998 to August 2001, there was an average 79.4% decrease in the costs for a 3 minute long-distance call and a 14.8% increase in charges for residential line rental. In contrast to decreasing 3 minute long-distance calls, 3 minute local calls have only risen by 9.8% over the period. This outcome is, in part, an indicator of the continued absence of competition in the local loop, compared with growing competition in trunk and long-distance markets. But it is also a reflection of local calls remaining cross-subsidised in European telecoms markets. Previously, local call charges and domestic line rental were held down for political and social reasons because such charges fall more heavily on poorer users. Deficits were then covered by charging at above marginal costs for long-distance and international calls. Competition is attracted into profitable markets forcing prices down and leaving less scope

for cross-subsidisation. This is a process known as ‘cherry picking’ or ‘cream skimming’.

7.2.3 Quality of Service

The next issue investigated through the questionnaire was if competition provides a better quality of service compared with the previous monopoly situation. Quality of service was assessed through two questions in the questionnaire, namely on *transmission quality* and on the *quality of customer service*. Question 29 in the questionnaire (see table 7.1) asked telecoms regulators: Does competition provide a better transmission quality? Question 30 (also listed in table 7.1) asked: Does competition provide a better quality of customer service? Table 7.6 shows the answers given by the telecoms regulators to these questions.

Table 7.6: *The quality of telecoms services, by member state*

<i>Member State</i>	<i>Transmission Quality Improved?</i>	<i>Quality of Customer Service Improved?</i>
Belgium	yes	yes
Denmark	not sure	not sure
Finland (a)	not sure	not sure
France	not sure	no
Germany	no, in wire-based	yes, in wire-based
Germany	yes, in wireless	yes, in wireless
Greece	not sure	yes
Ireland	yes	yes
Italy	not sure	yes
Luxembourg	not sure	not sure
Netherlands	not sure	yes
Portugal	yes	yes
Sweden	no	yes
UK	yes	yes

(a) Although the Finnish regulatory authority answered the corresponding questions in the questionnaire, the respondent emphasised that the answers given are conditional because the country never had a single telecoms monopoly. Therefore, comparisons between monopoly and competitive supply are not particularly meaningful for Finland.

Firstly, regarding transmission quality, table 7.6 shows that the Swedish regulator indicated ‘no’ alongside the German regulatory authority. The German regulator stressed that competition does not provide a better transmission quality in the wire-based sector. In Germany, substantial infrastructure renewal was undertaken in former East Germany after the reunification of the country, which occurred under monopoly conditions before 1 January 1998. In terms of the wireless sector, however, the German regulator is in line with its Belgian, Irish and Portuguese counterparts, who consider competition to account for a better transmission quality in the wireless markets. While the telecoms regulators of Belgium, Ireland and Portugal also felt that competition improved quality in the wire-

based sector, the remaining countries were 'not sure' about the wire-based and the wireless provision.

Secondly, in terms of the quality of customer service, table 7.6 indicates that the regulators of Denmark, Finland and Luxembourg are, again, 'not sure'. In contrast, the French regulator insisted that the previous monopoly situation accounted for a better quality of customer service, and indicated that there were substantial complaints by consumers, in the sense that entrants had in the past not met the quality expectations of subscribers.

It should be acknowledged that the questionnaire did not attempt to assess directly the impact of quality guidelines (see chapter 6, above), under a discretionary measures facilitated by the telecoms directives of the European Commission. On reflection, this was an unfortunate omission in the questionnaire, which did not become evident during the pilot study. However, as emphasised in section 6.2 in chapter 6, Ireland does not, unlike the other member states, set quality guidelines and Denmark appeared to consider quality guidelines only as a minor issue. Finland and the UK do not set such guidelines.

In addition to these findings, the administration of price caps may have a considerable impact on the quality of service achieved by competition. As suggested in section 3.4.2 (Braeutigam and Panzar, 1993; Foster, 1992), price caps may provide an overall incentive to reduce costs and this may cause the quality of services to decline. As found in table 6.5, Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, and Sweden administer price caps. Interestingly, of these countries, Denmark, France, Greece and the Netherlands are not sure, whether competition has provided for a higher quality of customer service or a better transmission quality. These findings suggest that the telecoms directives, and the provision that 'member states shall ensure a good quality of service', may have achieved its purpose of harmonisation to a limited extent only.

7.2.4 New Technologies and Services

Finally, the questionnaire asked, through question 31, listed in table 7.1: does competition provide new technologies and services more quickly? This question draws, as reviewed in section 3.2.1, from the theoretical propositions associated with abolishing monopoly supply and opening telecoms markets to competition. This was formally set down in the Green Paper on Telecommunications (CEC, 1987), introduced in chapter 1, based on which many of the telecoms directives were later drawn. Pint (1991) has proposed that the prospects of returns from competitive business activities create the necessary incentives for companies to

pursue profitability and productivity more radically than under monopoly supply. Hence, new technologies and services should be made available more quickly to generate returns. This study provides support for these propositions, since all member states except Finland indicated that competition rolls out new technologies and services more quickly (as mentioned before, Finland never had a single telecoms monopoly, and the question is, therefore, not particularly meaningful for this member state).

Because the intentions of the telecoms directives were met regarding the faster marketing of new technologies and/or services (see Green Paper on Telecommunications (CEC, 1987), introduced in chapter 1), it is concluded that the intentions of the Commissions have been achieved. This conclusion will now be established more strongly, alongside the other results obtained in this section.

7.3 Conclusions

The analysis in this chapter has provided an understanding so that sub-hypotheses 7 and 8 can be assessed. Like in previous chapters, they will first be discussed individually. Several indicators of the same weight are again used in order to not endanger that the context of the issues involved. This is followed by an overall assessment of telecoms market intervention by regulatory authorities in the member states of the EU. The discussion begins with the assessment of sub-hypothesis 7.

7.3.1 Assessment of Sub-hypothesis 7

The first part of this chapter was concerned with sub-hypothesis 7, which was set down at the end of chapter 3 as follows:

Sub-hypothesis 7: The telecoms directives of the European Commission have created a harmonised *state of competition and regulation* in telecommunications across the member states of the European Union.

The following indicators are used:

- state of regulation achieved;
- effective competition in telecoms market segments by 31 December 2001.

State of regulation achieved. The first question investigated was how telecoms regulators judge the state of regulation achieved. **Eleven** respondents indicated that the state of

regulation is 'advanced, some regulatory action and monitoring required'. Hence, a strong trend towards harmonisation was revealed. It is concluded that sub-hypothesis 7 is not rejected on these grounds. More specifically, the directives manifest the objective in the EU to achieve harmonised regulatory systems. This objective was discussed in chapter 2.

Effective competition in telecoms market segments by 31 December 2001. The finding drawing from the state of regulation was linked to the analysis in this chapter on whether any telecoms market segments were effectively competitive by 31 December 2001. The regulators for Luxembourg, Greece, Sweden and Portugal did not believe there were any effective competitive segments by this date, and the Dutch regulator only reported effective competition in a niche segment. In contrast, the regulators of Denmark, Finland, France, Germany and Ireland did report effective competitive market segments, namely in international and mobile calls. This result indicates a weak trend of harmonisation, which should, again, be attributed to the directives because, as was discussed in chapter 2, they attempt to achieve the objective of competitive telecoms markets.

Overall, sub-hypothesis 7 is not rejected.

7.3.2 Assessment of Sub-hypothesis 8

The second theme of analysis in this chapter was concerned with the benefits telecoms users obtain from competition and regulation. These issues directly draw from the telecoms directives, whose primary objective it is to abolish monopoly supply and to facilitate harmonised telecoms regulatory systems, in which users are expected to benefit from increased choice, lower service charges, better service quality and new technologies or services being available more quickly. The analysis of these benefits was based on:

Sub-hypothesis 8: The telecoms directives of the European Commission have created harmonised *benefits for telecommunications users* across the member states of the European Union.

Once again, several indicators are used to make an assessment. These are:

- increased choice for consumers;
- improved quality of telecoms services;
- declining service charges and new technologies being rolled out faster.

Increased choice for consumers. The first question investigated to assess sub-hypothesis 8 was whether consumers have an increased choice of operators. Table 7.4 showed the total number of competitors in fixed markets and led to the conclusion that choice has been provided. However, a more meaningful interpretation of choice is whether the numbers shown are enough to achieve effective competition. When asked this question, regulators in **eight** member states considered this to be the case. It is concluded, therefore, that the telecoms directives have achieved their purpose, as discussed in chapter 3, of providing consumers with an increased choice as compared with the previous monopoly supply.

Improved quality of telecoms services. The next question in the questionnaire was concerned with whether the quality of telecoms services has improved since the introduction of competition. In terms of transmission quality, the majority or **seven** member states were 'not sure' if transmission quality had improved, leaving only the telecoms regulators in Belgium, Germany (in the wireless sector), Ireland and Portugal answering 'yes'. In contrast, only Germany considered that competition had not improved the transmission quality in the fixed line market. This reflects, as argued by the German respondent, the substantial infrastructure renewal undertaken after the unification of the country, which occurred before the date of full competition introduction, on 1 January 1998. These findings indicate that transmission quality in telecoms remains an issue open to dispute. However, in contrast to transmission quality, the quality of customer service appears to have improved with the introduction of competition. **Eight** member states considered this to be the case. Since this aspect of competition was an objective of the telecoms directives, it is concluded that sub-hypothesis 8 is not rejected on the grounds of customer service quality.

Declining service charges and new technologies being rolled out faster. Another indicator that allows an assessment as to whether the telecoms directives have achieved their purpose was if service charges have declined with the introduction of competition. Again, harmonisation was found. The telecoms regulators unanimously considered that consumers now enjoy lower service charges. The same unanimous finding was obtained from the analysis of the remaining benefits of competition proposed in the questionnaire, namely whether competition brings new technologies and/or services to the consumer more quickly than a monopoly supplier. This finding supports the propositions associated with competition and innovation literature, discussed in chapter 3 (e.g. Kirzner, 1997; Littlechild, 1986; Pint, 1991).

In sum, sub-hypothesis 8 is not rejected. The three indicators by which it was judged reveal

harmonisation consistent with the intention of the telecoms directives.

7.3.3 Summary of the Effects of Competition and Regulation

This chapter has analysed, based on the answers given in the questionnaire, issues associated with the effects of telecoms regulation and competition. These effects draw from the telecoms directives, in the sense that the effects of regulation and competition, and in particular a harmonised state of market intervention and harmonised benefits for users, were the important objectives to be achieved by the telecoms directives. The analysis of these issues was based on two sub-hypotheses, namely:

Sub-hypothesis 7: The telecoms directives of the European Commission have created a harmonised *state of competition and regulation* in telecommunications across the member states of the European Union;

Sub-hypothesis 8: The telecoms directives of the European Commission have created harmonised *benefits for telecommunications users* across the member states of the European Union.

Overall, both sub-hypotheses were not rejected, although country-specific differences remain. These differences did not, however, justify the rejection of either sub-hypothesis. This means, in other words, that the telecoms directives have helped to create a more uniform regulatory platform, on which competition is developing and maturing. In turn, consumers should, and do in terms of the aspects considered in this chapter, benefit from competition. The sources of harmonisation are listed in table 7.7, below.

Table 7.7: *The sources of harmonisation discussed in this chapter*

<i>Issue</i>	<i>Source of Harmonisation</i>
The state of competition and regulation	telecoms directives
Benefits for telecommunications users	telecoms directives

However, some disharmony was found alongside the trend of harmonisation, especially in terms of service quality. There are considerable doubts among regulators as to whether competition is an appropriate means to improve the quality of communications services. Interestingly, member states which do not set quality guidelines according to the findings in

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chapter 6, did not consider that competition provided better service quality. It may, therefore, be worthwhile for those countries, especially Denmark, to consider the implementation of quality guidelines, much like Sweden has done. These results partially reflect the loose and rather discretionary provision of the telecoms directives, namely 'member states shall ensure a good quality of services'.

When the findings of this chapter are linked with the theoretical approach in figure 3.2 on page 104, a judgement can be made as to whether harmonisation has been achieved. Since the sub-hypotheses that have guided the analysis in this chapter were not rejected, it is concluded that harmonisation has been achieved by the telecoms directives. But, as before, more justification is needed and country-specific circumstances are clarified in the case study analyses in chapters 8 and 9.

Chapter 8

Case Studies: Rationale and the Cases of Finland and Greece

8.1 Overview

The previous three chapters, namely chapters 5 to 7, have analysed, based on the answers given in the questionnaire, issues related to regulatory control, regulatory intervention and the effects of competition and regulation on the telecoms markets of the EU. This analysis was undertaken to provide an answer to parts of the central research question of this study, set down at the end of chapter 3, as:

Are the telecoms directives of the European Commission creating harmonised regulatory systems for telecommunications across the member states of the European Union and if differences continue to exist, why is this so?

Overall, the analysis conducted in the three chapters above has revealed two major results. Firstly, the telecoms directives of the European Commission do account for harmonisation in the telecoms markets, but only to a certain extent. Regarding some issues, such as 'regulatory control' (see chapter 5) and the state of competitiveness in telecoms markets segments (chapter 7), the directives alone have so far failed to achieve complete harmonisation because they are insufficient in some respects. Alongside this finding, it was found that factors of cross-national mimetic and normative policy transfer have also been a source for in achieving harmonisation. Secondly, in addition to the degree of harmonisation achieved, sufficient information on 'rights of way', analysed in chapter 5, was not provided by the questionnaire.

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Besides allowing for the decision as to whether harmonisation has been achieved, the analysis in previous sections has provided some explanation as to *why* harmonisation has only been achieved to a certain extent. But these findings alone do not satisfactorily answer the 'why'-question, set down in the operational approach in figure 1.2 on page 26. Therefore, the purpose of the analyses in this and the following chapter is to corroborate the previous findings on harmonisation by taking into account the country-specific circumstances in the telecommunications sectors of four selected member states of the EU. To achieve this intention, four case studies are undertaken to provide more justification as to *why* disharmony remains to date in European telecoms regulation.

Four member states and their telecoms operators were chosen for case study analysis because time constraints did not permit a full review of all fifteen telecoms regulators of the EU. The choice of countries for the cases studies was based on the results of the questionnaire analysis in chapters 5 to 7. The countries chosen and the reason for their choice are detailed next. The aim was to study four regulators which, based on the questionnaire results, appeared to have adopted differing approaches to regulatory issues. At the same time the four were selected from a subset of the telecoms regulators who indicated that they were willing to cooperate in a more detailed case study analysis.

- FICORA of Finland. Chosen because the country never had a single telecoms monopoly and is therefore unusual in the EU. Perhaps this situation leads to a different perspective on some aspects of regulation than found elsewhere.
- EETT of Greece. Drawing from the questionnaire analysis, Greek telecommunications appear to have taken longer to transpose the telecoms directives. Hence, it is not surprising that table 7.3 in chapter 7 shows no telecoms market segments with effective competition. But the questionnaire findings deserved fuller investigation because the mountainous topography and the many islands may pose challenging obstacles to the development of competition in the country's telecommunications.
- RegTP of Germany. The country and its telecoms regulator were chosen for study because of the size of the German telecoms market. As shown in table 4.3 in chapter 4, the number of main lines in Germany is the highest in the EU. In addition, table 7.4 in chapter 7 shows the highest number of operators across the member states. The figures in these tables indicate that the German telecoms market is the biggest in the EU.

- OPTA of the Netherlands. The questionnaire analysis has shown that the Dutch telecoms market may not be as advanced as commonly perceived. The case study analysis should help to understand whether this is really so and why.

In conducting the four case studies, several sources of evidence are drawn together on which the analysis was based. More specifically, the results that have emerged in the analyses in chapters 5 to 7 are combined with information available from the Seventh and the Eighth Implementation Reports of the European Commission (CEC, 2001a, 2002f), and information published on the websites of the telecoms regulators of the four member states. In addition, where available, various academic sources on telecoms regulation in the member states of the EU were reviewed. The state of understanding obtained through the combination of evidence was then used in the design of focussed interviews. The analysis of these interviews is presented in this and the following chapter. This chapter presents the cases of the Finnish and Greek telecoms markets, the following chapter looks at the markets in Germany and the Netherlands.

To conduct the interviews with the four telecoms regulators of Finland, Germany, Greece and the Netherlands, the regulatory offices were contacted making use of contact details obtained throughout the course of this research project. The interviewer was then referred to a senior members of staff within the four regulators, who had the required expertise on the topics covered, in particular on the European telecoms directives and their implications for the work of the telecoms regulator in question. The interviewees preferred to remain unnamed. The interviews were conducted in June and July 2003 using a semi-structured set of questions, which were drawn from the review of the Implementation Reports of the European Commission (CEC, 2001a, 2002f, e.g.), below. The review itself was guided by the results of the questionnaire analysis from chapters 5 to 7. Therefore, the case studies below and the interviews keep a close link with the questionnaire, in the sense that issues were corroborated and pursued further, allowing for a demonstration of differences of telecoms regulation in the EU.

The preferred method was to conduct the interviews in person. But the financial constrains of this research project and the difficulty in travelling to the four different locations in time made it necessary to make use of the telephone. Greece, however, insisted on conducting the interview in writing on the basis that the information given had to be signed by the president of the telecoms regulator. Although the telephone was preferred over email, the interview with the Greek telecoms regulator was finally conducted in writing, which clearly does not provide as much room for flexibility of discussion. However, the following

list summarises the main questions asked in the four interviews conducted. The list does not show questions asked drawing from an interviewee's initial answer.

- *Market intervention by FICORA/RegTP/EETT/OPTA*: The Commission generally advocates a more proactive approach to telecoms market intervention. What is the position of FICORA/RegTP/EETT/OPTA? It could be argued that a passive-case-by-case approach does not solve the basic problem if there is one. Therefore, resolving one case may not prevent the problem from reoccurring with other operators. What is FICORA's/RegTP's/EETT's/OPTA's position?
- *New Directive 2002/21/EC (framework)*: How was the market analysis conducted? Did the market analysis reveal that market segments have to be redefined; if yes, which ones? Did the market analysis affect those market segments with significant market power? Did FICORA/RegTP/EETT/OPTA have to adjust/remove/introduce regulation after the market analysis was conducted?
- *The five new directives in general*: Will FICORA/RegTP/EETT/OPTA enjoy new powers/functions? Were there any major difficulties during the transposition period and could FICORA/RegTP/EETT/OPTA draw on experience gained during the transposition of the previous framework? Will the deadline of 25 July 2003 be met?
- *Authorising operators, rights of way and market entry*: According to the understanding FICORA/RegTP/EETT/OPTA, is the willingness to enter the market negatively affected by strict authorisation requirements? In relation to your organisation, are inconsistent and cumbersome procedures to obtain 'rights of way' a serious obstacle to market entry? Are investment decisions of telecoms operators long-term or short-term orientated?

The discussion starts by reporting the results for Finland.

8.2 Finland

8.2.1 A Brief Review of Finnish Telecommunications

The history of the Finnish telecoms market goes back to around 1855 when Finland was an autonomous Grand Duchy of Russia (Sonera, 2003). Authorisation was then only granted to local undertakings and many small telecoms companies were subsequently established, with

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their number peaking at 809 in 1933 (FICORA, 2003; Gibbon, 2000). These developments led to a considerable degree of fragmentation of the Finnish telecoms sector, which, after World War II, saw a period of consolidation backed by the state, leading to about fifty undertakings attaining 'significant market power' (SMP)¹ (FICORA, 2003), among them the Finnet Group, a coalition of several operators, and Sonera. Some undertakings held supervising and administrative powers, and the Finnish state maintained a majority shareholding in Sonera. It is worth mentioning in this context that the Finnish telecoms regulator, reviewed below, does not consider that Finland never had a telecoms monopoly. Rather, the regulatory authority refers to the market situation before the transposition of the European telecoms directives as a 'divided monopoly'. This is so because the local undertakings did enjoy a monopoly in their own geographical area, and long-distance and international calls were dominated by the predecessor of Sonera. This view of the Finnish telecoms regulator was obtained during interview (see below).

The Telecoms Act of 1987 marked the beginning of a liberalisation movement, which saw the introduction of a new licensing regime that was intended to ensure diversified supply of telecoms services. In addition, the state began to retreat from the telecoms sector and administrative/supervisory powers were removed from the operators in the sector. In 1994, a new Act on Postal Services separated the business and the supervisory activities concerning postal services (*ibid*). Full competition was easily achieved in the same year, well ahead of the European deadline of 1 January 1998 (see table 5.2 in chapter 5), because of the some fifty local monopolies that were already in the market. There already were operators able to compete when the necessary steps were taken to bring the country into line with the telecoms directives of the European Commission (*ibid*). It should be emphasised, however, that despite the historical environment without a single monopoly operator in the Finnish telecoms market, not all provisions of the telecoms directives were met before 1994. In particular, regulations on 'significant market power' and cost accounting had not been passed. Nonetheless, Finland was the first country in the world to allocate licences for the UMTS (Universal Mobile Telephone System, also known as 3G — 3rd Generation), on 18 March 1999, which were granted to Radiolinja, Sonera, Suomen Kolmegee, and Telia Mobile (Gibbon, 2000).

¹As discussed in chapter 2, Directive 90/33/EC (open network framework) defines SMP at or above 25% market share. In contrast, the new framework Directive (2002/21/EC), in force from 25 July 2003, defines SMP as a 'position of dominance', which itself has been defined as an 'affordable behaviour independent of competitors and consumers'.

8.2.2 The Finnish Telecoms Regulator

The origins of telecoms regulation in Finland reach back to 1958, when a Telecommunications Administration Division was formed within the Post and Telegraph Office (FICORA, 2003). At the time, the main powers of this division did not reach beyond technical standardisation of private telephone companies' operations, mainly in areas where new technologies were introduced. Later, prior to 1987, when the introduction of a liberalised market in Finland was underway, the country recognised the need to separate business operations and administrative functions in telecommunications. Therefore, a regulator, the Telecommunications Administration Centre (TAC), was established, in 1988, parallel to the standardisation division. TAC was formed by merging the following institutions (ibid):

- The Radio Inspection Office from within the General Directorate of Posts and Telecommunications of Finland;
- The Tele Inspection Division from within the Ministry of Transport and Communications;
- The TV License Inspection from within the Finnish Broadcasting Company Yle;
- The TV License Centre, which had been a separate unit.

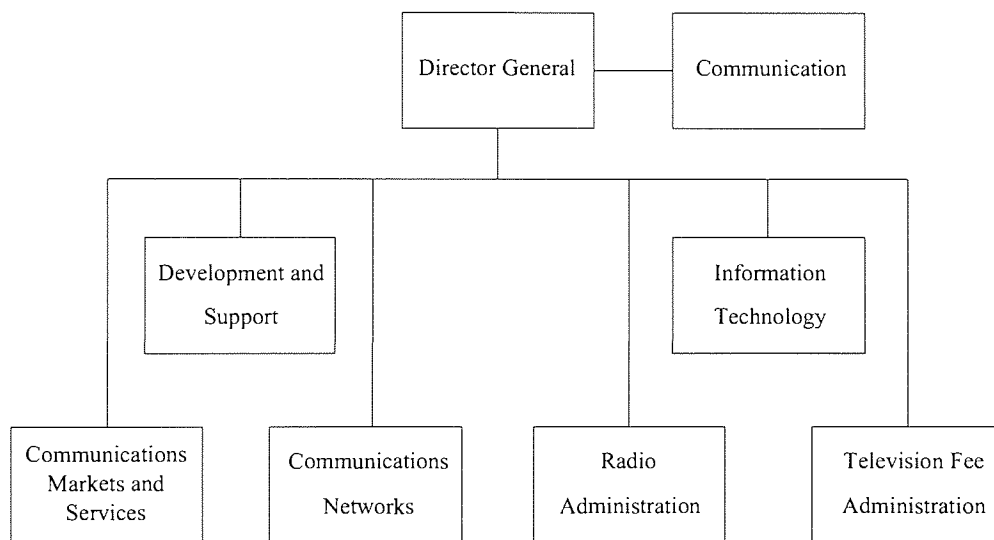
In addition to these institutions, 'type approvals' of telecommunications terminal equipment, as facilitated by Directive 88/301/EEC (terminal equipment liberalisation), were removed from the responsibility of the telecoms operators and placed with TAC. As part of this shift in responsibilities, the standardisation division was soon incorporated into TAC.

Since its beginnings, the regulator has been, according to its own understanding (FICORA, 2003), a semi-independent body under the Finnish Ministry of Transport and Communications. The same conclusion was reached in chapter 5. As was found in the questionnaire analysis in chapter 5 (see table 5.7 for more detail), regulatory decisions are made by the president and key members of staff, rather than by a council or a chamber or a board. However, on 1 September 2001, the regulator changed its name to *Viestinävirasto Kommunikationsverket* — or Finnish Communications Regulatory Authority (FICORA). As emphasised on the regulator's website², the regulator had become a general administrative authority within the electronic communication and information society, and the previous name, TAC, no longer reflected the authority's duties nor its continuously expanding field of activity. To satisfy and to control the needs of this wider field of operations, decisions are

²<http://www.ficora.fi/englanti/index.html>.

made, in contrast to the regulators in Germany, Greece and the Netherlands, by the chief regulator alone or by key members or staff (see table 5.7 in chapter 5). FICORA's operating budget in 2002 reached €28m, consisting of around 90% in fees for frequencies, licences and television, and around 10% from other, non-governmental, sources (CEC, 2002f, Annex 2, p.52) and 249 full-time staff were responsible for the Finnish telecoms sector in 2002. Figure 8.1, below, shows the organisational structure of the Finnish telecoms regulator (FICORA, 2003).

Figure 8.1: *The organisational structure of FICORA*



Today, the Finnish telecoms regulator is generally empowered in accordance with the telecoms directives (see chapters 5 and 6), though some issues remain. In particular, as shown in table 5.8 in chapter 5, FICORA does not grant authorisation to operators and, as shown in table 5.9, frequencies are allocated in conjunction with the Ministry. Another particular feature of Finnish telecoms is, as found in chapter 6, that competition is not enforced and that the effectiveness of competition is not determined by the regulator. The reason for not administering these tasks is the historic development in Finnish telecommunications, in the sense that a single telecoms monopoly never existed. Therefore, as shown in table 6.5 in chapter 6, FICORA allows operators to set consumer charges freely as long as these charges are based on costs. Due to this, it could be argued that telecoms regulation in Finland has reached an advanced state, ahead of many member states in the EU. However, the European Commission has raised concerns about some parts of telecoms regulation in Finland. It has argued that the light-handed approach pursued by FICORA (see below) may be inadequate

in some respects (e.g. CEC, 2002f), which will be discussed next.

8.2.3 Issues in Finnish Telecoms Regulation

As a starting point of analysis, table 7.3 in chapter 7 shows that Finnish telecommunications had only achieved three competitive market segments by 2001, namely international and long-distance calls as well as leased lines. Traditionally, Finnish telecoms regulation has relied more on market forces than on detailed regulation. This light-handed and passive approach has established a light licensing regime, where licences are only required for the provision of mobile networks. However, the European Commission has raised concerns about this approach, especially regarding the control of 'significant market power' and the enforcement of a cost accounting system that fully complies with the telecoms directives reviewed in chapter 2 (in particular with Directive 98/10/EC on new voice). In Finland, the large number of operators with 'significant market power' is the likely source of complaints by entrants. In particular, new operators continue to complain about arbitrary interconnection charges (e.g. Gibbon, 2000).

In response to the concerns raised, FICORA conducted an investigation (FICORA, 2003) and concluded that the interconnection charges of operators with 'significant market power' were, in many cases, not cost-orientated. More specifically, charges levied by these operators are among the highest in the EU at the local and the national levels. FICORA then determined that the cumulative charge of these operators creates, as also highlighted by the European Commission, an obstacle to telecoms market entry (CEC, 2002f). Finnish competitors claim in this context that interconnection tariffs for entrants are discriminatory compared with what incumbents charge themselves. Following this investigation, the regulator has taken action, for example against Sonera, on the grounds of arbitrary interconnection charges (FICORA, 2003). The regulator has ordered this operator to lower its charges by 12% for interconnection and by 20% for call termination.

In contrast to the issues related to interconnection, retail prices charged to the consumer are regarded as competitive by the regulator (FICORA, 2003), which indicates a disparity between the setting of interconnection and consumer charges. Such effects have received theoretical attention. Wright (2002) emphasises that the termination network has a quasi-monopoly because the originating network has no choice but to interconnect to reach a person called. Therefore, the termination network tends to set interconnection charges (charges for call termination) above costs, if these charges are not regulated. In contrast,

if the network in question competes in the originating market, the excess rents earned from interconnection may be competed away by competition for subscribers. This may especially be so in Finnish telecommunications, where competition exist at the local level and where the principle of cost-orientation must be met by operators with 'significant market power' in the fixed local market. The obligation, however, applies in the form of an overall requirement, that is, line rental and call charges as a total have to meet the principle of cost orientation. This situation conflicts with Article 17 of Directive 98/10/EC (new voice), which provides that line rental and call charges must meet the principle of cost-orientation separately. The specific requirements of Article 17 of the new voice Directive are not transposed for operators with 'significant market power' in the Finnish international and long-distance segments because they are deemed to be competitive. This finding is consistent with table 7.3 in chapter 7, but the European Commission has expressed doubts as to whether the suspension of Article 17 is justified (CEC, 2002f).

The basis of these doubts and concerns about the situation regarding interconnection are rooted in the non-compliance of the cost-accounting system with the principles set down in the telecoms directives, and in particular Directive 90/387/EEC (open network framework). This was highlighted by the Seventh and the Eight Implementation Reports (CEC, 2001a, 2002f). Therefore, the Commission launched an infringement procedure against Finland in 2001. Following these proceedings, FICORA carried out its own investigation (FICORA, 2003) and concluded that the cost accounting systems were generally not adequate to provide information on the cost-based provision of networks and services. It should be emphasised in this context that operators with 'significant market power' are free to use their own methodology and the majority of telecoms operators in Finland use historic costs instead of the 'long-run average incremental costs' advocated by the Commission for setting interconnection charges (CEC, 2002f).

Overall, it appears that the light-handed approach to regulation of telecoms pursued by the Finnish regulator has greatly contributed to the failures discussed above. Given the high number of about fifty operators with 'significant market power', a more proactive approach to regulating telecommunications may be needed to overcome the problems found. A more proactive approach to lower the power of companies in the market, accompanied by a greater transparency obtainable through a fully compliant cost accounting system, would help the regulator to obtain more precise telecoms market data. In turn, this should enable better regulatory decisions, especially in regard to the pricing of leased lines and interconnection. If this proposition is supported in subsequent research, then a strong conclusion will

have been obtained, in the sense that, even in competitive markets, a regulator is justified and needed if certain conditions of market failure are to be addressed. The targeted removal of market failure will then help to achieve effective competition on a sustainable basis.

It is in this context that the new regulatory framework for telecommunications in the EU becomes relevant. As was seen in chapter 2, the framework effective since 25 July 2003 opts for a more proactive approach on the part of telecoms regulators in general. In addition, the new framework Directive (2002/21/EC) facilitates a market definition and analysis procedure to obtain a more harmonised basis for intervention in the telecoms markets of the EU. Two questions are of particular interest for Finland. Firstly, will the new framework be conducive to developing a cost accounting system in Finnish telecoms that fully complies with the telecoms directives of the European Commission? Secondly, will the new provisions account for a more proactive approach to controlling 'significant market power'? The second question is particularly interesting given the new definition of telecoms markets. After the redefinition is finished, it is possible that some sectors, which have so far been subject to 'significant market power', may no longer have such designation, although the extent of this remains unclear at the present time. If this will occur, then less, rather than more, regulation would be required in the future.

Finally, the Finnish telecoms regulator currently undertakes the market analysis required under Directive 2002/21/EC and the licensing regime is currently being adjusted (CEC, 2002f). Parallel to this analysis, as part of adapting the present Finnish regulatory system to the new requirements, a draft Act was submitted to the Parliament in September 2002. The draft Act is intended to incorporate the regulation of radio communications with existing regulation of telecoms.

8.2.4 The Interview Analysis for Finland

Before the interview data, collected through a telephone interview with a senior member of the regulatory authority, is analysed, it is beneficial to include some general explanation. The interview complements the review of issues in the country's telecoms market in the previous section, which can be summarised under the headings of 'telecoms market intervention by FICORA', the transposition of 'the new telecoms framework' in Finland, and the country's approach to 'authorising operators, granting rights of way and market entry'. In total, twelve main questions were asked and then supplemented by follow-up questions according to the respondent's initial answers to the main question. The initial questions are included in

appendix C. The case evidence and the questionnaire data together allow a fuller conclusion on *if* and to *what extent* the telecoms directives have created harmonisation in the EU. The same strategy is pursued for the cases of Germany, Greece and the Netherlands, presented at a later stage. The overall conclusions from the four cases will be discussed in chapter 10, where they will be combined with the analyses in chapters 5 to 9 to help to answer the central research question of this study (see page 24). Attention is now turned to the first issue investigated in the telephone interview with the Finnish telecoms regulator.

8.2.4.1 Market Intervention by FICORA

As a starting point for analysis, the interview respondent emphasised that supply in Finnish telecoms had in the past been a so-called ‘divided’ monopoly. This means, in the understanding of the Finnish regulator, that no single firm existed, but there were many monopolies at the local level. In essence, every city/town had its own telecoms supplier. As discussed above, this situation draws from the history of Finland, which had been part of Russia during the 19th the early 20th centuries. These introductory statements by the interviewee confirmed information already known. A question was then asked as to whether this situation had special implications for FICORA’s powers and functions. The respondent insisted that this is the case and indicated:

“... from the beginning, we were mostly entrusted with technical matters and the Ministry did economic intervention. ... our light powers compared with other member states reflect a market driven attitude in Finland.”

The understanding here is that the market is capable of achieving a state of effective competition without much regulatory intervention. Hence, an empowerment of FICORA to administer the full range of functions provided by the telecoms directives has in the past been deemed unnecessary. However, it is in the context of this light approach to telecoms market intervention that the European Commission advocates in its Implementation Reports (e.g. CEC, 2001a, 2002f) that FICORA should be more proactive. This means, in other words, that FICORA should intervene more on its own initiative. Therefore, a question was asked accordingly. In essence, the respondent again emphasised a liberal approach with no retail price control. The interviewee also acknowledged that, on occasion, the Commission’s understanding of proactive regulation was met. For example,

“... we have made a ruling on call termination charges because we found ... [them] ... unfair. ... and we have set the reference interconnection offer.”

Setting the reference interconnection offer is a requirement facilitated by the directives. In particular, Directives 97/33/EC (interconnection) and 2002/19/EC (access Directive) set

down that a national telecoms regulator may enforce the publication of such an offer to ensure transparency (see chapter 2). The offer should include reference prices and reference conditions at which interconnection is provided to competitors when requested. However, the above review of issues in Finnish telecoms regulation revealed that the Commission in its Reports did not raise concerns about the reference interconnection offer. Instead, concerns were raised about the high number of some fifty operators with 'significant market power'. Therefore, the implementation of regulations on call termination charges does not seem a sufficient response. A question was included in the interview, if a more proactive approach to telecoms market intervention would help to tackle the issue of 'significant market power', especially at the local level. The respondent did not provide a definite answer as to whether the problem could be tackled through more regulatory action by FICORA. The interviewee insisted that FICORA is not entirely passive and provided further examples of proactive action:

"... we do react when ... [an operator] ... is complaining. We also monitor interconnection agreements between operators to make sure things stay fair."

This statement points to two issues. Firstly, acting upon request by an operator probably does not match the position of the European Commission that FICORA should be more proactive in regard to telecoms market intervention. This is so because the regulator only *reacts* to a problem when asked to do so, rather than *acting on its own initiative*. Secondly, acting upon request also indicates that the Finnish telecoms regulator generally pursues a case-by-case-approach to market intervention, that is, regulatory action is taken on the basis of individual cases. While such conduct can be effective regarding the removal of individual problems, its potential weakness is that one problem resolved regarding the individual case might be reoccurring elsewhere, with different operators involved. To investigate whether this possibility exists in practice, a further question was asked. The response, whose openness is perhaps somewhat surprising, showed broad agreement. In other words, the regulator acknowledged that problems might reoccur when a case-by-case approach to regulatory action is maintained. At the same time, however, the respondent emphasised that this again reflects the nature of telecoms regulation in Finland:

"Yes, you could say that [the problem might reoccur]. But then we have that market-driven attitude and this is perhaps stronger than in other member states."

This market-driven approach to telecoms regulation in Finland, which will be considered in more depth in chapter 10 in the context of the overall research conclusions, impacts on the two remaining aspects of market intervention by FICORA. As was noted in the

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review of the Finnish telecoms market in the previous section, the present cost accounting system administered and Article 17 of the new voice Directive have been a frequent source of argument between the European Commission and the Finnish telecoms regulator.

Turning to cost accounting first, the telecoms directives, and especially Directives 90/387/EEC (interconnection) and 98/10/EC (new voice), facilitated the requirement of separate cost accounts under certain conditions (see chapter 2). In addition, the form of these cost accounts has been set down. The Eighth Report (CEC, 2002f) notes that the Commission initiated an infringement against Finland due to the non-compliance of the country's cost accounting system. This, in the understanding of the Commission, caused the accounts to provide inadequate information on which regulatory decisions can be based. By trying to shed more light on the issue, the interview included a question on the matter. More specifically, the regulator was asked if the approach had been corrected to meet the Commission's concerns. In essence, the regulator indicated that corrections had been introduced, but insisted that there has been, and still is, a broad disagreement with the European Commission:

“... we do not agree with the Commission that our [cost accounting] system is inadequate. The Commission frequently complains that more checking should be going on.”

The respondent then continued to justify the disagreement, while further emphasising the difference of views:

“If we did more checking, this would be an excessive workload for us and the operators. We have ongoing discussions with the Commission because they do not accept that Finnish telecoms need a different approach than those in other member states.”

The emphasis on the different approach refers to the situation in Finnish telecoms. As said before, there are some fifty operators with ‘significant market power’ at the local level. Therefore, in the view of the Finnish telecoms regulator, more checking would be excessive. The regulator further justified this view by emphasising that there are, compared with other member states, many small operators, the smallest having 1500 subscribers and 15 employees.

Turning to Article 17 of the new voice Directive (98/10/EC), the remaining issue investigated in this section, illustrates a further divergence of attitudes between FICORA and the European Commission. As noted in the previous section, there remain doubts about the suspension of Article 17 in Finland. The Article provides that line rental and call charges have to meet the principle of cost orientation separately, yet FICORA allows operators to demonstrate that the pricing of both elements together is based on costs. To clarify the matter, a question was included in the interview and the reply of FICORA's member of staff

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confirmed that Article 17 is suspended, as claimed in the Implementation Report. Moreover, the respondent indicated that there are, again, diverging views:

“... again, the Commission does not agree with us because they do not accept that Finnish telecoms are different. But yes, we have line rental and call charges together because we think we have effective competition here.”

The interviewee was then asked whether a cost accounting system, which fully complies with the Commission’s view, would provide a stronger justification for the suspension of Article 17. This question was included because the European Commission had launched an infringement proceeding against FICORA regarding the suspension of Article 17. The answer of the respondent was brief and straight forward:

“We think not.”

This answer demonstrates that, regarding some issues, the Finnish telecoms regulator and the European Commission have a different understanding of how telecoms regulation should be conducted. The Commission, however, can always resort to the measure of infringement proceedings to force member states to comply with its provisions or its interpretation of provisions in the telecoms directives. To create a more harmonised application of the regulatory framework for telecoms in the EU, five new directives have been issued, which had to be transposed into national legislation by 25 July 2003 (see chapter 2). The following section considers the transposition of the five new directives for Finland.

8.2.4.2 The New Telecoms Framework

Chapter 2 introduced that the new framework Directive (2202/21/EC) provides for a market analysis as the first step of transposing the new telecoms framework into national legislation. As part of this analysis, telecoms market segments have to be created (if they did not already exist under the previous framework) and regulatory measures for these segments have to be drafted. The European Commission intends to achieve a more equal application of the telecoms framework across the member states. To assess the issue of transposition in Finland, one question in the telephone interview was concerned with how the market analysis has been conducted, which relates to the transposition of European legislation, as analysed in chapter 5. The respondent indicated several steps that have been taken and in each step the current situation in the Finnish telecoms market was compared with the provisions in the directives. If there was a discrepancy, policy principles were drafted to bring the market into line with the provisions of the European Commission. According to the respondent, most regulatory measures were associated with the determination of the new definition of ‘significant market

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power' (see footnote on page 225), a new function FICORA will have in the future (see below). The draft of these principles were then forwarded to the national legislator and, as required by Directive 2002/21/EC, to the Commission as well. FICORA has also built an online data base on the Finnish telecoms market for future use.

Rather than just providing for a mere listing of how the new telecoms framework has been transposed, the interview also collected information on which market segments in Finnish telecoms had to be redefined. This allows for a more detailed and more conclusive assessment of the harmonisation created by the telecoms directives than a listing of what has been done alone. Turning to the answer given in the telephone interview, the interviewee emphasised that not all changes will be known in detail until the finalised framework has been published by the legislator. However, the respondent identified a minor change, namely the separation of terrestrial and cable transmissions in the television broadcasting sector. Alongside this adjustment, however, some major examples were provided, and, again, a discrepancy with the European Commission was revealed, as follows:

“... we had to divide fixed networks more geographically.³ ... [a]nd we had no fixed to mobile call termination sector. But again, we have an ongoing discussion [with the European Commission] here because we do not think this is suitable for Finland. We have more competition in the mobile sector than other member states, so I think we will be able to stand our ground ...”

This statement could, at the first glance, be considered as contradictory with table 7.3 in chapter 7, where only long-distance and international calls were reported by FICORA to have reached effective competition. But it should be taken into account that the information reflected in table 7.3 was given under the premise that fixed to mobile call termination does not exist as a market segment. However, the interviewee went on to justify FICORA's view regarding the call termination sector:

“... the Commission will have difficulties to force us to introduce the fixed to mobile termination sector.”

This answer illustrates that, despite the intention of the five new directives to create greater harmony throughout the EU, differences at the national level are likely to remain. This finding is reinforced by the following two issues that were also investigated during the interview. The first issue is if the market analysis influenced the high number of market segments (over fifty), in which operators maintain 'significant market power', in the sense that there will be more, or less, operators with such powers. The respondent insisted that the new framework will not have major effects on future telecoms regulation in Finland:

³In contrast to local networks, geographical division refers to a wider area covered by a network supplier.

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“... the current system will not change much.”

The same answer was given regarding the second issue, namely whether FICORA will have to adjust, remove or introduce regulatory measures under the new framework for European telecommunications. This question draws from a provision in the framework Directive (2002/21/EC), which, alongside the attempt to harmonise telecoms market segments, is intended to harmonise regulatory measures depending on the competitive situation in each market segment (see chapter 2). In essence, the answer given was as before:

“... there won't be any radical changes.”

Given this answer of no major changes to the current regulatory system in the Finnish telecoms markets, it is perhaps not surprising that the respondent indicated that there will be no changes to the cost accounting system, a question which had been included in the context of transposing the new directives to assess the extent of harmonisation likely to be achieved in the future. Since no changes are planned to the country's cost accounts, it is evident that some aspects of telecoms regulation within the EU will be subject to continuing disharmony. This conclusion will be discussed again later in the thesis.

Besides the understanding of changes in Finnish telecoms regulation, an important indicator of harmonisation created by the new directives is whether FICORA will enjoy new powers or functions under the new telecoms framework. Interestingly, the respondent emphasised that some powers will be passed from the Ministry to FICORA in the future:

“Yes. In the future, we will determine which operator has significant market power. And we will ... recommend regulatory measures ... regarding significant market power.”

It is interesting to note that these powers had been reserved by the Ministry, but the new telecoms directives are leading to more harmonisation regarding this matter, at least in Finland. This is so because Directive 2002/21/EC provides that determination and regulation of 'significant market power' have to be undertaken by the national telecoms regulator. However, given this transfer of powers, the next question asked to the respondent was whether there had been major difficulties during the transposition of the new framework. The interviewee indicated that currently an excessive amount of paperwork had to be done, by the regulator and by competitors, yet little benefits are expected from the transfer of power. On the question why the benefits of the new powers remain in doubt, the following answer was given:

“... honestly, given the situation with some fifty operators with significant market power, we don't see what difference it will make if we determine these [powers] instead of the Ministry.”

This again indicates a divergence of views between the Commission and the Finnish telecoms regulator.

To complete the assessment of the impact of the new telecoms framework in Finnish telecoms regulation, a question was asked whether the deadline of 25 July 2003 could be met. This question draws from a finding in chapter 5, namely that different speeds have existed when the previous European directives have been transposed into national legislation. The Finnish respondent indicated that

“... the new [Telecoms] Act will be in force from 24 July. ... we are ahead of most member states, just like it was with the old framework.”

This answer, in relation with the answers given by the respondents of Germany, Greece and the Netherlands (see below), allowed for the corroboration of the questionnaire findings in chapter 5. As will be seen at a later stage, it seems that, despite the experience gained in the past by the member states, the speeds of transposition will continue to differ.

8.2.4.3 Authorising Operators, ‘Rights of Way’ and Market Entry

This issue emerged from the analysis in chapter 5 and ‘rights of way’ were, therefore, included in the interview analysis. Overall, it should be said that the Finnish telecoms regulator, much like its German, Greece and Dutch counterparts, did not feel in a position to fully answer the questions asked. This is because, as the respondents emphasised, the powers to grant ‘rights of way’ lie with local authorities, such as the building and development offices within city councils.

The interviews did, however, shed more light on the findings in chapter 5. As was seen for Finland earlier in the present chapter, the Implementation Reports of the European Commission (e.g. CEC, 2002f) noted that the granting of digging rights should be free of charge, but some local authorities have levied a € per meter charge. On the respective question in the telephone interview, the respondent confirmed that some of the local authorities have in the recent past become stricter regarding the construction of antennas and masts. The justifications for this stricter approach are environmental and health issues. The respondent also emphasised that such conduct is not a particularly Finnish problem because other member states have experienced the same effects. Drawing from this understanding, the final issue investigated in the interview was if the willingness to enter the telecoms market is adversely affected by strict authorisation requirements, in terms of authorisation by the regulator and in terms of requirements set by local authorities. In both cases, the respondent insisted that there had been no problems in Finland, but acknowledged that there might be some adverse effects, but are unknown at the present time. Regarding regulatory authorisation, the interviewee also emphasised the light approach in Finland, where licences were only

required for frequencies, whose granting was free of charge. In this respect, Finnish telecoms regulation reflects its market-driven approach again. Moreover, it is interesting to note that the new authorisation Directive (2002/20/EC) provides that licenses should only be required for scarce resources, which includes frequencies. In this respect, Finland is already in line with the new telecoms framework and does not have to adapt its authorisation regime to comply with the new telecoms framework, and Directive 2002/20/EC (access Directive) in particular.

8.2.5 Case Conclusions

As a first step, secondary data, mainly drawing from the websites of the telecoms regulator, and from the Implementation Reports of the European Commission (e.g. CEC, 2001a, 2002f), was reviewed. In a second step, an interview was conducted with a senior member of staff of FICORA by telephone. Several issues were included in the interview and were summarised under the headings 'market intervention by FICORA', the 'new telecoms directives' and 'authorising operators, rights of way and market entry'. The discussion in chapter 5 suggested that member states maintain varying degrees of control over their telecoms regulators. This conclusion is corroborated by the analysis above, in particular by the light powers of FICORA, which in the past mainly included technical aspects of telecoms regulation. Regulatory powers, such as the determination of 'significant market power' and regulatory means to tackle this issue, have stayed with the Ministry. The new telecoms directives of the European Commission, however, have required new telecoms legislation in Finland to pass these powers from the Ministry to the regulator, which will, therefore, enjoy greater powers in the future.

Chapter 6 considered telecoms market intervention by regulatory authorities. In this respect, the analysis above found that FICORA maintains mostly a passive approach, and generally only intervenes when an operator asks the regulator to do so. It was also found in this context that FICORA pursues a market-driven approach to regulation using the classification by Trebing (1987), reviewed in chapter 3. Indicators of this approach are, for instance, that no price regulation is administered and that there are frequent arguments with the European Commission about the adequacy of the regulation. These arguments include the use of the cost accounting system, which FICORA considers sufficient, and the suspension of Article 17 of the new voice Directive (98/10/EC), on the grounds of effective competition achieved. In addition, FICORA states that the reason why it has not been empowered in the

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past to undertake the full range of powers set down in the new European telecoms framework is the market driven approach to Finnish telecoms regulation. Legislators in Finland did not deem it necessary to empower FICORA to undertake the full range of functions provided by the telecoms directives. The market was trusted to achieve effective competition without much regulatory intervention.

Regarding the central question of this research project,

Are the telecoms directives of the European Commission creating harmonised regulatory systems for telecommunications across the member states of the European Union and if differences continue to exist, why is this so?

it can be concluded from the Finnish case that country-specific circumstances remain. More specifically, FICORA and the European Commission are in frequent conflict about the application of some aspects of telecoms regulation, such as the use of cost accounts and the suspension of Article 17. The Commission has in the past resorted to infringement proceedings regarding these matters. To reduce the scope for interpretation at the national level and to achieve a greater degree of harmonisation, five new directives have been issued to form the framework for European telecommunications regulation from 25 July 2003. Changes expected in Finland include, as mentioned before, the transfer of functions from the Ministry to FICORA, especially the determination of 'significant market power' and the use of regulatory means by the telecoms regulator to tackle such powers. Another aspect of the new framework, currently disputed, is the introduction of regulation of a new market segment, namely fixed to mobile call terminations. In FICORA's view, this segment is not necessary in Finland due to effective competition already having been achieved. However, it was also found that most of the new directives will be transposed in time.

Overall, the case of Finnish telecoms regulation, and in particular the expected impact of the new framework from 25 July 2003, shows that the new telecoms directives are likely to account for more harmonisation than the previous framework, but only regarding detailed matters. It is likely that the principles of telecoms regulation pursued, namely the control maintained over the telecoms regulator (see chapter 5) and the overall approach to regulation (analysed in chapter 6), will not change substantially. This conclusion is pursued in more depth in chapter 10, where the results for the other three case studies (see below) are also taken into account, alongside the conclusions from the earlier chapters in this thesis.

8.3 Greece

8.3.1 A Brief Review of Greek Telecommunications

As mentioned in chapter 5, the Greek government had been granted, along with Ireland, Spain and Portugal, an extension to complete full market liberalisation, until 2003, but Greece subsequently committed itself to 1 January 2001. There has, however, been a broad perception among entrants to the Greek telecoms market and within the European Commission that the overall progress of transposing the previous telecoms framework, as reviewed in chapter 2, has been slow (e.g. CEC, 2001a; Gibbon, 2000). Moreover, approaching the 2001 deadline, the status of the market remained unclear, mainly because there had been frequent delays while transposing the telecoms directives into the country's regulatory framework for telecommunications. Therefore, in the past the Commission has taken legal action against Greece, especially for the country's failure to allow competition in the satellite and the television segments and for not making licences available at non-discriminatory prices. A revised Telecommunications Act was brought forward in 1998 because of pressure from the European Commission and potential market entrants.

The Hellenic Telecommunications Organisation (OTE), the incumbent telecoms operator, was established in 1949. It was in 1996 that the Greek state began to take steps to prepare the country's telecoms sector for the European-wide market liberalisation. In this year, the first tranche of OTE's shares, 5.7%, were sold to the public (Lewington, 1997). Further progress, however, proved rather slow, especially in the years running up to the 1 January 2001 deadline. There were repeated large-scale demonstrations of OTE staff against the privatisation of the company, which caused much political controversy at the time. OTE's monopoly fell, as shown in table 5.2 in chapter 5, on 1 January 2001 despite widespread public opposition.

8.3.2 The Greek Telecoms Regulator

Greece has seen three legislative acts that are of relevance for the establishment of the Greek telecoms regulator (EETT, 2003). The original Act of 1992 established the industry regulator under the name National Telecommunications Commission (EET). The authority, however, did not commence operations until 1995 and was, for the time being, primarily responsible for the supervision of the partially liberalised telecommunications market. The second Act of 1998 provided for organisation and operation of the postal services sector, and the tele-

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coms regulator became, in addition to its role in telecoms, entrusted with supervision and regulation of the postal services market. Hence, the authority changed its name to *Ethnikhi Epitropi Tilepikoinonion kai Tachydromeion* (EETT) — National Telecommunications and Posts Commission. This is an organisational setup much as in Germany and the Netherlands, where a single authority is entrusted with the regulation of telecoms and posts. According to Presidential Decree 387/31-12-2002, EETT is to be structured as shown below (EETT, 2003). A diagram showing the organisational structure of the Greek regulator for telecoms and posts has not been published. Therefore, the list below only reflects the organisational elements of EETT, but does not show the structural dependencies within the organisation. The list also does not display a ranking of departments.

Figure 8.2: *The organisational elements of EETT*

- 1 Telecommunications Directorate
 - a. Department: Regulation of Telecommunication Issues
 - b. Department: Telecommunications Sector Supervision & Control
 - c. Department: Market and Competition Monitoring
- 2 Posts Directorate
 - a. Department: Regulation of Post Issues
 - b. Department: Postal Sector Supervision & Control
- 3 Spectrum Directorate
 - a. Department: Spectrum Management
 - b. Department: Spectrum Supervision & Control
 - c. Department: Telecommunications Equipment
- 4 Economic and Administrative Services Directorate
 - a. Department: Financial Management
 - b. Department: Human Resources
 - c. Department: Administrative Services
- 5 Public Relations Department
- 6 Legal Services Department
- 7 Information Technology Department
- 8 President's Office
- 9 Legal Adviser's Office
- 10 Secretariat to the European Commission

The third relevant legislative Act in Greece, which entered force in 2000, reinforced and consolidated EETT's supervisory and regulatory roles. Under this Act, the Ministry remains responsible for drafting legislation and setting policy objectives (CEC, 2002f; Gibbon, 2000),

while the regulator is empowered to grant licences, allocate numbers and assign frequencies (the allocation of frequencies is done by the Ministry). This supports the findings in chapter 5, where EETT was found to exercise all these powers (see, for example, table 5.9). In addition, chapter 6 found that the Greek telecoms regulator exercises the whole range of tasks required by the directives. More specifically, EETT exercises price regulation, determines the effectiveness of competition, monitors the competitive behaviour of operators, and enforces effective competition. The Eighth Implementation Report (CEC, 2002f), which became available after the analysis in chapters 5 and 6 was conducted, reaches the same conclusions.

The regulator is accountable to the Ministry of Transportation and Communications and decisions within EETT are made by a body of nine key staff, of which one serves as President and two as vice presidents, for the telecommunications and the postal services sectors respectively (EETT, 2003). This situation corroborates the finding reflected in table 5.7 in chapter 5, in the sense that a chamber, a board or a council makes regulatory decisions. EETT's telecoms budget in 2002 was €16.45m and consisted of 100% in licence fees. The number of full-time telecoms staff totalled 61 (CEC, 2002f, Annex 2, p.52). As will be seen next, the low staff figure has been the cause of some concern in Greek telecoms regulation.

8.3.3 Issues in Greek Telecoms Regulation

In the past, a number of EETT staff had been recruited from Ministerial employees and seconded from OTE, a result which has cast doubts on the regulator's independence (CEC, 2001a; Gibbon, 2000). Moreover, from its beginnings until the date of full market liberalisation, on 1 January 2001, the regulator was considered to be notoriously understaffed and was repeatedly accused of lacking expertise. Therefore, EETT has often been considered as not responding efficiently. For example, it was noted in the Sixth Report of the European Commission that the regulator has no authority to prevent abusive business conduct (CEC, 2000a, Annex 1, p137). EETT, however, has denied reacting inefficiently given the shortage of staff (e.g. CEC, 2001a; Gibbon, 2000), but has acknowledged that it was insufficiently empowered under earlier legislation. The prospective EETT staff for 2003 is 180, and the matters of staff shortage and lack of expertise are now considered to be closed. They appear, with the benefit of hindsight and in the light of the more serious issue of the poor track record of Greece regarding the transposition of the telecoms framework, rather like 'teething troubles' than the cause for serious long-term concern.

When looking at today's situation in Greek telecoms regulation, at first glance it

appears that the country only suffers from a few minor problems, compared with the problems noted for the Finnish sector analysed above, and for the Dutch and the German operators discussed in the following chapter. For example, the Commission's Eighth Report (CEC, 2002f) notes for Greece that complaints have been lodged by entrants regarding high fees for licences, mobile telephone numbers and frequency usage. Moreover, there were concerns in the past regarding excessive documentation required by EETT. These issues are arguably relatively minor compared with concerns raised for other countries.

However, looking at the regulatory system more closely does reveal major issues. Firstly, table 7.3 in chapter 7 revealed that by 31 December 2001 no telecoms market segments had been effectively competitive. Drawing from this questionnaire finding, it was proposed in chapter 7 that the mountainous topography and the many islands of the country may pose serious obstacles to competition. This aspect was investigated in the interview, reported below.

Secondly, the Greek telecoms market has, much like the other member states, faced a common problem. Cave and Prosperetti (2001) note that the Commission has so far failed to achieve competitive pricing of network access and it appears that Greece is no exception, as tariffs charged were found by EETT to remain arbitrary (CEC, 2001a, 2002f). In particular, fixed to mobile interconnection charges remain high and discrimination in the provision of interconnection by operators with 'significant market power' has been reported by market entrants. Likewise, the prices for the provision of leased lines charged by the incumbent were in the past not based on costs, though EETT has ordered OTE to make adjustments. It is in the context of charges for the provision of network capacities that the literature reviewed in section 3.4 and the analysis conducted in chapter 6 have emphasised the importance proper cost accounts.

Thirdly, the case of Finland (see above) revealed that issues in interconnection were due to an inadequate cost accounting systems. Examining accounting in Greek telecoms regulation reveals some issues as well. The Commission noted that an infringement procedure was launched against Greece due to non-compliant cost accounting in telecommunications (CEC, 2002f). Following the proceedings, EETT adopted the methodology recommended by the Commission and initiated an audit, based on which the regulator determined that OTE should make adjustment to its cost accounts by 30 June 2002. The audit confirmed the arbitrary pricing of leased lines.

Finally, another infringement procedure launched by the European Commission concerned the country's failure to establish a universal telephone directory and a nationwide

directory enquiry service. These services are expected to be fully operational after the complete transposition of the new framework, from 25 July 2003.

8.3.4 The Interview Analysis for Greece

As mentioned earlier in this chapter, the Greek telecoms regulator insisted on conducting the interview in writing, although the preferred method was a telephone interview. This situation did not allow for the same flexibility as the other three interviews conducted with Finland, Germany and the Netherlands. Given the issues reviewed in the previous section, one heading of the interview analysis was 'market intervention by EETT'. This dealt with the number of competitive telecoms market segments, shown in table 7.3, where Greece had not reported effective competition. One possible explanation may be that EETT applies procedures for the determination of effective competition that are different than the procedures used by other telecoms regulators. However, table 6.3 in chapter 6 showed that this is not the case. One other explanation is that, given equal methods, the Greek regulator may have applied different decision rules than other telecoms regulators, which then reveals effective competition even though this would not be so if different criteria were used. But it is more likely that the mountainous topography of the country and the many islands prevent the rapid spread of investment.

Another issue pursued in the interview was 'rights of way'. Entrants in Greek telecoms have noted that it is difficult to obtain building permits for antennas and satellite earth station equipment (CEC, 2002f). It should be mentioned in this context that mobile communications are of particular importance in Greece, much more so than in other member states. This is so because of the mountainous nature of the country and the many islands. These present a challenge to the rolling out of fixed line communications networks. Given these circumstances, the authorities have set up a working group involving several Ministries (*ibid*), and improvements to the granting of 'rights of way' are expected later in 2003, after the new telecoms framework has taken full effect.

Finally, the impact of the new telecoms framework was considered as well, under the heading 'the new telecoms framework'.

8.3.4.1 Market Intervention by EETT

It was noted earlier, and in particular in table 7.3 in chapter 7, that Greece indicated no telecoms market segments with effective competition. As repeatedly proposed, a main reason

why Greece lags behind other member states is the mountainous topography and the many islands of the country. Hence, the first question in the interview was if this situation has special implications for the work of the Greek telecoms regulator. The following answer was given:

“Concentration of investment is noted in the major city centres, as opposed to the more remote islands and mountainous areas. This is a fact that shall be taken into consideration ... [and] EETT has already done so ... [when] the roll-out requirements for 3G [UMTS] and ... wireless [network] access were ... decided upon.”

This answer shows that the topography of Greece does have an effect on the development of competition in the country's sector and the question was asked whether this situation has any special implications on the work of EETT. This triggered a clear answer:

“No.”

Given the proposition of earlier chapters, namely that the topography may be a factor that hinders the development of effective competition, a question was then asked accordingly. The following answer was obtained:

“EETT has witnessed such signs from the market.”

It is evident that the answers given so far suggest that the development of effective competition in Greek telecoms is affected by the topography of the country. Specifically, widespread new investment has yet to occur and, hence, competition is taking longer to develop nationwide than in a number of other EU countries.

Alongside the matters investigated so far, the interview focussed on issues that were raised in the Eighth Implementation Report (CEC, 2002f), introduced above. More specifically, the first issue was the cost accounting system administered, which, according to the report, did not provide adequate information regarding operators with ‘significant market power’. It could not be conclusively demonstrated to the European Commission whether the dominant operator provides network capacity on the basis of costs and it has been suggested in this context (*ibid*) that pricing of leased lines in particular may be arbitrary. Since the same source also notes that the cost accounting system has been corrected, a question was asked whether the adjusted system now prevents arbitrary pricing.

“EETT's improvement proposals to OTE, the ... incumbent operator, aim at the achievement of cost-orientation. EETT will be in a position to check whether these Proposals were taken on board once the current audit of OTE's ... [cost accounting] system is concluded.”

Probing further, a question was asked whether the corrected system provides better information regarding the interconnection pricing by operators with ‘significant market power’.

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The answer was broad confirmation, although the process had not been finished at the time of the interview, in July 2003:

“Once those Improvement Proposals are implemented . . . they should yield cost-oriented tariffs for all interconnection services.”

To conclude the investigation of issues raised in the Eighth Implementation Report, a question was asked whether a more proactive approach to market intervention, as advocated by the European Commission, could have avoided arbitrary pricing of operators with ‘significant market power’. The answer indicated disagreement:

“In fact EETT has intervened . . . when it was deemed necessary.”

Overall, the answers given to this section of the interview suggest that the issues raised by the European Commission, which were discussed earlier in the case study of Greek telecoms, are being tackled. Hence, it is expected that in the future regulation in Greece will be in line with the new EU telecoms framework, analysed next.

8.3.4.2 The New Telecoms Framework

The new framework Directive (2002/21/EC) provides for a market analysis to be conducted as part of the transposition of the new telecoms framework (see chapter 2). Therefore, the interview included a question as to how this analysis has been conducted in Greece. Unfortunately, the respondent did not provide information as to *how* the analysis has been conducted. Only *what* has been done in Greek telecoms regulation in preparation for the new framework was documented:

“Presently, an analysis is taking place with regard to the . . . mobile call termination market, as well as . . . the publicly available local and/or national telephone services provided at a fixed location for non-residential customers. For the remaining markets, EETT has proceeded with the necessary actions in order to commence the relative market analyses.”

The market segments mentioned in this answer and the activities referred to are provided by the new framework Directive. In this respect, EETT appears to be in line with the new framework. To investigate the transposition further, the following questions were asked:

- Did the market analysis reveal that market segments have to be redefined? If yes, which ones?
- Did the market analysis affect those market segments with ‘significant market power’?
- Did EETT have to adjust/remove/introduce regulation after the market analysis was conducted?

There was only one answer to these three questions, namely that the process has yet to be completed.

Following this reply, questions were asked regarding the new telecoms framework in general. These matters were included in the interview because the previous questionnaire did not cover the transposition of the new directives, since they had not been issued when the questionnaire analysis was conducted. However, the following questions were asked:

- Will EETT obtain new ex-post/ex-ante powers/functions?
- Will there be changes to the cost accounting system?
- Were there any major difficulties during the transposition period and could EETT draw on experience gained during the transposition of the previous framework (government meddling, etc.)?
- Will the Greek telecoms legislation meet the deadline of 25 July 2003?

Again, only one answer was given:

“The Ministry of Transportation and Communications is the authority responsible for the transposition of the new regulatory package into national law. EETT has sent its comments to the public consultation that the Ministry carried out regarding this issue. To this date the law is not yet in place.”

Besides indicating that the deadline of 25 July will probably not be met, the answer also shows that the transposition of the new telecoms framework has not been completed. In this respect, Greece is not out of line with regulation in Germany and the Netherlands, analysed in the following chapter.

8.3.4.3 Authorising Operators, ‘Rights of Way’ and Market Entry

The analysis of the questionnaire and especially the issue of commencing operations in telecoms suggested that ‘authorising operators, rights of way and market entry’ should be analysed further. Therefore, the interview with the Greek telecoms regulator focussed on this matter. The first question asked was if the willingness of operators to enter the market is negatively affected by strict authorisation regimes. The answer was as follows:

“This is not the case for Greece [because] ... a significant number of companies have been licensed (no pending applications) ... EETT, based on its competencies, has taken all regulatory measures to lift any such obstacles.”

This answer indicates that EETT, in its own view, considers that authorisation barriers do not exist in Greece because the telecoms regulator has removed obstacles. But the

statement made does not fully answer the question because it remains uncertain whether strict authorisation regimes pose entry obstacles. It would have been beneficial, therefore, to ask a follow up question, but the interview conducted in writing did not permit this. Although this answer was followed up on the telephone, the respondent insisted that no information in addition to the original reply could be given. A similar answer was provided to the question whether inconsistent and cumbersome procedures to obtain 'rights of way' are an obstacle to market entry:

"EETT, based on its competencies, has taken all regulatory measures to ... [remove] any such obstacles."

It is worth noting in this context that digging rights and antenna-building permits are granted by local authorities and, hence, are beyond EETT's powers. This was acknowledged by the interviewee, who emphasised that other member states face similar challenges regarding the granting of 'rights of way'.

8.3.5 Case Conclusions

Like the case of Finland earlier in this chapter, the case of Greece has looked at 'market intervention by EETT', the 'new telecoms directives', 'authorising operators, and rights of way and market entry'. The first aspect investigated was whether the mountainous topography of Greece has had an effect on the development of effective competition. The interview confirmed that the topography of the country has indeed had such an effect in telecommunications, in the sense that investment is concentrated in the major cities. This creates an environment which delays the development of wide-spread competition. This finding explains why no competitive market segments were reported for Greece in the questionnaire (see table 7.3 in chapter 7).

The second aspect investigated under the heading of 'market intervention by EETT' focussed on concerns raised by the European Commission in regard to the non-compliance of the Greek regulatory framework. In particular, the interview investigated the cost accounting system administered by EETT. It was found that the Greek telecoms regulator has proposed significant changes to this system. Because the changes are currently being implemented, the respondent was not in a position to judge whether the changes have produced the intended effects.

Besides the issues related to 'market intervention by EETT', another aspect covered in the interviews was the transposition of the new telecoms framework of the European Commission (discussed in chapter 2). However, the effects of the new telecoms framework in

Greece must remain inconclusive for the time being. This is because the transposition has not yet been finished and the questions asked in the interview did not reveal conclusive answers. What can be concluded though is that the deadline of 25 July has not been met by Greece. The country will, again, exceed the original deadline set by the European Commission.

A situation similar to the 'transposition of the new framework' emerged regarding the third aspect investigated, which focussed on 'market entry and the granting of rights of way'. Many questions remained, again, unanswered. Because the Greek telecoms regulator insisted that the interview with its senior member of its staff should be conducted in writing, the answers provided could not be corroborated by follow-up questions. Even when a follow-up telephone call was made, the respondent indicated that only the information initially given in writing could be provided. There is obvious room for further research.

Overall, the case of Greek telecoms provides an example of *why* full regulatory harmonisation has not yet been achieved between the member states of the EU (as established in figure 1.2 on page 26). Firstly, the mountainous areas and the islands of the country hamper wide-spread competition because investment is drawn to the major cities. Secondly, the country once again lags behind other member states regarding the transposition of the new telecoms framework. These two aspects are unique to Greece (although the lack of process with the new framework alone is not).

Chapter 9

Case Studies: Germany and the Netherlands

This chapter looks at the cases of Germany and the Netherlands. As in the previous chapter, secondary information will first be discussed for each case, followed by the analysis of case-specific interviews. The conclusions of this and the previous chapter are relevant for the overall conclusions of the thesis, presented in chapter 10. The discussion first turns to the case of German telecommunications.

9.1 Germany

9.1.1 A Brief Review of German Telecommunications

Changes in the German telecoms sector go back to 1989 when, as part of what is known as the Postal Reform I, postal regulations and postal functions were separated. In addition, the Federal Ministry of Posts and Telecommunications was established and the functions of the former posts and telecoms monopoly, Deutsche Bundespost, were split into three independent operating units: postal services, postal banking, and telecommunications. These units maintained, for the time being, the status of government-owned enterprises. During the first quarter of 1996, as part of the Postal Reform II, the single biggest European floatation to date was initiated when the telecoms unit was converted into a private joint stock company, named Deutsche Telekom (DT). Under a first public offering, 600m shares were placed with

a total market value of €5.46bn (DT, 2001)¹. The German state retained 43% of the shares directly plus 17% indirectly through the Kreditanstalt für Wiederaufbau² (DT, 2001). Then, on 1 August 1996, the Postal Reform III introduced the finalised regulatory framework for the German telecoms market, in the form of the Telecommunications Act. The monopoly of Deutsche Telekom in voice telephony ended on 31 December 1997.

The German economy is the most important one in Europe. In 2000, the GDP per capita totalled €24,705, ahead of France with €23,687 ITU (2003). Also, in 2001 there were 50,220,000 main telephone lines and 48,202,000 mobile subscribers in Germany (ibid). Total telecoms revenue in the same year reached €55.3bn, or 3.7% of Germany's GDP. The main operators are Deutsche Telekom in the fixed line market, as well as Mannesmann-Archor-Vodafone, E-Plus, VIAG Intercom and Deutsche Telekom's T-Mobile in the wireless sector. The auction in German UMTS licensing, initiated in 2000, generated by far the highest volume of cash across European telecoms. The results of the public tender were as follows (RegTP, 2001):

Table 9.1: *Prices paid for German UMTS licences*

<i>Licensee</i>	<i>Price of Licence in € bn</i>
E-Plus Hutchinson	8.41
Group 3G	8.45
Mannesmann Mobilfunk (a)	8.47
MobilCom Multimedia	8.41
T-Mobil	8.52
VIAG Intercom	8.43
Total	50.96

(a) In 2000, the year to which this table relates, Mannesmann had not been taken over by Vodafone. Therefore, the table shows the original company name.

9.1.2 The German Telecoms Regulator

The regulator of German telecommunications, the *Regulierungsbehörde für Telekommunikation und Post* (RegTP) — Regulatory Authority of Telecommunications and Posts — commenced operations on 1 January 1998, which marked the end of the Postal Reform III (RegTP, 2001).³ RegTP replaced the Federal Ministry of Posts and Telecommunications as the telecoms regulator, and is accountable to the Federal Ministry of Labour and Economics.

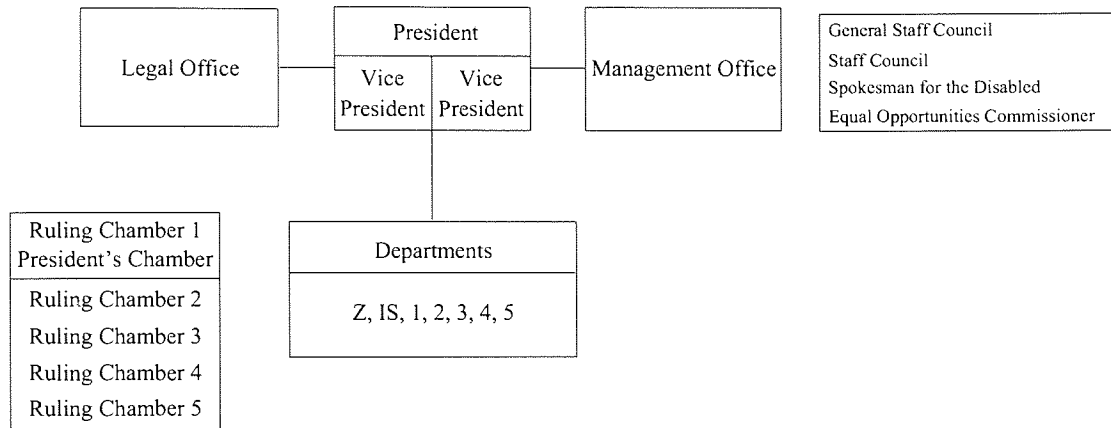
¹The average exchange rate of 0.7 for 2000 was used to convert US\$ into €. The 2000 rate was used on the basis that only insignificant annual changes in this rate occurred prior to 2000.

²This institution is a banking body that was established after World War II to provide easily accessible loans to preferably small- and medium-sized enterprises.

³This section relies in parts on the regulator's website at <http://www.regtp.de/en/index.html>.

As its name suggests, RegTP is not only responsible for telecoms, but also for postal regulation. This setup is identical to those in Greece and the Netherlands, where a single regulator has been entrusted with the regulation of the two sectors.

Figure 9.1: *The organisational structure of RegTP*



Note: This chart is a simplified version of the complete diagram, which can be found at <http://www.regtp.de/en/behoerde/start/fs.01.html>, under the link 'Organisation'. The functions of the ruling chambers are detailed in the main text.

Departments: Z — Central Matters; IS — Information Technology and Society; 1 — Economic Aspects of Telecommunications Regulation; 2 — Frequency Regulation, Licences, Legal Aspects of Telecommunications Regulation; 3 — Postal Regulation; 4 — Technical Telecommunications Regulation; 5 — Regional Offices.

Decisions concerning German telecommunications are made by four ruling chambers.⁴ The ruling chambers have the following responsibilities (RegTP, 2001):

- Ruling Chamber 1: President's Chamber, licensing and universal service in telecommunications and posts, scarce frequencies;
- Ruling Chamber 2: Regulation of rates (charges in telecoms), rates subject to approval for transmission lines and voice telephony;
- Ruling Chamber 3: Special control of anti-competitive practices, ex-post regulation of telecoms rates;
- Ruling Chamber 4: Special network access, including interconnection.

Alongside these chambers, there is another body within the regulatory authority: the Advisory Council. The Council, which consists of nine members of the German Bundestag and

⁴In addition to those four, figure 9.1 shows a fifth chamber, which only deals with charges and anti-competitive practices in the postal sector.

nine members of the German Bundesrat⁵, was established by section 67(1) of the Telecoms Act. Being required to meet at least once a year, in essence the role of the Advisory Council comprises the tasks of making proposals to the Federal Government, supporting the decision-making process of the chambers, and advising the regulator on its bi-annual report to the Government. In addition, the Council must be consulted on matters of frequency usage.

Given the size of the German telecoms market and given the organisational setup of the German telecoms regulator, it is not surprising that its operating fund and its staff are the largest in the EU. For example, in 2000, there were 1,895 full-time telecoms staff with a state budget of €139.9m for telecoms alone. These figures dwarf those of the second biggest telecoms regulator, the Portuguese authority, which, in 2002 operated under a budget of €64.6m and with 396 full-time staff (CEC, 2002f, Annex 2, p.52).

Before current issues in German telecoms regulation are explored, it is beneficial to provide some information about RegTP's powers and functions. The latest Implementation Report of the European Commission (CEC, 2002f) acknowledges that the German telecoms regulatory authority is broadly empowered to conduct the full range of tasks/functions laid down in the telecoms directives, reviewed in chapter 2. The same conclusions are drawn in chapter 5, in the sense that the German telecoms regulator authorises operators, provides operators with telephone numbers, and assigns frequencies. Moreover, RegTP conducts market intervention according to the analysis in chapter 6, especially in terms of enforcing competition, monitoring the competitive behaviour of operators and administering price caps. Despite these powers, the Commission has, however, raised concerns (CEC, 2002f, Annex 3), in the sense that RegTP is not empowered to enforce commercial deals between telecoms operators, thus it can only act as a mediator. In addition, the regulator is not empowered to conduct the market analysis under Directive 2002/21/EC (framework). These and other issues will be discussed next.

9.1.3 Issues in German Telecoms Regulation

Given the approach to decision-making within the German telecoms regulator, which involves four ruling chambers and one Council, it might be expected that a proactive approach to telecoms regulation is maintained. However, RegTP is renowned for its passive approach to market intervention. In other words, it acts, in general, only on requests put forward by DT's competitors (CEC, 2002f; Gibbon, 2000). Therefore, RegTP generally relies on

⁵The Bundestag is the Federal Parliament and the Bundesrat is the equivalent of the British House of Lords.

a case-by-case intervention drawing from German competition law, rather than on setting regulatory rules (though rules are set, e.g. for delivery times of leased lines, see below). Stemming from these circumstances in the country's telecoms regulation, the Commission has raised a number of concerns in its Implementation Reports (e.g. CEC, 2001a, 2002f).⁶

The analysis in previous chapters has shown that the telecoms directives account for a certain degree of harmonisation, beyond which country-specific circumstances and approaches remain important. The German case corroborates this finding clearly. In essence, there is a fundamental issue that has emerged in German telecoms regulation, namely lengthy procedures. Entrants have repeatedly complained that decision-making procedures are inefficient and the workload of the regulator is excessive. In the view of entrants, this situation is the reason for delays in implementing decisions, an argument which perhaps comes as a surprise given that the regulator employs the highest number of staff in the EU. However, probing deeper reveals that there are several factors which support the claim. Firstly, Germany has, in contrast to other member states, a long tradition where decisions in the public sector are tested in the courts and the country's telecoms sector is no exception. This means, in other words, when RegTP acts on matters of significance, there is a fair chance that an operator will launch a court appeal. An example is the decision of the regulator on interconnection pricing, when RegTP decided to use element-based charges to set the level of tariffs. Following the regulator's decision, DT went to court, which eventually rejected the incumbent's appeal. Another example is the decision of RegTP to set time limits for the delivery of leased lines, including penalties for exceeding these time limits. The Eighth Implementation Report notes that Germany has, together with Ireland and the Netherlands, the longest delivery times in the EU (CEC, 2002f, p.34). However, the telecoms regulator judged that DT's prices for leased lines were discriminatory. Again, the incumbent went to court. This time its claim was successful and RegTP's decision was not implemented.

Such conduct adds to the already lengthy procedures in German telecoms regulation because court proceedings take time. The excessive amount of court appeals compared with telecoms regulation in other member states is made worse by the German 'love affair' with confidentiality rules. As noted in the Eighth Report (CEC, 2002f), court proceedings were in the past slowed down because essential documents could not be passed to courts due to the confidentiality rules. In the view of the Commission (*ibid*), these rules are excessive. To ease the situation, the Telecoms Act was amended in May 2002, when RegTP was empowered to decide, at its discretion, which parts of confidential documents can be made

⁶The following section draws from the Eighth Report (CEC, 2002f).

available. Improvements are expected later in 2003, when the new telecoms framework will be implemented.

A second issue repeatedly raised, which arguably contributes to the lengthy procedures, is a lack of empowerment of the German telecoms regulator. The Implementation Reports (e.g. CEC, 2001a, 2002f) note that RegTP is not sufficiently empowered to order interconnection agreements, it can thus only function as a mediator. This finding in the report corroborates the analysis in chapter 6, where it was found that the German telecoms regulator does not enforce interconnection agreements. In addition, the reports of the Commission (*ibid*) emphasise, in this context, that RegTP is not allowed, under a ruling of the North Rhine Westphalia Higher Administrative Court, to set interconnection charges while disputes are pending. This lack of empowerment casts, in the view of the Commission, some doubts on Germany's conformity with the interconnection Directive (97/33/EC). This lack of powers is, arguably, a further major reason for lengthy regulatory procedures. This is so because RegTP only acts on request, which means, in the context of interconnection, that the six month limit (see chapter 2) for operators to close a deal may have passed by the time regulatory action is taken. Also, given that RegTP maintains a case-by-case approach, problems may be reoccurring because of the different operators involved.

Alongside the lengthy procedures, it is noteworthy that the European Commission has in the past launched two infringement procedures against Germany. Firstly, DT did not provide carrier pre-selection for local calls (Directive 98/61/EC on numbering) and, as a result, only 33% of German subscribers had access to this service. Following the action of the Commission, a painful legislative process was initiated, after which section 43(6) of the Telecoms Act was amended in September 2002. The Amendment made the availability of carrier pre-selection for all types of calls mandatory, from 1 December 2002.

The second infringement procedure was launched against the exaggerated one-off licence fees in German telecoms, about which operators have repeatedly complained. The Eighth Report (CEC, 2002f) notes that a single national voice licence costs €1.52m and a licence for the operation of lines costs €5.39m. Given the high number of staff of the German telecoms regulator, one cannot help but ask whether the level of fees was needed to recover the high costs of regulation. However, the infringement was eventually dropped after Germany's Supreme Court annulled the regulation of licence fees in September 2001. The new regime provides that fees are only to be charged for the award of a licence and must not include other costs.

In contrast to the level of fees, it is surprising that the Telecoms Act provides for the

granting of 'rights of way' free of charge. An application has to be put forward to the local authorities, but it appears that no significant problems have been reported regarding the granting of 'rights of way' in Germany. Nonetheless, the analysis in chapter 5 found that there remain some unanswered questions and this is the reason why the interview analysis still considers 'rights of way'.

Finally, regarding the new framework of European telecommunications (see chapter 2), RegTP will enjoy greater powers, in the sense that it will be able to enforce commercial interconnection agreements, even if an appeal is pending. This understanding corroborates a finding in chapter 6, in the sense that the reason why RegTP does not enforce commercial agreements on its own initiative and does not ensure the cost-based provision of leased lines is the lack of empowerment in this area. However, the Commission noted in its Eight Report (*ibid*) that RegTP is still not sufficiently empowered to conduct a full market analysis, as facilitated under Directive 2002/21/EC (framework). This is so because the authority cannot make regulatory decisions without the operators affected being present during the decision-making process of the ruling chambers. By 2002, no agreement had been reached due to the diverging views of the operators regarding the procedures to be applied for conducting the market analysis.

9.1.4 The Interview Analysis for Germany

The above discussion of German telecommunications suggests that country-specific circumstances remain beyond the level of harmonisation found in chapters 5 to 7. The Commission's Eighth Report (CEC, 2002f) argues that the lengthy procedures described above pose obstacles for the development of effective competition. Moreover, the passive case-by-case approach adopted by the regulator appears, at first sight, as not particularly conducive to the promotion of effective competition. This situation may be the reason why, as was seen in table 7.3 in chapter 7, the German regulator reported only one competitive market segment by 31 December 2001, namely mobile calls. In addition, given the case-by-case philosophy, issues may reoccur elsewhere.

The review of issues in the previous section has found that RegTP operates under a substantially higher telecoms budget and with a substantially larger number of personnel than its European counterparts. This situation might be caused by the size of the German telecoms sector with the highest number of operators (see table 7.4 in chapter 7) and the highest number of main telephone lines (see table 4.3 in chapter 4). This issue was

investigated in the interview.

In addition, it could be argued that a greater empowerment of the German telecoms regulator would strengthen its position against operators. This might lead to a decrease in the amount of court appeals lodged if RegTP enjoyed a greater degree of respect among operators.

Attention now turns to the analysis of the interview, conducted by telephone with a senior member of staff of the regulatory authority. The analysis will be presented, as in the earlier country case studies, under three headings, namely 'market intervention by RegTP', 'the new telecoms framework', and 'authorising operators, rights of way and market entry'.

9.1.4.1 Market Intervention by RegTP

As discussed earlier, RegTP is entrusted to regulate posts and telecoms in Germany. In this context, the discussion above noted that RegTP uses more resources than other telecoms regulators in the EU. At a glance, this might be related to the size of the German telecoms market, in the sense that more operators and more customers may require a bigger regulator. This proposition could not be confirmed in the telephone interview because:

"[Budget and staff have] not much to do with the size of our market. What's more important ... are the responsibilities and the powers that we have."

To justify this answer, the interviewee provided examples of RegTP's powers and functions, namely technical regulation (telecoms equipment and frequencies), consumer price regulation, and frequency assignment. For example, in France and the UK there are separate frequency authorities⁷, whose staff is not accounted for in the main regulatory office. However, as was seen in table 5.9 in chapter 5, other telecoms regulators in the EU are also empowered to assign frequencies, and table 6.5 in chapter 6 shows that consumer price regulation is administered elsewhere in the EU as well. This situation was brought to the interviewee's attention during the interview, which triggered more justification regarding RegTP's budget and staff:

"... don't forget that as far as ... technical [regulation] is concerned, we also do gauging, verifying, calibrating and so on."

It is perhaps worth emphasising that these functions are undertaken by regulatory personnel, whereas other telecoms regulators in the EU are not entrusted with technical matters. However, alongside the powers and functions of RegTP, there might be another justification as

⁷In the UK, the new Office of Communications (OFCOM) will be empowered to assign frequencies once the new telecoms framework has been fully transposed into UK legislation.

to why the office has a comparatively high number of staff and a comparatively high budget: the 'German bureaucracy'. To shed more light on the effects this may have for RegTP, a question was asked accordingly. Instead of merely revealing 'yes, there is such an effect', a new aspect of telecoms regulation was revealed:

"... I don't think it's fair to say that we work inefficient[ly]. What has to be taken into account ... is that we ... work under codified law. This means that our telecoms regulations are perhaps bigger and more extensive than [those] in other member states. [Therefore], we have to interpret each ... case and make sure *that* it fits the rules and *how*."

The respondent also gave an explanation what 'codified law' means. Every case possible should be covered by a general law and, hence, the case follows the law. This contrasts with the Anglo-American legal system, where a reliance on case law means that the law follows an individual case. On the question, whether the German legal system is more time and resource consuming regarding the regulation of telecommunications, the following answer was provided:

"Perhaps you could say that, but you cannot say that [RegTP's] administration and ... procedures are inefficient!"

It is in this context that a concern raised by the European Commission (e.g. CEC, 2001a, 2002f) becomes relevant: the lengthy procedures in German telecommunications, an issue which was introduced earlier in the chapter. In particular, the German confidentiality rules are seen as a source of concern. Therefore, the interview attempted to clarify this issue and a question was asked accordingly. Although the answer confirmed that the confidentiality rules cause lengthy procedures, another aspect, which substantially contributes to the delays experienced, was then acknowledged:

"... you could say that the ... confidentiality rules do not help to achieve quick proceedings. And, of course, the high number of appeals [against regulatory decisions] before the courts does [also] not ... [allow for quick proceedings]."

The respondent further explained that court proceedings can take up to six years. This may happen because each court ruling can be appealed against. Six months is, according to the interviewee, a rather long time in telecoms because:

"... market shares are constantly shifting and the market is growing. Ok, one can launch an urgent appeal, but this still takes three months. It is a bit like 'operation successful, patient dead'."

In this context, the European Commission has, as discussed earlier, raised concerns about the high number of court cases, which clearly are a significant cause for delays in German telecoms regulation. The respondent was asked, therefore, why a comparatively high number of regulations is settled in court. The reply was that under the German telecoms framework,

everybody can take RegTP to court. The respondent claimed, however, that this may not be a negative development, given the history of Germany with the 3rd Reich and the resulting strong independence and the high recognition of the judiciary within society since 1945. This has led to a situation where the interests of an individual are highly regarded.⁸ Therefore, everybody affected has the right to appeal against every regulatory decision made by RegTP. Such a culture of cause impacts on the work of the German telecoms regulator and was emphasised by the respondent as follows:

“... we explicitly have to take into account the different interests of competitors. [For example, regarding] price regulation of interconnection and leased lines ..., DT is interested in high income, whereas entrants are interested in low expenses.”

The interviewee insisted that in its decision-making RegTP does not try to seek compromises because the regulator pursues ‘asymmetric regulation’. This means that a regulatory decision creates advantages for some operators whereas it disadvantages others. This regulatory approach is required, in the view of the German telecoms regulator, to tackle dominant positions and to benefit consumers. The interviewee went on to provide some clarification as to why these factors contribute to the high number of court cases in German telecoms regulation.

“Given ... [asymmetric regulation and the appeals culture], ... regulatory decisions are quickly tested in court.”

In this context, the interviewee also emphasised that RegTP operates within a highly codified legal framework, and it should be acknowledged that the framework may not correctly cover every practical case thinkable. Therefore, operators should have the opportunity to appeal. The respondent also stressed rather strongly, that this situation should not lead to the conclusion that the quality of RegTP’s market intervention suffers. However, to explore further the high number of court cases and to increase the speed of procedures in German telecommunications, a question was asked as to whether greater powers and functions of RegTP would be a suitable measure to tackle the problem. This question was asked to explore whether a stronger position for the telecoms regulator before operators would have a positive impact on the number of court appeals launched. The reply showed disagreement with this proposition and indicated instead that, in the view of RegTP, the problem lies in the appeals structure of German court proceedings. The following example was given:

“We once tried to implement a European Regulation ... for which we were already empowered. But we were [still] taken to court.”

⁸This culture can be illustrated as follows. The city digs up a hole and secures it properly. However, someone falls in drunk and gets hurt, which would be the city’s fault for digging up the hole in the first place. Thus, the injured person takes the city to court for compensation. Thanks to Mr. Zilles of RegTP, who did not take part in the interview, for drawing my attention to this illustration.

To tackle the problem of the high number of court appeals, the respondent suggested that the courts should have a time limit within which rulings have to be met and that it should not be possible any more to go through so many sets of appeals. But this solution is, of course, beyond the control of the telecoms regulator. The interviewee also acknowledged that there are no serious proposals to limit the judicial independence, which would be a difficult undertaking anyway, given the experiences of the 3rd Reich.

Besides the judicially-driven procedures in German telecommunications, the Commission notes in its Implementation Reports (e.g. CEC, 2002f) that RegTP should pursue a more proactive approach to telecoms market intervention. Under its present approach, RegTP generally only acts on a case-by-case basis. To clarify the matter, the respondent was asked what RegTP's position is regarding a more proactive approach. The following answer was given:

"In principle, an infringement ... [with German telecoms regulation] must occur first before RegTP can act. And since an infringement usually shows up within individual cases, we deal with the case first. This is especially so regarding the prevention of anti-competitive practices But [it] is ... different regarding price cap regulation ... [where] we act first ... and the operator has to comply with our regulation ... [afterwards]"

The respondent also emphasised that these working principles are set down by the German Telecoms Act. The interviewee was then asked whether a case-by-case approach bears the potential weakness that a problem might reoccur elsewhere. The German interviewee agreed with this proposition and emphasised that RegTP would like to be more proactive. In particular, the respondent indicated that the German telecoms regulator has tried in the past to intervene in negotiations between operators and impose guidelines for interconnection and leased lines. The courts, however, have ruled against RegTP, so the guidelines drafted by the regulator could not be implemented. The interviewee was then asked whether, in principle, the German telecoms regulator supports the view of the European Commission, in the sense that RegTP should be more proactive. The respondent broadly agreed, although emphasising that the Commission would probably go further than RegTP. In any case, however, the respondent emphasised that:

"... our hands are bound, partially by our legal framework ... and partially because of our courts, which often rule against us."

This answer again illustrates the impact of the German judicial system and the culture, where the interests of an individual are regarded highly. But the answer may also indicate that the German understanding of regulation is of a market-driven nature (for the relevant theoretical considerations see Trebing (1987), chapter 3). This is so because there might

be an understanding that competitors should have the freedom to make rational decisions without external intervention. Therefore, a question was asked accordingly. The answer pointed towards a mixed understanding:

“... probably ... [there is a market-driven understanding]. But our legislator also has to take into account that too much freedom does perhaps not always create equal opportunities, especially in our industry with an incumbent supplier. And we are here to make sure that equal opportunities do materialise.”

Alongside the issues discussed so far, the review of German telecoms earlier in this chapter has noted that carrier pre-selection was not available for local calls until September 2002, when the Telecoms Act was amended. Moreover, as argued by the European Commission (e.g. CEC, 2002f), the delivery times of leased lines in Germany have been, together with those in Ireland and in the Netherlands, the longest in the EU. Therefore, two questions were asked to shed more light on carrier pre-selection and delivery times of leased lines in Germany. On carrier pre-selection, the respondent indicated that the reason why this was not available to German customers in the past was simply because German telecoms legislation did not provide for this service. This was a clear infringement of the Directive on interconnection, and in particular its Amendment (98/61/EC), reviewed in chapter 2. This matter is now considered to be closed because, as said above, the Telecoms Act now includes the necessary clauses and

“... the last bastion of the monopoly fell.”

This information corroborates an answer given by the German regulator in the questionnaire (see chapter 5). More specifically, in response to the question whether there are any directives *not* ‘substantially transposed’, an answer was given which indicated ‘no’. The interview, however, revealed that a particular provision of Amendment 98/61/EC had not been transposed.

However, regarding the long delivery time of leased lines, the answer was as follows:

“... DT did not allocate enough people internally to meet the requests of competitors [Therefore], we have set time limits and penalties for exceeding the time limit.”

The respondent further indicated that at present this decision is pending because of an appeal launched by DT, the incumbent telecoms operator. RegTP has launched a counter-appeal and hopes to win because it regards DT’s practices as anti-competitive. The respondent emphasised in this context that there is some room for the legislator to empower RegTP further. It is necessary to get involved more in the business activities of operators, especially in their commercial negotiations to ensure fair contracts. As will be seen next, greater powers are planned under the new framework.

9.1.4.2 The New Telecoms Framework

As discussed earlier, the Eighth Implementation Report of the European Commission noted that RegTP was unable to undertake the market analysis under Directive 2002/21/EC (framework) because the necessary enquiries could not be made. To clarify the issue, a question was asked during the telephone interview as to whether the German telecoms regulator was not adequately empowered in this respect. The reply was somewhat surprising:

“I don’t know what the Eighth Report is on about here. We have always collected data from the market . . .”

Given this contradiction to the Eighth Report, no definite assessment can be made. To assess the transposition of the new telecoms framework in Germany, the next question asked in the interview was how the telecoms market analysis had been conducted by RegTP. The answer indicated that the telecoms regulator referred closely to the provisions in the framework Directive (2002/21/EC), that is, information was collected if RegTP did not already have it. Then, regulatory measures were drafted, as deemed necessary by RegTP, for the eighteen markets defined in the Directive and then forwarded to the German legislator and to the European Commission.

A perhaps more interesting question than just a listing of how the telecoms market analysis has been conducted is, whether, as a result of this analysis, market segments had to be redefined or newly introduced. Thus, a question was asked accordingly. The reply was that the new framework is currently being finalised and that no definite information can be provided, therefore. Nonetheless, the interviewee indicated that RegTP will introduce the distinction between residential and business customers in regulatory terms, though it already existed in the market. Then, on the question if regulatory measures have to be introduced, removed and/or adjusted, in general and in particular in the new market segment where business and residential customers are separated, the following answer was given:

“... despite the new market segment, the basic problems have not changed and the basic regulatory measures will, therefore, not change dramatically.”

By probing further, the respondent was asked if more examples could be provided as to how telecoms regulation will change from 25 July. The respondent then indicated that charges for call termination and ‘significant market power’ in mobile communications are currently under investigation. But the interviewee also indicated that, so far, no regulation has been used in these two market segments because they have been deemed by RegTP to be effectively competitive.

The next issue investigated was whether the market analysis, and in particular the new market segment and its proposed regulatory measures, affect 'significant market power', in the sense that there might be more, or less, operators so designated. This question was included because, as argued by Cave and Prosperetti (2001), the problem of SMP has yet to be tackled adequately across the EU. The respondent felt unable to comment in detail until the new framework is finalised. Therefore, the interview moved on to the next issue. More specifically, the interviewee was asked whether RegTP will enjoy greater powers under the new framework. The respondent indicated that the German telecoms regulator will have more discretion regarding the setting of conditions for the provisions of leased lines and interconnection, and more discretion regarding price regulation.

To assess the impact of the new framework further, a question was asked whether RegTP experienced any difficulties and whether experience could be used that was obtained during the transposition of the previous framework, current until 24 July 2003. The respondent indicated that no real difficulties had been faced, but emphasised the importance of experience gained in the past, especially in terms of:

“... the cooperation with other telecoms regulators ... , an explicit requirement under the new framework to achieve more harmonisation And we could ... refer to our experiences as a consultant ... regarding the suggestion of legislative changes ... to our legislator.”

This answer suggests, firstly, that RegTP's actions, by referring to international cooperation, are consistent with the view of the European Commission on achieving a more equal application of the telecoms framework across Europe. Secondly, the answer shows that RegTP is a highly regarded institution within German telecoms regulation. The legislator respects the regulatory authority as a consultant on telecoms matters. The final question asked in this section was if German telecoms legislation will meet the deadline of 25 July 2003, by which time the new framework has to be transposed. The answer was that probably the deadline will be exceeded, but the implementation of the new German Telecoms Act is not under RegTP's control.

9.1.4.3 Authorising Operators, 'Rights of Way' and Market Entry

Chapter 5 found that the granting of 'rights of way' to operators and heavy authorisation regimes may pose an obstacle to telecoms market entry. In this context, the review of issues in German telecommunications, earlier in this chapter, noted that Germany had to face an infringement procedure because of exaggerated telecoms licence fees. Therefore, two questions were asked if market entry is affected adversely by (i) heavy authorisation

requirements and (ii) strict requirements of ‘rights of way’. The answer may seem surprising:

“Probably not . . . [because] our licensing regime has in the past been criticised repeatedly for being heavy. And yet, we have the highest number of competitors in the EU. So our conclusion is that the urge of operators to be in the market is stronger than the need to meet heavy [authorisation] requirements.”

Then, on ‘rights of way’ the respondent claimed that the same answer as on authorisation could be given. But this understanding that heavy requirements do not appear to have an adverse effect on market entry in telecoms seems contrary to the view of the European Commission (e.g. CEC, 2001a, 2002f), which repeatedly states that there are adverse effects. The interview data also suggests that more clarification should be provided on market entry and ‘rights of way’. Chapter 10 will look at this issue in more detail, especially in the context of the overall conclusions of this research.

9.1.5 Case Conclusions

The interview with the German telecoms regulator, again conducted by telephone, looked at three issues, namely ‘market intervention by RegTP’, ‘the new framework for telecommunications’, as well as ‘authorising operators, rights of way and market entry’. Overall, the interview revealed considerable influence of country-specific issues in German telecoms regulation. The starting point of analysis was, as noted earlier in this chapter, that RegTP operates with a substantially larger telecoms budget and employs a substantially higher number of telecoms personnel than other telecoms regulators in the EU. It was proposed in this context that the size of the German telecoms market might be the reason for this because the highest number of operators and subscribers in the EU might pose the need for a large regulator. This proposition, however, was not confirmed by the interview data. Instead, the interviewee emphasised that RegTP is entrusted with technical matters of regulation of telecommunications, that is, gauging, calibrating and verifying. These functions are fulfilled by non-regulatory personnel in the other member states.

Another aspect investigated during the interview with the German telecoms regulator was that the passive case-by-case approach may not be conducive to the achievement of effective competition. The interview analysis suggests that this may be so because problems may reoccur elsewhere, even though a particular case has already been settled. This possibility was acknowledged by the respondent, who emphasised that RegTP recognises the need for a more proactive approach to market intervention, especially in terms of setting guidelines for reaching commercial interconnection agreements. However, the German courts have, as

was indicated by the interviewee, often ruled against RegTP and, therefore, many of the regulator's own initiatives have not been implemented.

The frequent participation of the German courts in telecoms affairs was a second aspect explored during the telephone interview. The interviewee emphasised that the high number of court cases and the time appeals take to pass through the courts, substantially contributes to the lengthy procedures in German telecoms regulation. It is also interesting to note that this circumstance in Germany draws from the country's history with the 3rd Reich and the then non-independence of the judiciary. Also of importance in this context is that in Germany regulatory decisions are quickly tested in the courts because the interests of the individual are regarded highly, perhaps more so than in other member states. However, what is also of relevance in the context of the involvement of the judiciary is that RegTP operates under a highly codified law, where each case has to be checked to see if and how it fits within the law. This system is, as was seen during the interview, perhaps more time and resource consuming than the Anglo-American case-law. It should, therefore, be concluded that lengthy procedures are not caused by inefficient procedures administered within RegTP, but rather by the codified legal basis of regulation in Germany and a culture where regulatory decisions are quickly tested in the courts. Moreover, these circumstances may compromise the independence and the discretion of RegTP in the long-run (a similar conclusion has been drawn by Coen and Héritier, 2000). The interview also investigated the proposition that a better empowerment of RegTP would help to tackle the high number of court appeals, in the sense that the telecoms regulator would then be more respected by operators. This proposition could not be confirmed because, as the interviewee emphasised, even under the existing empowerment, the regulator is frequently taken to court. A greater empowerment of RegTP is, however, planned once the new EU regulatory framework has been transposed, especially regarding the enforcement of commercial agreements when an appeal is pending.

The last issue investigated during the interview was concerned with whether heavy authorisation regimes and heavy requirements of 'rights of way' have a negative effect on the willingness of operators to enter the telecoms market. The interview data suggests that there is no negative effect. This is so because the German licensing requirements have in the past been considered heavy, and yet, Germany has the highest number of telecoms operators in the EU. It could be concluded, therefore, that the concerns of the European Commission, as voiced in its Implementation Reports (e.g. CEC, 2001a, 2002f), are exaggerated. However, this is an area for further research. This conclusion will be taken up again in chapter 10.

Overall, the case of German telecommunications has shown a considerable degree of

involvement of the judiciary. It is highly likely that this will remain unchanged under the new framework for European telecommunications because only detailed changes are expected, namely the introduction of the separation of residential and business customers. A lower involvement of the legal system is not intended under the new framework, current since 25 July 2003. It can be concluded, therefore, that the basic issues in German telecoms regulation will remain unaffected. This finding provides an illustration of the argument made by Thatcher (1999), reviewed in chapter 3, that different historic developments impact differently on the procedures administered and the policies pursued by member states.

In addition to the issues associated with the German legal system, the interview analysis above suggests that the treatment of telecoms regulation follows a mix between a market-driven and a non-market driven approach, as was introduced in chapter 3. The regulator emphasised during the course of the interview that the forces of competition are regarded as an important factor in the achievement of improved telecommunications. But the respondent also insisted that competition does not always ensure fair opportunities for every market player, which justifies the need for market intervention by a regulatory authority.

To summarise the case of German telecommunications, it is perhaps worth noting that the five new directives are unlikely to account for a change in the principal way telecoms market intervention is conducted in Germany. This is especially so regarding the involvement of the judiciary. Moreover, the effects of normative and cross-national mimetic policy transfer (for the relevant theoretical considerations see chapter 3) have to date not accounted for a lower involvement of the legal system. But it is expected, as time goes on, that German telecoms regulation will be more in line with the regulatory systems in other member states of the EU regarding a lower involvement of the legal system.

9.2 Netherlands

9.2.1 A Brief Review of Dutch Telecommunications

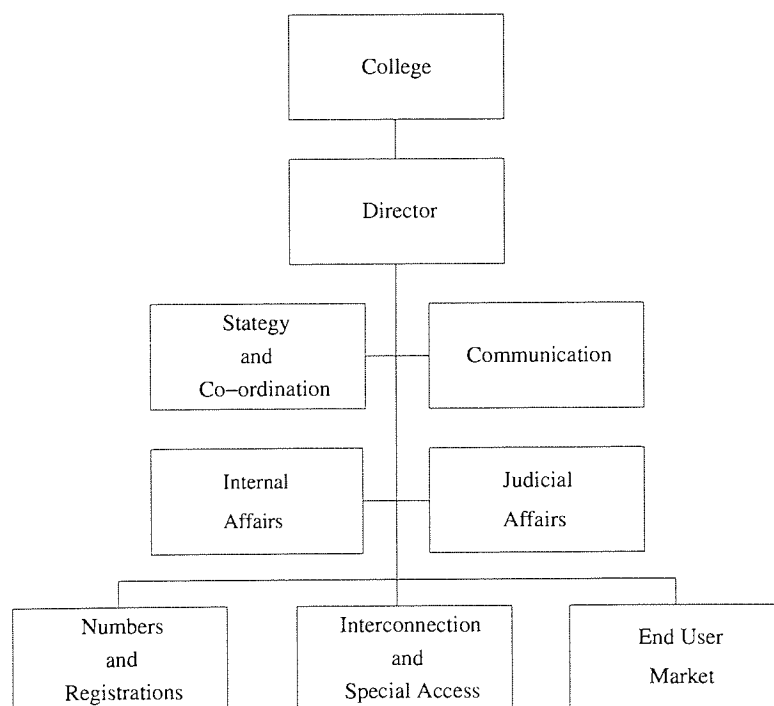
Lewington (1997) notes that there have historically been two players in the Netherlands providing telecoms services, which traditionally kept close ties: Koninklijke Post Nederland (KPN) and Post Telegraphy & Telephone (PTT). The first significant change in Dutch telecoms dates from 1989, when the operations of both companies were separated from direct government control. Later, in 1994, KPN and PTT were merged into a joint stock company, of which 30% was initially sold in the same year and a further 25% in the year after.

Since then the Dutch state has maintained around one third of the company's shares plus one golden share until 2004, to exercise political approval for the construction of networks, mergers/acquisitions and the sale of further shares (ibid). The joint company, since its merger, is called Koninklijke Post, Telegraphy & Telecom Nederland (KPN). As shown in table 5.2 in chapter 5, the Dutch telecoms market was fully liberalised in 1997.

9.2.2 The Dutch Telecoms Regulator

An industry regulator, the *Onafhankelijke Post en Telecommunicatie Autoriteit* (OPTA) — the Independent Posts and Telecoms Authority — was established in 1997 as the successor of the Public Networks and Services Division within the Ministry of Transport and Waterways. Since its beginnings, the office has been entrusted with the regulation of posts and telecoms (OPTA, 2003). This setup is similar to that in Germany and Greece, where single authorities have been entrusted to regulate telecoms and posts. Today, OPTA is accountable to the Ministry of Economic Affairs (ibid) and has an organisational structure as shown in figure 9.2.

Figure 9.2: *The organisational structure of OPTA*



The analysis in previous chapters found that OPTA is generally empowered according

to the telecoms directives, reviewed in chapter 2. Chapter 5, however, noted that telecoms regulation in the Netherlands maintains, compared with other member states, a higher degree of control over the wireless sector. As shown in table 5.8, the Ministry reserves certain rights in the wireless sector, namely granting licences and providing operators with telephone numbers. As in Finland, no telecoms operator has been entrusted with the provision of universal services on the basis that there has not been a shortage in the supply of these services to date. This finding is reflected in table 6.4 in chapter 6.

Unlike other telecoms regulators in the EU, the Dutch authority is not headed by a single person, but by a College of three, appointed by the Ministry of Economic Affairs. These key members of staff make regulatory decisions (see also table 5.7 in chapter 5) and appoint the Director, who is present when regulatory decisions are made. The primary functions of the Director are those of a chairman, thus being responsible for the authority's management (OPTA, 2003). Much like its German counterpart, generally OPTA does not act on its own initiative because operators usually are required to lodge a complaint with the regulator, who then reaches a decision upon the examination of individual cases (CEC, 2002f). To be as efficient as possible, the regulator emphasises that it tries to prioritise matters, so that most urgent cases are dealt with first.

Despite the similarity with the German telecoms regulator, OPTA requires a much lower budget and a significantly lower number of staff to remain operational. More specifically, OPTA's telecoms budget in 2002 was €16.6m, of which 87.2% consisted of fees and 12.8% of state budget (CEC, 2002f, Annex 3, p.113). The same source shows that the office employed 138 full-time telecoms staff in the same year.

9.2.3 Issues in Dutch Telecoms Regulation

An often-raised issue in Dutch telecoms regulation is that OPTA is, according to its own judgement, not sufficiently empowered to enforce all decisions effectively (e.g. CEC, 2001a, 2002f). For example, as far as the setting of policy is concerned, there are often enforcement difficulties because only the authority that issued the policy (Ministry, Competition Authority) is liable for the consequences. This is so even though the policy affects OPTA's jurisdiction. In many occasions, this has caused the regulator to rely on its dispute resolving powers rather than on enforcement. This lack of empowerment proved to be an obstacle during the transposition of the new telecoms framework. Although policy-makers had made the required changes to Dutch regulation, OPTA was not able, due to a lack of powers regarding

the collection of necessary information, to conduct the market analysis necessitated under Directive 2002/21/EC (framework). Therefore, an urgent legislative proposal was needed to resolve the issue (CEC, 2002f), but it is unclear from the secondary information available, whether the resulting proposal has resolved the issue. It is for this reason that the interview presented below tried to shed more light on this matter.

Some writers on European telecommunications, such as Gibbon (2000), have perceived Dutch telecoms regulation as being more advanced than its counterparts in the EU. Contrary to this view, the analysis in chapters 6 and 7 led to the conclusion that this may not be the case. This conflicting evidence was the main justification for conducting a more detailed case study of Dutch telecoms regulation here. In general, the study of secondary sources on Dutch telecoms regulation (e.g. CEC, 2001a, 2002f) did not reveal compelling evidence that supports the perception of an advanced state of the telecoms market in the Netherlands. Only some weak evidence was found and the state of competition remains inconclusive. In detail, the Netherlands is renowned for its light authorisation regime in the fixed line sector, where no operating licences are needed and this suggests the notion of an advanced state of competition development. As noted in chapter 5, in the Netherlands licences are only required for scarce resources, that is, frequencies and mobile telephone numbers. The perception of an advanced state of competition is also supported by the situation regarding 'rights of way'. Under Dutch telecoms law, every authorised provider of telecoms or broadcasting services has the right to install and maintain cables on public ground, an activity which only has to be coordinated with municipal authorities Gibbon (2000). One issue, however, which has emerged in the past, is that local authorities and operators occasionally interpret chapter 5 of the Dutch Telecoms Act (on 'rights of way') differently because the wording of this document has proved to be unclear (CEC, 2002f). The issue is now considered as resolved after a policy paper was put forward during the second half of 2002.

In contrast to the evidence that supports the perception of an advanced state of competition, there is also evidence supportive of the findings in earlier chapters of this thesis, i.e. the state of competition is not as advanced as it may at first seem.⁹ Firstly, the Netherlands had, like other member states, to face infringement proceedings from the European Commission. This was due to the country's failure to implement carrier pre-selection for local calls. Although this matter is now considered as resolved, it is interesting to note that in Germany, as discussed in section 9.1, the telecoms regulator has faced the same problems. Secondly, the Commission notes that the Netherlands and Germany have

⁹The following discussion relies mostly on the Eighth Report (CEC, 2002f).

(together with Austria and Spain) the longest delivery times for leased lines in the EU. Although OPTA eventually tackled the problem in the form of setting delivery times and penalties, an obvious issue to be pursued in the subsequent interviews is if long delivery times and the non-availability of carrier pre-selection, which was finally implemented in August 2002 after an infringement proceeding, are inherent to a passive case-by-case approach to regulatory intervention. It could be argued that this is the case because regulatory action is only initiated after a complaint in the Netherlands is lodged with the regulator. Also, problems may be reoccurring with different operators involved. Thus, settling one case does not solve an underlying problem in the regulatory system.

Another issue that supports the findings in previous chapters are the high interconnection charges between fixed and mobile networks, where OPTA has determined that charges are not cost-based. In addition, the regulator has found that these charges are caused by a quasi-monopoly, which mobile operators enjoy because the calling network has no choice but to interconnect (see Wright, 2002, for relevant theoretical considerations, as discussed in chapter 3). It is interesting that Finland reported the same problem in its telecoms market. A final example that supports the finding that Dutch telecoms are not as advanced as perceived is the situation in the local loop. Although competition was beginning to take effect in the first half of 2002, when the incumbent's market share fell by 5% to 89%, effective competition in this market remains illusive, a situation not different to that of other member states (see table 7.3 in chapter 7).

The telecoms regulator in the Netherlands is, much like its Finnish and German counterparts, recommended by the European Commission to adopt a more proactive approach to telecoms market intervention. Given this recommendation and given the evidence reviewed above, it is useful to shed more light on the answer provided in the questionnaire by the Dutch regulator, on the state of competition achieved. Table 7.2 in chapter 7 shows that the telecoms regulator in the Netherlands considers the state of competition as 'less advanced, mainly regulatory action required'. In this context, the results in chapter 7 proposed that the Dutch regulator takes a proactive approach to telecoms market intervention. This was seen as the reason why the state of competition was categorised as 'less advanced, mainly regulatory action required' in the analysis in chapter 7. This proposition, however, was not supported by the evidence reviewed in this chapter, but the interview analysis below tries to shed further light on this issue.

9.2.4 The Interview Analysis for the Netherlands

The review of issues in Dutch telecoms regulation in the previous section has shown that some aspects need to be investigated further. More specifically, as was discussed above, there are issues of empowerment of the Dutch telecoms regulator, the passive approach to market intervention pursued, and problems with delivery times of leased lines. Likewise, it was noted in the Eighth Report that carrier pre-selection was not available until recently. In this context, chapter 7 found evidence that Dutch telecoms regulation has not reached an advanced state. These issues, which were supported by the findings from the questionnaire reported in chapter 5, contrast with the general perception of a more advanced state reached in Dutch telecoms regulation. The interview analysis conducted in this section investigates, therefore, this issue further. Like in the cases of Finland, Greece and Germany earlier, a distinction is made between 'market intervention by OPTA', 'the new telecoms framework' set by five new directives, as well as 'authorising operators, rights of way and market entry'.

9.2.4.1 Market Intervention by OPTA

The initial question in the telephone interview with the senior member of staff at OPTA was one of a clarifying nature. Drawing from the Eighth Report, regulatory decisions taken by OPTA are generally appealed against by operators. Since this seems an unusual procedure, a question was asked accordingly to obtain clarification as to how the system is administered. The respondent emphasised that decisions of lesser importance, such as providing operators with telephone numbers, are not appealed against. Decisions of higher significance, like setting time limits for the delivery of leased lines, are, however, subject to appeal to the regulator. The respondent went on explaining how the appeals process works:

"When we make a key decision, operators lodge a complaint with us and we have then to reconsider and make a second decision. If operators are still not happy, they can appeal to the court in Rotterdam within two weeks after our second decision and after that to an independent Commission."

According to the interviewee, the idea behind this procedure is for the regulator to gain insight into how operators conduct business. However, it was also emphasised during the telephone interview that:

"... the mechanism is being misused ... to delay our regulatory intervention and court proceedings take 2 to 3 years, ... a long time in our dynamic business."

This answer indicates a general unhappiness within the telecoms regulator about appeals and the respondent was asked, therefore, what should be done to overcome the problem.

The answer was that, in OPTA's view, the first appeal to the regulator should be abolished and that courts should have a time limit within which they reach a verdict.

Drawing from the understanding that the appeals procedures should be shortened, the next question asked was whether the respondent could clarify what the Eighth Implementation Report referred to (see above) when it emphasised that OPTA sometimes cannot implement decisions effectively, namely when the Ministry issues a regulation which lies in OPTA's jurisdiction. The interviewee noted that the concerns raised in said Report refer to the regulation issued by the European Commission on the unbundling of the local loop. To transpose it into Dutch telecoms law, the Ministry responsible for the sector insisted on issuing a special Act, which would empower OPTA to implement and to monitor the provisions. However, the respondent also indicated that it takes about nine months to implement the Act on local loop unbundling and the process is still pending.

It is in this context that evidence is mounting that Dutch telecoms regulation is not as advanced as previously commonly believed. Hence, a question was asked whether OPTA shares this view. The respondent emphasised that the answer to this question is beyond OPTA's competence! What was possible was the collection of further evidence on the state of competition and regulation achieved in the Netherlands. Hence, as in the cases of the three previous interviews, the respondent was asked what OPTA's position is regarding the opinion of the European Commission that some telecoms regulators, among them OPTA, should pursue a more proactive approach. Perhaps somewhat surprisingly, the respondent indicated:

"In principle, we share the view of the Commission But it is hard for us to get the necessary data. There is only a very broad and general provision in our Telecoms Act that empowers us only rather loosely to collect data from the market."

The interview continued in a way that allowed for more justification of this matter. In detail, the respondent stressed that the lack of clear empowerment of OPTA has led to a situation where the regulator has to 'ask' for data, but companies are not particularly keen to comply. Operators understand that they are not compelled to do so. What follows, in OPTA's view, is that the Dutch telecoms regulator occasionally struggles to make an effective decision, such as the tackling of 'significant market power', because information obtainable from the market remains insufficient. In addition,

"... we struggle to uphold a decision in a court appeal because the courts also say that we are not empowered to collect the information [T]he situation is abused by operators to make use of lengthy court proceedings and to delay regulation."

Then, on the question whether this situation reflects a market-driven understanding of competition and regulation, the respondent insisted that this may be so, in principle, because the Dutch policy-makers are somewhat hesitant to interfere in operators' property rights. But the respondent was not entirely sure whether there is a complete market-driven understanding. OPTA's understanding, however, is that market intervention is needed to achieve effective and durable competition. OPTA generally acts when a complaint is lodged by an operator and the telecoms regulator deals with the specific case first. This draws from the understanding in Dutch regulation that the property rights of operators should receive high priority. Since a case-by-case approach is unlikely to solve an underlying problem if there is one, the respondent was asked what OPTA's position is regarding this issue. The following answer was given:

"True. We therefore have a lot of arguments with the Ministry to implement more general rules and policy principles. Our position ... is to improve the competitiveness of entrants before the incumbent ... [b]ut the Ministry is not convinced."

This answer provides an explanation as to why a particular answer was given in the questionnaire, where it was indicated that OPTA does not intervene in commercial agreements. This is so because, as the interview data suggests, OPTA lacks essential powers. However, this answer also relates to the implementation of delivery times for leased lines and associated penalties for exceeding these limits. OPTA has tried in the past to resolve the issue of long delivery periods, and the matter is now considered as being closed. Likewise, the Eighth Report noted that carrier pre-selection (CPS) for local calls was not available until recently. On the question why that was, the respondent indicated that there was a situation of price squeeze at the time and operators were not interested in the provision of CPS for local calls. Only after the introduction of a price-squeeze-test by OPTA, operators were able to build a business case for local CPS and its introduction followed. Hence the delay in transposing this particular provision of Amendment 98/61/EC on number portability and carrier pre-selection (see chapter 2).

9.2.4.2 The New Telecoms Framework

As was discussed in chapter 2, the new framework Directive 2002/21/EC (framework) provides for a market analysis to be conducted by telecoms regulators across the EU. It is in this context that the Eighth Implementation Report of the European Commission notes that OPTA is not empowered to conduct this market analysis. Therefore, as discussed earlier in this chapter, the Dutch telecoms regulator has launched an urgent legislative proposal,

which will provide the required powers. On the question whether the proposal would solve the empowerment problem, the following answer was given:

“No, it is still pending. We pushed to get the new Telecoms Act ... out before the summer break of our two houses of parliament. But ... our ... [first chamber] will only discuss it after the summer. Word goes that our new powers to collect market data are the reason for delaying the Act. And this is because of lobbyism by market parties.”

Given this situation, the respondent indicated that the new framework will be in place not before January 2004, which triggered the question of how, under such circumstances, the market analysis has been conducted to date. The respondent replied that it has not because OPTA does not yet obtain the necessary information and, as said before, the present legislation does not empower OPTA to collect it. The respondent emphasised, however, that the telecoms market analysis is in preparation, even though no official information has been forwarded to the legislator! It was then brought to the interviewee's attention that the next question, whether the market analysis revealed that market segments have to be redefined, may be meaningless in the light of the answers given so far. The respondent agreed and the remaining questions on the new framework Directive were not asked.

The telephone interview continued with a broader focus on the five new directives in general. Thus, a question was asked whether OPTA will enjoy greater powers, in addition to the better empowerment of collecting market data. The interviewee claimed that this will be the case, especially regarding consumer protection, the regulation of wholesale prices and the determination of 'significant market power'. But the respondent also indicated that OPTA will enjoy *lesser* powers, namely in terms of determining and enforcing exceptional measures of price regulation. This is so because, in the understanding of the Ministry,

“price regulation on the basis of costs is ok [e.g. consumer prices, but] ... [t]he Ministry reserves the right to determine which exceptional measures, on request of OPTA, can be taken. One of the exceptional measures will be the form of cost orientation [for services] where there is no direct link [between their prices and their] ... direct costs [e.g. wholesale prices]. [T]he Ministry thinks [this] is no[t] cost orientation as meant in the directives.”

The basis of such concerns within the Ministry are the property rights of businesses, which should be guaranteed. The respondent emphasised in this context that OPTA does not share this view because the regulator believes that profits are not compromised by exceptional measures and, hence, property rights *are* guaranteed.

The final question asked in the interview regarding the new directives was concerned with whether there are any other foreseeable difficulties during the transposition of the new telecoms framework. The respondent insisted that the 'burden of proof', which has been set down as a requirement for telecoms regulators in the framework Directive (2002/21/EC),

will be the decisive element if the new telecoms directives are to work. This is so because the requirement is a simple one in legal terms. In regulatory terms, however, it will be hard for a telecoms regulator to uphold its decisions, especially before the courts. The following illustration was given:

“... it was particularly easy to apply the 25% rule when determining SMP. But the shift to a qualitative definition makes it harder to justify a regulation.”¹⁰

This view within OPTA reflects the situation in Dutch telecoms legislation where, as discussed in this section, the regulator is insufficiently empowered to collect information. This makes it particularly difficult to uphold regulatory decisions in court appeals.

9.2.4.3 Authorising Operators, ‘Rights’ of Way and Market Entry

Finally, a set of questions was asked, drawing from findings in chapter 5, namely whether market entry is negatively affected by strict licensing regimes, i.e. authorisation, and by cumbersome procedures to obtain ‘rights of way’. On authorisation, the respondent insisted that there would be an adverse effect and this was the reason why the Dutch authorisation regime has been designed rather lightly, in the sense that licenses are only required for frequencies. Likewise, on ‘rights of way’, the same answer was given, although the interviewee emphasised that these powers lie with local authorities and are, therefore, beyond OPTA’s jurisdiction. It is interesting to note that the Dutch telecoms regulator considers heavy authorisation regimes as an obstacle to market entry, whereas its German counterpart, which administers a heavy licensing regime, claimed that this is not so (see above). Chapter 10 will look at these issues again in the context of the overall research conclusions to the thesis.

9.2.5 Case Conclusions

The sections above have provided an analysis of the case of Dutch telecommunications. As was discussed at the beginning of the previous chapter, the reason why the Netherlands is included in this study was the evidence revealed through the questionnaire analysis in chapters 5 to 7. This evidence shows that the Dutch telecoms system is not as advanced as previously commonly believed.

Overall, one conclusion stands out. The state of regulation and competition in Dutch telecoms can be considered as advanced in terms of authorising of operators. This is so because, as the case analysis above has shown, providers of fixed telecoms networks are not

¹⁰As discussed in chapter 2, Directive 21/2002/EC sets down SMP as a ‘position of dominance’ and defines this position as an ‘affordable behaviour independent of competitors and consumers’.

required to obtain a license and trench-digging activities only need to be coordinated with local authorities (see chapter 5). In contrast to these aspects, the regulatory system of the country cannot be considered as advanced regarding many other issues. As was first noted in the Eighth Report and then emphasised in the interview by the respondent, the Dutch telecoms regulator is insufficiently empowered to regulate the national market effectively. It is worth noting that the lack of empowerment does not draw from the directives themselves, but more so from the Dutch Telecoms Act, which does not include, according to the respondent, appropriate provisions on the matter. As discussed earlier, this creates an environment where OPTA has difficulty collecting the market information needed to enforce regulatory decisions effectively and efficiently. In addition, the courts have often sustained appeals launched by operators on the basis that OPTA's decisions are based on inadequate information. The lack of empowerment has led to a situation where, as discussed above, OPTA has been unable to date to complete the market analysis under the new framework Directive — 2002/21/EC (see chapter 2). Therefore, the new telecoms framework for the Netherlands will most probably not be in force until January 2004.

In addition to the lack of empowerment, another aspect of Dutch telecoms regulation, which shows that the system is not as advanced as was previously commonly believed, is the appeals process in the sector. In principle, every regulatory decision made by OPTA is appealed against. Although the idea is that the telecoms regulator will as a result gain a better insight into business conduct, the respondent emphasised that the process is often abused. This is so because operators take advantage of the lack of empowerment and launch appeals frequently, to the regulator in the first place and to the courts, which can take up to three years until a verdict is made. To remove the problem, the interviewee emphasised that the first appeal to OPTA should be abolished and that court proceedings should be subject to a maximum time limit.

Another aspect that should be considered is OPTA's approach to regulation, in the sense that the achievement of effective competition in the country's telecommunications market arguably requires a more proactive approach than the one currently pursued. As emphasised by the respondent, the regulator broadly agrees with the position of the European Commission, namely that a more proactive approach to telecoms market intervention is needed to achieve effective and durable competition. Therefore, OPTA has repeatedly stressed the need for a greater reliance on general rules, rather than on case-by-case conflict resolution. This is especially so in the context of the regulation of prices for services where no direct link between prices and direct costs exists. The Ministry, however, is not convinced

by OPTA's position, on the grounds that price regulation of these services compromises an operator's profits. The interviewee emphasised in this context that the Ministry interprets the new telecoms directives in a different way. Under the new framework, the Ministry reserves the right to empower OPTA on a case-by-case basis to regulate prices for leased lines and interconnection. The respondent also emphasised that this situation indicates a market-driven attitude on the part of the legislator (consistent with Trebing, 1987), although OPTA itself would prefer a more non-market-driven approach, with greater intervention.

This market-driven approach of legislators and lack of empowerment, together, now allows for an explanation of one particular answer in the questionnaire, analysed in chapter 7, where it was found that the Dutch telecoms regulator considers the system as 'less advanced, mainly regulatory action needed'. Given the understanding obtained through the case analysis for the Netherlands, it is now evident that OPTA was weighing achievement against aspiration in the questionnaire. The interviewee strongly emphasised in this context that the new provision on 'significant market power' (SMP) in the framework Directive (2002/21/EC) will be the decisive factor if the new telecoms framework is to work. This is so, as discussed earlier, because it will be more difficult for regulators to enforce regulatory decisions on SMP, which, as discussed in chapter 2, will from 25 July 2003 be based on a qualitative definition of a 'position of dominance', rather than an easier to apply 25% market share.

The understanding obtained for the Netherlands now allows an assessment. Specifically, it can be concluded that the previous telecoms framework has failed to empower OPTA sufficiently to collect the necessary market data to regulate very efficiently. Likewise, the new directives have not provided the Dutch telecoms regulator with the full powers needed to regulate prices for interconnection and leased lines because the Ministry has reserved certain rights. Moreover, since some aspects of OPTA's empowerment remain unresolved, the effects of 'normative and cross-national mimetic policy transfer' or 'good regulatory practice' (e.g. DiMaggio and Powell, 1991; Hood, 1994), as discussed on a theoretical basis in chapter 3, have not accounted for harmonisation with the other member states of the EU. The Dutch telecoms regulator stresses the need for more empowerment, yet the Ministry responsible for telecommunication opposes this. This conclusion is consistent with the view that country-specific circumstances will remain dominant for some time (Thatcher, 1999), limiting the degree of regulatory harmonisation in Europe.

Chapter 10

Research Conclusions

10.1 Summary of the Research Undertaken

This final chapter of the thesis summarises the research undertaken and presents, in the sections below, the conclusions that draw from the analyses in chapters 4 to 9. In addition, limitations of the research are discussed and recommendations for future telecoms policy and future research are suggested.

The research question underlying this thesis is:

Are the telecoms directives of the European Commission creating harmonised regulatory systems for telecommunications across the member states of the European Union and if differences continue to exist, why is this so?

The central research question was turned into the central hypothesis for this research:

Central Hypothesis: *The telecoms directives of the European Commission are creating harmonised regulatory systems across the member states of the European Union.*

Before the enquiries concerning the central research question could be undertaken, chapter 4 looked at the operating performance of the telecoms sectors in eleven member states plus Switzerland, Japan and the USA as benchmark countries. The performance study added to the understanding of development in European telecommunications and provided a dedicated context for the subsequent analyses of telecoms regulation.

Based on the understanding derived from the performance study, the central hypothesis was broken down into eight sub-hypotheses, established at the end of chapter 3. The

sub-hypothesis are:

Sub-hypothesis 1: In accordance with the telecoms directives, the regulatory framework was *in place in full by 1 January 1998*.

Sub-hypothesis 2: The telecoms directives of the European Commission have created harmonised *control over national telecommunications regulatory authorities* across the member states of the European Union.

Sub-hypothesis 3: The telecoms directives of the European Commission have created harmonised *responsibilities for granting market access* in telecommunications across the member states of the European Union.

Sub-hypothesis 4: The telecoms directives of the European Commission have created a harmonised *overall approach* to telecoms market intervention across the member states of the European Union.

Sub-hypothesis 5: The telecoms directives of the European Commission have created harmonised approaches to *meeting wider economic interests* in telecoms markets across the member states of the European Union.

Sub-hypothesis 6: The telecoms directives of the European Commission have created harmonised approaches to *controlling market power* in telecoms markets across the member states of the European Union.

Sub-hypothesis 7: The telecoms directives of the European Commission have created a harmonised *state of competition and regulation* in telecommunications across the member states of the European Union.

Sub-hypothesis 8: The telecoms directives of the European Commission have created harmonised *benefits for telecommunications users* across the member states of the European Union.

The research question and the hypotheses are based on two sets of background information. Firstly, chapter 2 provided a thorough review of the telecoms directives and related legislation, as published by the European Commission. Secondly, chapter 3 considered in detail

the relevant academic literature to complement the review of the European telecoms legislation. The analysis for this research was then conducted on the basis of the above hypotheses drawing from both sets of information.

The review of the background information showed that a study of European telecommunications should include three main aspects, namely 'regulatory governance', regulatory intervention' and the 'effects on telecoms users of competition and regulation'. Therefore, a questionnaire aimed at testing the research hypotheses was administered to the fifteen telecoms regulators in the member states of the EU. The questionnaire results were presented in chapters 5 to 7. A substantial part of the questionnaire was aimed at providing a more detailed understanding of European telecommunications regulation to provide a basis for the decision as to whether the telecoms directives of the European Commission do create regulation harmonisation.

However, European telecommunications could not be fully investigated by administering a questionnaire. When it comes to the very detail of regulation in this industry, member states pursue varying approaches and it has to be taken into account that different starting positions existed before the first telecoms directives were issued (e.g. Finland never had a single telecoms service provider). Therefore, four country case studies were conducted on the Finnish, Greek, German and Dutch telecoms regulatory systems. The results were presented in chapters 8 and 9. These case studies expanded on the understanding gained in the questionnaire study. In other words, the results of the case study analyses corroborated and developed the findings from the questionnaire.

10.2 Proposed Contributions of this Research

The following sections detail two sets of contributions, 'main' and 'supplementary' contributions, as follows:

Main contributions. These draw directly from the operational approach in figure 1.2 on page 26 and the application of the theoretical framework reflected in figure 3.2 on page 104. To provide this set of contributions was the main concern of the analyses in chapters 5 to 9. Below, a discussion of the degree of harmonisation achieved by the telecoms directives is provided, as well as an answer as to *why* harmonisation has been achieved to the extent found in the research.

Some of the contributions discussed below extend beyond the immediate scope of the

research question. More specifically, the sections below align two existing theoretical frameworks, which have been used as the basis of analysis in chapters 5 and 6. The alignment of the two frameworks creates a new understanding for studying regulated industries worldwide. In addition, an interesting link with the findings in table 7.3 in chapter 7 and with the findings in tables 4.6 and 4.7 in chapter 4 emerges.

Supplementary contributions. This set of contributions relates to the study of telecoms performance, undertaken in chapter 4. The conclusions that were drawn there about the effects of market liberalisation and privatisation on performance can be related to the overall findings of this research project.

Attention now turns to the first set, the contributions drawing directly from the research question set out in chapter 1.

10.2.1 Main Contributions

10.2.1.1 The Final Answer to the Research Question

Directed by the main research question of the thesis, figure 3.2 on page 104 sets down the framework for analysis in chapters 5 to 9. By using the framework, this section provides a final answer to the research question.

In sum, it is concluded that ‘yes’, a high degree of regulation harmonisation has been achieved, although some disharmony remains. This conclusion is based on the finding that six out of the eight sub-hypotheses tested in chapters 5 to 7 were not rejected. Only the tests for sub-hypotheses 4 and 6 provided inconclusive evidence and it is concluded, therefore, that the central hypothesis of this study is *not* rejected. However, despite the non-rejection of most of the sub-hypothesis tested, the EU telecoms directives were found not to be the only source of harmonisation. Rather, the analyses in previous chapters revealed that mostly cross-national mimetic and normative policy transfer (DiMaggio and Powell, 1991; Hood, 1994) seem also to have contributed to regulation harmonisation across the EU. While the EU telecoms directives coupled with ‘policy transfer’ provide some explanation of why harmonisation has been achieved, they do not provide an answer as to why some regulatory disharmony remains. To shed further light on the research question, the case study part of the thesis looked at the country-specific circumstances in telecoms regulation in four selected member states. As was discussed in chapter 2, the EU telecoms directives are relatively strict regarding the *what* of telecoms regulation, but leave some discretion to national telecoms

regulators about the *how* the provisions of the directives are implemented. The case study evidence reported in chapters 8 and 9 confirmed that country-specific issues influenced the implementation of telecoms regulation or, more specifically, historic developments (Thatcher, 1999) and different attitudes. Hence, favoured approaches to regulating national telecoms markets (Majone, 1996; Trebing, 1987) continue to drive telecoms market intervention and the policy objectives pursued.

The evidence associated with different attitudes and approaches can be linked with some aspects of the analysis in chapters 5 and 6, namely regulatory control and regulatory intervention. Since the related findings go beyond the immediate scope of the research question, the following sections are dedicated to a fuller discussion of this additional evidence. The discussion below is beneficial because it provides more justification as to *why* complete harmonisation has yet to be achieved in telecoms regulation across the member states of the EU.

10.2.1.2 Additional Evidence from Chapter 5

A recurring theme in chapter 5 was that there is evidence in European telecoms which supports the propositions of Majone (1996). More specifically, there is evidence that member states have adopted the *substantive* and the *proceduralist* models of regulatory control. In essence, as reviewed in section 3.3.3, democratic decision-making and state-involvement in regulatory appointment are, as suggested by Majone (1996), associated with the proceduralist model of control. In contrast, a more centralised form of decision-making and little state-involvement in regulatory appointments is attributed to the substantive model of regulatory control. Some findings discussed in this section were published in Daßler and Parker (2004).

Majone (*ibid*) leaves open whether only one model is implemented per country or whether a *mix* of both approaches can be adopted. This research has found that a mixed form of regulatory control is used in telecoms regulation in the member states of the EU. This finding is consistent with the argument in Baldwin and Cave (1999), who emphasise that it is usually not possible in practice to separate different regulatory objectives. Hence, if there is a mix of policy objectives, then the national telecoms regulators must have a mix of responsibilities, and must, therefore, be empowered in a way that allows them to meet these responsibilities. This was one of the findings in chapter 5. Moreover, the understanding obtained during the course of this study and the analysis in chapter 5, in particular, suggest that, in addition to 'decision-making' and 'regulatory appointment', there should be a third

element in the assessment of the control model adopted: ‘regulatory accountability’ (defined as ‘being responsible for ones actions’ — see page 84). It is proposed that a *tight* form of accountability is consistent with the proceduralist model, whereas a *less tight* form of control conforms more with the substantive model. Since this approach was not used by Majone, it is suggested as part of the contribution of this thesis to use ‘regulatory accountability’ as a complement to ‘decision-making’ and ‘regulatory appointment’ as tests of the model of regulation adopted.

Table 10.1 reflects the predominant models of control applied in telecommunications, using ‘regulatory appointment’, ‘regulatory accountability’ and ‘regulatory decision-making’ as the indicators to assess whether the *substantive* or the *proceduralist* model is predominant. The indicators draw from tables 5.4 on page 145, 5.6 on page 149 and 5.7 on page 150.

Table 10.1: *Predominant models of regulatory control adopted in European telecommunications, by member state*

<i>Member State</i>	<i>Regulatory Appointment From Table 5.4</i>	<i>Regulatory Accountability From Table 5.6</i>	<i>Regulatory Decision-making From Table 5.7</i>
Belgium	substantive	substantive	proceduralist
Denmark	substantive	substantive	substantive
Finland	mixed	mixed	substantive
France	proceduralist, substantive influence	proceduralist	proceduralist
Germany	proceduralist	proceduralist	proceduralist
Greece	proceduralist	substantive	proceduralist
Ireland	substantive	mixed	substantive
Italy	proceduralist	proceduralist	proceduralist
Luxembourg	substantive	mixed	proceduralist
Netherlands	substantive	substantive	proceduralist
Portugal	substantive	proceduralist	proceduralist
Sweden	mixed	mixed	substantive
UK	substantive	proceduralist	substantive

Table 10.1 shows that elements of both substantive and proceduralist approaches are adopted at the same time in most member states in their regulation of telecoms. Information given in table 10.1 can be generalised to show the overall model of regulatory control adopted in telecoms regulation of the member states of the EU. This is provided in table 10.2.

10.2.1.3 Additional Evidence from Chapter 6

A recurring theme in chapter 6 was that member states pursue different approaches to telecoms market intervention. The theoretical foundation of the different approaches, namely *market-driven* and *non-market-driven*, were provided by Trebing (1987), as discussed in section 3.4.2. The following discussion develops a research classification, much like the one set

Table 10.2: *Overall model of regulatory control adopted, by member state*

<i>Member State</i>	<i>Overall Model of Regulatory Control Adopted</i>
Belgium	substantive, proceduralist elements
Denmark	substantive
Finland	mixed, tendency towards substantive
France	proceduralist
Germany	proceduralist
Greece	proceduralist, substantive elements
Ireland	substantive, elements of a mixed model
Italy	proceduralist
Luxembourg	mixed
Netherlands	substantive, proceduralist elements
Portugal	proceduralist, substantive elements
Sweden	mixed, tendency towards substantive
UK	substantive, proceduralist elements

down in table 10.2, above, as to which approach — market-driven or non-market-driven — is predominantly favoured by the member states. This discussion draws mainly from the analysis in chapter 6. Although the telecoms directives have accounted for a considerable degree of harmonisation in the way market intervention by EU telecoms regulators is undertaken, it is still possible to establish a classification as to which approach is most favoured. In addition, data collected during the case study analyses of Finland, Germany, Greece and the Netherlands is used in the classification.

Chapter 6 looked at two main indicators by which the approach to regulatory intervention in telecommunications can be assessed: ‘meeting wider economic interests’ and ‘controlling market power’. These categories were drawn from the literature review in chapter 3 and can be used to establish a classification of regulatory intervention in the EU telecoms markets.

Meeting wider economic interests. The telecoms directives, reviewed in chapter 2, suggest the use of two categories to assess how meeting wider economic interests should be achieved. These categories are: the ‘provision of universal services’ and setting ‘quality standards’.

- Universal service obligation (USO). Since the Directives on licensing (97/13/EC) and USO (2002/22/EC) leave leeway to the member states as to whether the provision of these services should be enforced, it could be argued that not enforcing them is consistent with a more market-driven approach to regulation. The market is entrusted to provide the services and, should they be discontinued, intervention by regulators is not required. By contrast, enforcing universal services by regulatory means is more

consistent with a non-market-driven approach.

Taking into account the findings from chapter 6, it can be argued that Finland, Luxembourg and the Netherlands follow a more market-driven treatment of regulation because the USO is not enforced by regulatory means (though care should be taken regarding Luxembourg because of the small size of the economy). The remaining **ten** member states appear to follow a more non-market-driven approach. The markets are not entrusted to provide the services without intervention.

- Setting quality standards. Again, the telecoms directives leave it to the judgement of the member states whether quality guidelines should be set. Hence, regulators ensuring a minimum level of service quality available to consumers might indicate a non-market-driven treatment of regulation.

Following this logic, and again referring back to the findings in chapter 6, it seems that Finland, Denmark, Sweden and the UK follow a market-driven model. No quality guidelines are set. In contrast, the remaining **nine** member states appear to pursue a more non-market-driven approach and their telecoms regulators impose quality guidelines.

Controlling market power. In this context, the telecoms directives give a considerable degree of discretion to the member states, in the sense as to whether and how this form of market failure should be tackled. The analysis in chapter 6 considered, among other indicators, the 'regulation of consumer charges'. The use of price caps in the regulation of consumer charges is arguably most consistent with a market-driven treatment of regulation because they provide operators with more discretion in managing their businesses than the main alternative, cost of service or rate of return regulation, as discussed in section 3.4.2. If these other methods of regulation are used alongside or instead of price caps, then this would point towards a more non-market-driven treatment.

Turning to specific findings, table 6.5 (repeated below for convenience as table 10.3) indicates that **four** countries, namely Belgium, Denmark, Ireland, and the UK, have exclusively relied on price caps. This would indicate a market-driven understanding. Alongside those countries, the regulators of Finland, Luxembourg, Portugal and Sweden let operators set consumer charges freely, on the grounds that competition has already been achieved. It can therefore be concluded that the telecoms regulators in these countries also follow a more market-driven approach to regulation.

Turning to France, Germany, Italy and the Netherlands table 6.5 (repeated below as table 10.3) indicates a mixed use of methods, including price caps, and, hence, a mix between market-driven and non-market-driven approaches. This leaves Greece, whose regulator solely administers a method of price approval other than a price cap. It can be concluded, therefore, that Greece follows a more non-market-driven approach to regulation in setting consumer charges.

Table 10.3: *Methods to regulate consumer charges, by member state*

<i>Member State</i>	<i>Method(s) Used</i>	<i>Price Caps only: X set for</i>
Belgium	Price Cap for USO services	1 year
Denmark	Price Cap	3 years
Finland	Freely set by operators	
France	Price Cap for USO services Ex-ante approval by Ministry for other services	1 year
Germany	Price Cap and NRA approval	3 years
Greece	Ex-ante approval by NRA	
Ireland	Price Cap	typically 2 to 3 years
Italy	Price Cap and NRA approval	no reply
Luxembourg	Freely set by operators	
Netherlands	Price Cap/Price Squeeze and NRA approval	3 years
Portugal	Freely set by operators	
Sweden	Freely set by operators	
UK	Price Cap	typically 3 to 4 years

Drawing the evidence on ‘meeting wider economic interests’ and on ‘controlling market power’ together, it is evident that the member states in the EU pursue different approaches to telecoms market intervention, namely a mix between market-driven and non-market-driven models. This finding is summarised in table 10.4.

Table 10.4: *Predominant approaches to telecoms regulation, by member state*

<i>Member State</i>	<i>Meeting Wider Economic Interests</i>	<i>Controlling Market Power</i>
Belgium	non-market-driven	market-driven
Denmark	mixed	market-driven
Finland	market-driven	market-driven
France	non-market-driven	mixed
Germany	non-market-driven	mixed
Greece	non-market-driven	mixed
Ireland	non-market-driven	market-driven
Italy	non-market-driven	mixed
Luxembourg	mixed	market-driven
Netherlands	mixed	mixed
Portugal	non-market-driven	market-driven
Sweden	mixed	market-driven
UK	mixed	market-driven

The contents of table 10.4 illustrate that member states place a different emphasis on the methods suggested by Trebing (1987). The finding in table 10.4 receives support from the case studies in chapters 8 and 9. The Finnish respondent emphasised throughout the interview that a market-driven approach is pursued in the country's regulation of telecommunications. Likewise, when the German respondent was asked whether a market-driven approach is pursued, the answer was especially 'no'. The answer indicated a mixed treatment (see page 261 for the detailed answer). Similar to the findings from the German interview, the Dutch respondent indicated (see page 273), that there is perhaps a market-driven approach used in the regulatory office, but the interviewee also emphasised that telecoms regulation in the Netherlands is not entirely market-driven. Unfortunately, no corroboration could be provided regarding Greece. The respondent chose not to answer the relevant question (see chapter 8).

In addition to the evidence provided by the case study analysis, Lodge (2003), for example, has found, independently of this thesis, that OFTEL in the UK has traditionally placed more emphasis on the promotion of efficiency, whereas German telecoms regulation has maintained a strong emphasis on the provision of public services. The findings of this study are consistent with the categorisation in table 10.4.

Table 10.5: *Overall approach to telecoms regulation, by member state*

<i>Member State</i>	<i>Overall Approach to Market Intervention</i>
Belgium	mixed
Denmark	mixed, tendency towards market-driven
Finland	market-driven
France	non-market-driven, elements of a mixed approach
Germany	non-market-driven, elements of a mixed approach
Greece	mixed, tendency towards non-market-driven
Ireland	mixed
Italy	non-market-driven, elements of a mixed approach
Luxembourg	mixed, tendency towards market-driven
Netherlands	mixed, elements of market-driven
Portugal	mixed
Sweden	mixed, tendency towards market-driven
UK	mixed, tendency towards market-driven

Information given in table 10.4 can be generalised to obtain a more general view of the overall approach to telecoms regulation adopted in the different member states. This is provided in table 10.5, which leads to two particular conclusions. Firstly, and as Baldwin and Cave (1999) have suggested (see chapter 3), a mix of policy approaches may be pursued in regulatory offices, rather than one, clear-cut, approach. Table 10.5 suggests that a non-market-driven approach is not pursued exclusively by any member state, and a market-

driven attitude alone is, as said above, only pursued by Finland, the one country in the EU that never had a single, national telecoms monopoly. Therefore, the findings summarised in table 10.5 also support the propositions of Thatcher (1999), in the sense that historic developments have a significant effect on the regulatory policies and procedures administered in each member state. Secondly, the predominantly mixed approaches adopted by telecoms regulators in the member states is probably a reflection that governments believe that, while competition promises more benefits than monopoly supply, at least at the present time, a reliance on competition alone would be insufficient.

10.2.1.4 Combining the Analysis of Trebing and Majone

A logical consequence of the discussion in the two preceding sections is to combine the treatment of regulation and the model of regulatory control adopted. Table 10.6 combines tables 10.2 and 10.5. In terms of European telecoms, table 10.6 illustrates *why* and *how* regulatory systems differ. But by making this combination, table 10.6 also provides a new understanding of telecom regulation in the EU, and one that could be adopted to analyse any regulatory regime worldwide. In table 10.6, countries are classified according to their predominant leaning in terms of Majone’s and Trebing’s categories, as set out above.

Table 10.6: *Approaches to telecoms regulation adopted in the European Union*

	<i>Proceduralist Model</i>	<i>Mixed Model</i>	<i>Substantive Model</i>
<i>Market-driven Approach</i>		Finland	
<i>Mixed Approach</i>	Greece, Portugal	Luxembourg, Sweden	Belgium, Denmark Ireland, Netherlands UK
<i>Non-Market-driven Approach</i>	France Germany Italy		

The categories in tables 10.2 and 10.5 were truncated and so only the nine main categories are shown.

Firstly, from table 10.6 it is evident, once again, that most of the member states have applied a mixed approach to telecoms market regulation under Trebing’s classification. In two cases, namely Luxembourg and Sweden, a mixed approach under Majone’s and Trebing’s classifications is favoured. Secondly, the ‘big three’, that is, France, Germany and Italy, are clustered alone with predominant proceduralist and non-market-driven approaches to regulation. Thirdly, alongside France and Germany, the southern European/mediterranean

countries of Greece, Italy and Portugal have adopted a mainly proceduralist model of regulatory control. Fourthly, Finland and Sweden, the northernmost countries have, along with Luxembourg, adopted a more mixed approach to regulatory control. Finally, the greater north-western part of the EU, that is, Belgium, Denmark, Ireland, the Netherlands and the UK, favours a substantive model of regulatory control and a mixed, market-driven and non-market-driven, approach to regulatory intervention.

Table 10.6 becomes of valuable theoretical and practical interest when the following two questions are raised:

- (1) Does table 10.6 correlate with the number of market segments in which effective competition has been achieved? Table 7.3 in chapter 7 showed these segments by member state. For convenience, table 7.3 is repeated below, as table 10.7.
- (2) Does table 10.6 correlate with the labour productivity (LP) and the total factor productivity (TFP) results in chapter 4, i.e. tables 4.6 on page 127 and 4.7 on page 129?

Table 10.7: *Effective Competition in telecoms market segments, as indicated by the national telecoms regulators*

<i>Member State</i>	<i>Market Segment(s) Effectively Competitive on 31 December 2001</i>
Belgium	not known because effectiveness of competition not determined
Denmark	DSL, mobile calls, pricing in LL (not calls themselves)
Finland (a)	international, leased lines, long-distance calls
France	international, mobile calls
Germany	mobile calls
Greece	no segments effectively competitive
Ireland	international calls, leased lines, LL, mobile calls, UMTS, WLL
Italy	no reply
Luxembourg	no segments effectively competitive
Netherlands	leased lines faster than 2Mbit/s
Portugal	no segments effectively competitive
Sweden	no segments effectively competitive
UK	no reply

Attention first turns to the discussion of question (1).

Table 10.7 (table 7.3) — *effective competition in telecoms market segments*. As shown in this table, regulators in Greece, Portugal, Luxembourg and Sweden reported *no* market segments with effective competition. Interestingly, these four member states pursue a mixed treatment of market intervention and favour either the proceduralist form of regulatory control, or a mixed approach.

Table 10.7 also shows that France and Germany (Italy did not answer the relevant question in the questionnaire) have some market segments with effective competition. But it is really interesting to note that, except for the Netherlands, the countries of the greater north-western part of the EU reported the *highest* number of market segments with effective competition! The UK respondent did not answer the relevant question.

Tables 4.6 and 4.7 — telecoms productivity. The findings in these two tables show an unexpected link with table 10.6. Chapter 4 looked at LP and TFP as two indicators of performance in EU telecommunications. Table 4.6 (b) on page 4.6 and table 4.7 (b) on page 129 show, in their bottom rows, the individual-country productivity growths for the countries studied, averaged for the period 1987–1998. These individual growth rates can be averaged again to obtain the total average productivity growth for all countries. This total average can then be compared with the 1978–1998 average growth rates of the countries clustered in table 10.6. The results are as follows (Finland is not considered because it is not part of the analysis in chapter 4):¹

LP: The total average growth in labour productivity between 1978 and 1998 is 4.73%. The average growth of the ‘big three’ member states for the same period is 4.79%, that is, slightly *above* average.

Likewise, the average growth of the countries in the greater north-western part of the EU is 5.09% — this is higher still!

In contrast, the average growth rate for Greece and Luxembourg is 4.64% and therefore *below* average.

TFP: Interestingly, the same general picture is revealed for TFP growth. More specifically, the total average TFP increase is 2.97%, while the ‘big three’ member states achieved, again, an *above* average, at 3.17%.

So did the countries of the greater north-western part of Europe, at 4.14%.

Finally, the average TFP performance of Greece and Luxembourg is, as before, *below* average, at 2.37%.

It is possible, of course, that the correlation between the classification in table 10.6 and the productivity results is merely a coincidence. It is worth noting, however, that the *two independent* sets of findings, namely the performance analysis in chapter 4 and parts of

¹The small size of the sample did not permit a statistical analysis of means. Note that the average for all countries is not weighted according to the size of the telephone systems. Therefore, the averages are only intended to be a crude benchmark.

the questionnaire analysis in chapter 7, correlate with the findings in table 10.6. This suggests that the results may be more than coincidental. Given the possible link between the classification in table 10.6 and the findings in tables 10.7 (effective competition in market segments), 4.6 (labour productivity) and 4.7 (total factor productivity), the following tentative conclusion is proposed:

The substantive model of regulatory control in conjunction with a mixed approach to telecoms market intervention achieves effective competition quickly, while obtaining the highest growths rates of labour productivity and total factor productivity.

It should, however, be emphasised in this context that it is possible that those fields in table 10.6 which remain empty at present, may promise even higher productivity growth and may achieve competition even more quickly. Although this remains to be seen, it is worth emphasising that the categories are independent of the directives, yet the classification of countries is not. The classification draws from the degree of harmonisation achieved by the telecoms directives, a situation that is the reason why some fields remain empty in table 10.6. But an application of this categorisation to regulatory regimes in other industries and other countries should lead to entries in the empty fields. Table 10.6 can be used as a new framework, by which any regulated industry *worldwide* can be assessed in future research.

10.2.2 Supplementary Contributions

Chapter 4 looked at the performance of ten telecoms sectors in the EU, plus Switzerland, Japan and the US in terms of profit margins (PM), labour productivity (LP) and total factor productivity (TFP). The main finding of this analysis was that there is no consistent evidence that privatisation and market liberalisation had an effect on performance increase in the telecommunications sectors of the countries studied. In other words, during most of the 1990s, the liberalisation of European telecommunications markets and privatisation programmes showed little obvious improvements in productivity and profitability. However, it is important to stress that the period studied ended in 1998, for data reasons, and many privatisations and some market liberalisations only occurred towards the end of the period. Therefore, the analysis may have omitted important performance improvements that post-dated the study period.

As discussed in the previous section, the performance analysis can be linked with the results from the study of regulatory regimes to provide some, albeit as yet tentative, conclusions about the link between performance and forms of regulation.

10.3 Limitations of this Research

The research presented in this thesis is based on three main sources of information. These sources are: (i) the telecoms directives of the European Commission and the related academic literature (chapters 2 and 3), (ii) the results of a questionnaire analysis (chapters 5 to 7), and (iii) the results of case study analyses (chapters 8 and 9). Together these three sources provide for a triangulation of the evidence. Despite this strength of the thesis, the project is also subject to some possible shortcomings, which are acknowledged next.

10.3.1 Limitations of the Performance Analysis

The analysis in chapter 4 included profit margins, labour productivity and total factor productivity. But the performance study does not include all member states of the EU and does not go beyond 1998 because of insufficient and incomparable data. More specifically, only inconsistent or unreliable data exists for the member states that are not included in the analysis in chapter 4. In addition, a change in the reporting standards to the European statistics office Eurostat after 1998 did not allow for the inclusion of more recent years in the analysis. Therefore, the discussion of PM, LP and TFP ends in 1998, yet as already mentioned, competition and privatisation may have more obvious beneficial effects in the longer term, beyond the period that could be included in this study. Nonetheless, in so far as competition and privatisation had led to few obvious performance gains in the short-term, the importance of effective regulation of telecoms in Europe was emphasised by the statistical analysis.

10.3.2 Limitations of the Questionnaire Analysis

Overall, the one limitation of the questionnaire analysis that stands out is that not all telecoms regulators agreed to participate in the study. Therefore, the nature of telecoms regulation in Austria and Spain could not be investigated. Another shortcoming of the questionnaire analysis is that it was administered before the new EU telecoms framework, which had to be transposed into national legislation by 25 July 2003, was announced. This framework introduces a number of changes in telecoms regulation in Europe, something that could only be reflected in the case study analysis that was undertaken after the questionnaire. Besides these limitations, it should be acknowledged that not all questions were answered by the interviewees and some were answered in an incomplete way.

10.3.3 Limitations of the Case Study Analysis

Case studies of the regulatory systems in the telecoms sectors of the member states of the EU ideally comprise the view of regulators and operators. The four case studies reported in chapters 8 and 9 did not include the views of operators for reasons of time and the difficulty of researching in different locations under a tight budget. Also, an initial approach to the main telecoms companies in Europe produced a disappointing response in terms of the willingness to participate in such research. For these reasons, the views of operators must be left as a subject for future study. In addition, it should be acknowledged that the case studies presented in these chapters only focus on four member states, rather than on all fifteen countries of the EU.

10.3.4 Limitations of the Majone-Trebing Matrix

In essence, table 10.6 reflects the understanding as at 31 December 2001. In the meantime, the transposition process of the new telecoms framework is about to be completed. It may be possible, therefore, that an understanding will emerge in the future that is more common than at the time when the first directives were issued. More specifically, the work of the Independent Regulators Group (IRG) and other aspects of normative or cross-national mimetic policy transfer, have certainly contributed to a more common understanding of regulation across Europe. In addition, it is possible that the new directives will account for changes in regulatory governance and telecoms regulators will be restructured. For example, ODTR of Ireland was replaced in 2003 by an institution named ComReg. Likewise, OFTEL of the UK will shortly be replaced by OFCOM and the office will have more powers. As part of this shift, some aspects of regulatory control and regulatory intervention may change and it is recommended, therefore, that the study that led to table 10.6 be re-undertaken, once the transposition of the new framework has been completed. Member states may then have to be relocated in the table and a more clustered categorisation may emerge. The categories, however, should not change, as they are intended to be universal and applicable to any regulated industry at any time.

10.4 Recommendations for Future Telecoms Policy

Given the uncompleted transposition of the new telecoms directives and their final effects being awaited, it is difficult to draft policy proposals for future telecoms policy in the EU,

not least because the Union is to expand shortly. What is possible, however, are reflections on more general considerations in the European telecoms markets, by looking beyond the immediate scope of the directives.

As it stands, the incumbent telecoms operators continue to own most of the economies' communications networks, while having available a historically grown customer base. This remains larger than those of market entrants. This situation contributes to the difficulty telecoms regulators face with interconnection pricing and related agreements between operators. Especially in the fixed to mobile interconnection market, the situation is such that the terminating mobile operator maintains a form of quasi-monopoly. Quasi-monopolies bring with them the danger that prices may be fixed to hold call charges high in the interest of maximising profits. This has happened in the UK, where recent media reports have claimed that charges for text messages have gone up by up to 12%. Such an outcome suggests that future telecoms competition in Europe may reach a state of 'limited competition', as arguably has existed for decades in the petrol retailing market. In addition, recent globalisation trends create the danger that market consolidation will occur in the European telecoms industry. Such trends may result in 'incomplete markets', where perhaps only four to six operators dominate in Europe, each with regional dominance, and where the companies 'stay out of each other's way'.

One way to prevent such dangers is to break up the ownership of the network infrastructure of the former monopolies. This, however, introduces another danger, namely that network integrity would be endangered because communications networks are the 'backbone' of a country's information infrastructure. Another possibility is that the European Commission will need to focus in the future much more on the prevention of mergers and acquisitions, rather than simply on the harmonisation of regulation in European telecoms. This shift in focus would move the emphasis in telecoms regulation from ex-ante to ex-post regulation through EU and national competition laws.

In addition to these issues, there is the issue of the fast technology drive in the telecoms industry (Burton, 1997; Miller, 2001; Sarkar et al., 1999). One reason why telecoms markets should be liberalised is that the competitive market usually brings new technologies to the consumer more quickly than monopoly. In addition, the exploitation of new technologies is seen as a major force that eventually checks the power of dominant suppliers. But, given the benefit of hindsight, two problems with this view have emerged. Firstly, one has to take into account that new technologies at the time of market liberalisation in the EU, such as mobile telephony and the Internet, were ready to be exploited commercially, promising

steady growth. But as it turned out, the market saturated earlier than expected. Secondly, the high hopes that were put into UMTS during the turn of the millennium, have, in 2003, left a large debt hangover amongst firms. When the technology was developed, its potentials were such that a user could see entire films on a mobile telephone. The costs of developing this technology, the licensing costs (e.g. in Germany alone €50.96bn were paid in total; see chapter 9) and the costs of building networks (which remain uncertain at present) have, however, contributed to a situation where the potential of UMTS has not been implemented in full. Given the high costs of present technologies, it is likely that only the dominant telecoms service providers will be able to fund necessary R&D and investment, in the long-run. If so, their market power will increase.

10.5 Suggestions for Future Research Projects

Given the limitations discussed above, an obvious suggestion for future research is to conduct the missing country case studies and to obtain more interview data, including the views of regulated companies. Also, research should consider the effects of the new telecoms framework, introduced on 25 July 2003. It can also be argued that the questionnaires of the thirteen countries, which were the basis of some of the research in this thesis, could be adjusted for the new telecoms framework and administered again.

Although the questionnaire results and the case study evidence in this thesis included issues associated with 'rights of way', insufficient answers were obtained. It is recommended, therefore, that 'rights of way' be subject to a separate study to fully understand their effects on market entry in European telecommunications. To obtain the required information, local authorities will need to participate in data collection, instead of the telecoms regulators in the member states. Collecting information from those authorities promises more detailed data than could be obtained from the regulators because the powers to grant 'rights of way' lie with local authorities.

Besides these suggestions, a future research project would involve the application of the analytical framework developed in section 10.2. Such a project might not be limited to the member states of the EU and could be conducted in telecommunications sectors, and perhaps other industries, worldwide. Although it is correct to say that the categories of regulatory control and regulatory intervention were drawn from the telecoms directives and the related academic literature, they are, as noted earlier, not directly dependent on the telecoms directives. Hence, a suggested hypothesis for future research could be:

Suggested Hypothesis: The analytical framework developed in this thesis can be applied to any regulated industry or service sector in any country.

If data exist to undertake labour productivity and total factor productivity calculations, then the classification of countries should allow a link similar to the one provided above.

In addition to these proposals, there are a number of research subjects that do not directly draw from the results of this thesis, but were taken into account earlier. As was discussed in chapter 3, the legal system of a country impacts on the process of transposition of the telecoms directives from the European Commission. In addition, chapters 8 and 9 showed the practical implications of the legal systems for telecoms regulation in the four selected member states. Given this understanding, it is suggested that future research be conducted on the process of transposing legislation that is drawn up for a number of countries, such as the telecoms directives of the EU. Such a project should necessarily include the legal system of the countries in question in detail, as was suggested on a theoretical basis by Foster (1992), discussed chapter 3. If several countries are included in such a future study, comparisons can be drawn, which should, as was the case in this thesis, include the theory of policy transfer (e.g. DiMaggio and Powell, 1991; Hood, 1994) using a recognition of the different historic developments between countries (Thatcher, 1999).

Finally, the effects of regulatory decisions on the management of telecoms companies are relevant. In other words, it should be clarified what effect regulatory decisions have on managerial decisions and, hence, on the productivity performance of telecoms operators. This proposition is supported by Berg (2000), who provides an overview of how regulation is embedded in the overall environment of the industry. The paper emphasises that future research needs to be aimed at obtaining a better understanding *why* and *how* regulatory decisions affect business performance. It is not sufficient any longer to know *that* business performance is affected by regulation. In other words, insight is needed into how companies subject to regulation transform regulatory decisions into business outcomes. Work has recently commenced in this area. Coen (2003), for example, stresses that liberalisation in EU telecoms has not yet created a uniform regulatory model. In this context, this thesis has found that not only the market intervention by regulatory authorities has to be taken into account, but the interaction between the telecoms regulator and the government. The matrix shown in figure 10.6 could be used, as suggested above, as a framework for such study.

Appendix A

Details on Calculating Total Factor Productivity

A.1 Estimation of Real Capital and Real Labour

A.1.1 The Real Capital Stock

The real capital stock (K), required in equation (4.3) in chapter 4, was estimated for each country using the commonly applied perpetual inventory method, where it is assumed that:

$$K_t = I_t + (1 - \delta)K_{t-1} \quad \text{with} \quad K_{initial} = \frac{I_{initial}}{r + \delta}, \quad (\text{A.1})$$

where I indicates real investment, r the long-term growth rate of capital, δ the long-term depreciation rate of capital and t time. Real investment was based on nominal investment data (I_{nom}), provided by the ITU database of *World Telecoms Indicators* (ITU, 1999). These figures were subsequently deflated using the gross fixed capital formation (GFCF) deflator available from the United Nations *National Account Statistics: Main Aggregates and Detailed Tables* (UN, 2000):

$$I_t = \frac{I_{nom \text{ in } t}}{GFCF \text{ deflator}}, \quad (\text{A.2})$$

Although it is common procedure in the perpetual inventory method in equation (A.1) to assume fixed r and δ over the period considered, both measures were estimated for each telecoms sector as follows to obtain a more precise proxy as opposed to merely assuming

these figures:

$$\delta = \frac{D}{K} \text{ and } r = \frac{I - D}{K}, \quad (\text{A.3})$$

with D being depreciation. In a first step, nominal estimates for r and δ were computed per annum and in a second step averaged for the 1978–1998 period. Nominal data were used because K was not available in real terms to compute r and δ . Nominal K was estimated as follows:

$$K_{nom \text{ in } t-1} = K_{nom \text{ in } t} - I_{nom \text{ in } t-1} + D_{nom \text{ in } t}. \quad (\text{A.4})$$

This method can also be applied using real figures for D and I , obtained through reversely applying the gross fixed capital formation deflator. Therefore, equation (A.4) was also used to compute real K for a cross-check with the figures computed in equation (A.1), and very similar results were obtained.

A.1.2 Real Labour

Another term required in equation (4.3) in chapter 4 is labour per annum in real terms (L_{real}). To obtain a proxy of this measure, physical units of ‘man hours’ were used as follows:

$$L_{real} = \text{number of employees} * \frac{\text{hours}}{\text{week}} * 52 \frac{\text{weeks}}{\text{annum}}, \quad (\text{A.5})$$

where the number of employees refers to average full-time staff per annum, available from the ITU database. Hours per week were obtained from Eurostat.

A.2 Determination of the Nominal Input Costs and the Real Other Inputs

Total economic costs (TC) per annum in nominal terms, again required in equation (4.3) in chapter 4, were determined as:

$$TC = OCK + LC + COI, \quad (\text{A.6})$$

with

$$LC = \frac{LC}{\text{hour employee}} * \text{employees} * \frac{\text{hours}}{\text{week}} * 52 \frac{\text{weeks}}{\text{annum}} \quad (\text{A.7})$$

Details on Calculating Total Factor Productivity

and

$$COI = OpC - LC, \quad (A.8)$$

where OCK are the annual opportunity costs of capital, LC the annual labour costs, COI are the costs of other inputs per annum, and OpC are the annual operating costs provided by the ITU. To obtain other inputs per annum in real terms (OI_{real}), also required in equation (4.3), nominal COI in equation (A.8) were deflated using the consumer price index (CPI), obtained from the IMF's *International Financial Statistics Yearbook*:

$$OI_{real} = \frac{COI}{CPI}. \quad (A.9)$$

In equation (A.6), the derivation of the nominal OCK was based on bond yields (i) from each country's capital market, obtained from the IMF. In the case of Greece, however, deposit rates were used in the absence of data on bond yields. Until the 1990s, telecommunications companies were usually state-owned and government bond yields are a reasonable proxy for calculating the opportunity cost of capital. After privatisation, an additional equity risk premium may be relevant, yet the incumbent companies remained dominant in the market and the risk of failure to make dividend payments and repay loans was remote. The opportunity cost of capital was calculated as:

$$OCK_t = (i_t + \delta)K_{nom\ in\ t}, \quad (A.10)$$

where $K_{nom\ in\ t}$ was obtained by inflating the real capital stock computed in equation (A.1), through reversely applying the gross fixed capital formation deflator from the United Nations. Finally, as detailed in equation (4.3) in chapter 4, the nominal input shares are:

$$S_K = \frac{OCK}{TC}, \quad S_L = \frac{LC}{TC} \quad \text{and} \quad S_{OI} = \frac{COI}{TC}. \quad (A.11)$$

Appendix B

The Questionnaire

Regulation and Competition in National Telecommunications

The time required to complete this questionnaire is about 20 minutes. You may find that some questions can be answered by looking at special documents. If so, you may choose not to answer the question and instead indicate the name of the document and where to obtain it. Should the document not be available in English or German, may we please ask you to answer the corresponding question? Thank you very much.

Part A: Regulation of National Telecommunications

I. General Information, Organisation and Responsibilities of the Regulatory Authority

- 1. In which year did the Regulatory Authority become operational to regulate the telecoms market?*

■ _____

2. *Who appoints the President / the Director General of the Regulatory Authority?*

More than one answer is possible if applicable

- A — The Ministry responsible for telecommunications
- B — The Parliament
- C — Another institution (please specify) _____

3. *How is the President / the Director General of the Regulatory Authority appointed?*

More than one answer is possible if applicable

- A — By recommendation of the Parliament
- B — By recommendation of the Ministry responsible for telecommunications
- C — By recommendation of the members of staff of the Regulatory Authority
- D — By recommendation of another institution (please specify) _____

4. *To whom is the Regulatory Authority accountable?*

More than one answer is possible if applicable

- A — Nobody
- B — The Ministry responsible for telecommunications
- C — The Parliament
- D — The Competition Authority
- E — The Public
- F — Other (please specify) _____

5. *To whom does the Regulatory Authority directly report?*

More than one answer is possible if applicable

- A — Nobody
- B — The Ministry responsible for telecommunications
- C — The Parliament
- D — The Competition Authority
- E — The Public by Annual Report
- F — Other (please specify) _____

6. Please choose the responsibilities of the Regulatory Authority from the following list.

More than one answer is possible if applicable

- A — Enforcing competition
- B — Monitoring competitive behaviour
- C — Determining the effectiveness of competition
- D — Regulatory action if competitors cannot reach commercial agreements within 6 months
- E — Ensuring the cost-based provision of leased lines and interconnection
- F — Appointing Universal Service Obligation and determining compensation for related costs
- G — Allocating telephone numbers
- H — Dealing with consumer complaints
- I — Issuing quality guidelines

7. How are the members of staff involved in regulatory decision-making appointed?

More than one answer is possible if applicable

- A — Through competitive selection of civil servants
- B — Through competitive selection of NON civil servants
- C — Through recommendation of civil servants
- D — Through recommendation of NON civil servants
- E — Through another procedure (please specify) _____

8. Do the members of staff involved in regulatory decision-making receive regular training in the economics of telecoms regulation?

- A — No
- B — Yes

9. Who makes regulatory decisions within the Regulatory Authority?

- A — The Head of the Regulatory Authority alone
- B — A chamber / council / board without the consent of the Head of the Regulatory Authority
- C — A chamber / council / board requiring the consent of the Head of the Regulatory Authority
- D — Someone else (please specify) _____

II. Transposition of the EU Telecoms Directives

10. Which institution is responsible for transposing the EU telecoms directives into national legislation?

More than one answer is possible if applicable

- A — The Parliament
- B — The Ministry responsible for telecommunications
- C — The Regulatory Authority
- D — Other (please specify) _____

11. Please itemise any directive(s) that was / were NOT substantially transposed as it stood on 31 December 2001.

▪ _____

III. Mechanisms for Authorising Operators as Facilitated under Directive 97/13/EC (Licensing)

12. Which institution grants authorisation for WIRE-BASED communications?

- A — The National Regulatory Authority
- B — The Ministry responsible for telecommunications
- C — Another institution (please specify) _____

13. Which institution grants authorisation for WIRELESS communications?
- A — The National Regulatory Authority
 - B — The Ministry responsible for telecommunications
 - C — Another institution (please specify) _____
14. Are there any restrictions on the percentage of foreign ownership a telecoms operator is allowed to have in order to obtain a General Authorisation / a Licence?
- A — No, an operator can be 100% in foreign ownership
 - B — Yes, there is a % limit
 - If 'Yes', please give the percentage _____
15. Please name the institution that allocates frequencies for WIRELESS communications.
- _____
16. Please name the institution that assigns frequencies for WIRELESS communications.
- _____
17. After a General Authorisation / a Licence was granted, which additional conditions have to be met by providers of WIRE-BASED communications networks to obtain digging rights?
- A — None, a network provider obtains digging rights automatically
 - B — A network provider has to notify the responsible local authorities
 - C — A network provider has to apply for additional digging rights with local authorities
 - D — Another condition (please specify) _____

18. After a General Authorisation / a Licence was granted, which additional conditions have to be met by providers of WIRELESS communications networks to obtain antenna-building permits?

- A — None, a network provider obtains an antenna-building permit automatically
- B — A network provider has to notify the responsible local authorities
- C — A network provider has to apply for additional antenna-building permit with local authorities
- D — Another condition (please specify) _____

IV. Price / Profit Regulation in National Telecommunications

19. Do you use price caps to regulate prices of communication services charged to the consumer?

- A — Yes; please give the number of years for which X is set _____
- B — Price caps are not administered

20. Which operators have their charges to consumers regulated through price caps or any other form?

More than one answer is possible if applicable

- A — The former monopoly alone
- B — Operators with Significant Market Power in the WIRE-BASED communications sector
- C — Operators with Significant Market Power in the WIRELESS communications sector
- D — Other companies (please specify) _____

21. Which operators have their charges for interconnection and leased lines regulated?

More than one answer is possible if applicable

- A — The former monopoly alone
- B — Operators with Significant Market Power in the WIRE-BASED communications sector
- C — Operators with Significant Market Power in the WIRELESS communications sector
- D — Other companies (please specify) _____

V. Success und Status of Regulating the National Telecommunications

Market

22. Which method and / or indicators are used by the Regulatory Authority to assess the effectiveness of competition in each market segment?

More than one answer is possible if applicable

- A — Profitability
- B — Market shares measured through percentage of revenues
- C — Market shares measured through percentage of customers
- D — Number of commercial agreements between competitors for leased lines and interconnection
- E — Another indicator alone (please specify) _____
- F — Other indicators together (please specify) _____

23. Please list the means / methods by which the Regulatory Authority enforces regulatory measures / decisions taken.

- _____

24. If there are any, please indicate which telecoms market segments were effectively competitive as it stood on 31 December 2001.

- _____

25. Overall, how would you categorise the status of telecoms regulation in your country?

- A — Not advanced, legislation still under construction
- B — Less advanced, mainly regulatory action required
- C — Advanced, some regulatory action and monitoring required
- D — Far advanced, only monitoring required

Part B: Competition in National Telecommunications

VI. Effects of Telecoms Market Liberalisation on Users

26. Please give the total number of providers, licensed and non-licensed, in WIRE-BASED communications services as it stood on 31 December 2001.

■ _____

27. Do you consider this number of providers of WIRE-BASED communications services is enough to achieve effective competition?

- A — No
- B — Not sure
- C — Yes

Please briefly justify your answer

■ _____

28. Do you consider that competition provides consumers with lower prices than the previous monopoly situation?

- A — No
- B — Not sure
- C — Yes

Please briefly justify your answer

■ _____

29. Do you consider that competition provides a better transmission quality than the previous monopoly situation?

- A — No
- B — Not sure
- C — Yes

Please briefly justify your answer

■ _____

30. Do you consider that competition provides a better quality of customer service than the previous monopoly situation?

- A — No
- B — Not sure
- C — Yes

Please briefly justify your answer

■ _____

31. Do you consider that increasingly competitive markets make new technologies and services available faster than the previous monopoly situation?

- A — No, slower
- B — No, not faster
- C — Yes, faster
- D — Not sure

Please briefly justify your answer

■ _____

VII. Separation of Telecoms Networks and Services

The current EU framework, and in particular directive 97/13/EC (Licensing), allows single telecoms operators to supply networks and services. In contrast to this, suppose single telecoms operators were restricted to the provision of either networks or services. This would facilitate a separation.

The answers given here will be treated confidentially and will not be attributed to your country.

32. *Do you consider that arguments between operators about the cost-based provision of leased lines and interconnection are removed if networks and services are separated?*

- A — Yes, completely
- B — Yes, but only in a limited way
- C — Not sure
- D — No

Please briefly justify your answer

■ _____

33. *Do you consider that effective competition in all market segments can be achieved more quickly if networks and services are separated?*

- A — Yes, notably
- B — Yes, but only in a limited way
- C — Not sure
- D — No

Please briefly justify your answer

■ _____

34. *Do you consider that there are stronger incentives to build alternative WIRE-BASED communications networks if networks and services are separated?*

- A — Yes, notably
- B — Yes, but only in a limited way
- C — Not sure
- D — No

Please briefly justify your answer

■ _____

35. Do you consider that income from line rental, leased lines and interconnection can be distributed more equally among competitors in the WIRE-BASED communications market if networks and services are separated?

- A — Yes, notably
- B — Yes, but only in a limited way
- C — Not sure
- D — No

Please briefly justify your answer

■ _____

36. Is it possible to separate networks and services?

- A — Principally yes
- B — Not sure
- C — Principally no

Please briefly justify your answer

■ _____

VIII. Please provide us with your name, telephone number and email. This information will not be attributed to your answers. In addition, please let us know whether you would like to receive a copy of our results when ready.

■ _____

- Yes, I would like to receive a copy of the results of this questionnaire
- No, I am not interested in the results

Thank you for taking the time to complete this questionnaire. We may at a later stage in our research wish to pursue some issues in more depth. Would you be willing to be interviewed?

- Yes, in person
- Yes, by telephone
- No

Thank you very much for your support!

Appendix C

The Main Questions Asked in the Interviews

C.1 Country-specific Questions

C.1.1 Finland

Market Intervention by FICORA

1. Unlike other member states, Finland never had a single telecoms monopoly.
 - a. Does this have any special implications for FICORA's powers/functions?
2. The Telecoms Act distinguishes between ex-ante and ex-post powers/functions. The Implementation Reports note in this context that FICORA's approach to market intervention is of a passive nature, but the Commission generally promotes a more proactive approach.
 - a. What is FICORA's understanding?
 - b. Would a more proactive approach to regulation be suitable to tackle the high number of operators with 'significant market power', i.e. enforcing agreements on interconnection and leased lines at certain conditions?
3. The European Commission notes in its Eighth Report that the cost accounting system administered by FICORA was inadequate, especially regarding the cost information of operators with 'significant market power'.
 - a. Was the system corrected following the infringement in 2001?

4. The Eighth Report notes doubts about the reason for suspending Article 17 of the New Voice directive.

- a. Could you please clarify this issue?

The New Telecoms Framework

5. New Directive 2002/21/EC (framework).

- a. How has the market analysis been conducted?
- b. Did the market analysis reveal that market segments have to be redefined? If yes, which ones?
- c. Did the market analysis influence the high number of market segments (over fifty), in which operators maintain 'significant market power'?
- d. Did FICORA have to adjust/remove/introduce regulation after the market analysis was conducted?

6. The five new directives in general.

- a. Will FICORA obtain new ex-post/ex-ante responsibilities/tasks?
- b. Were there any major difficulties during the transposition period and could FICORA draw on experience gained during the transposition of the previous framework (government meddling, etc.)?
- c. Will the Finnish telecoms legislation meet the deadline of 25 July 2003?

C.1.2 Germany

Market Intervention by RegTP

1. RegTP has, compared with other regulatory authorities in the EU, a significantly higher budget and a significantly higher staff.

- a. Does this draw from the size of the German telecoms market or is this to do with the responsibilities/powers of RegTP?

2. The Reports of the European Commission note that regulatory procedures in German telecoms take longer than in other member states.

The Main Questions Asked in the Interviews

- a. Does this have a bureaucratic background, such as data protection, or is this to a large extent related with the high number of appeals before the courts?
3. The Commission also notes that, compared with the telecoms regulation in other member states, a high number of appeals go to the courts.
 - a. What is the cause of the problem in the understanding of RegTP?
4. The Telecoms Act facilitates a separation between ex-ante powers/functions of RegTP (prevention of anti-competitive practices and customer protection) and ex-post powers and functions (regulation of 'significant market power'). The Implementation Reports of the EC note in this context that RegTP pursues a passive approach to regulation. This means that RegTP acts when competitors put forward a request for regulatory action. Then, RegTP acts on a case-by-case basis.
 - a. The Commission generally advocates a more proactive approach to telecoms market intervention. What is RegTP's position?
 - b. Does the passive approach to market intervention facilitated by the legal system show a market-driven understanding of the economy and of telecoms regulation?
5. The Reports of the European Commission note that there were in the past longer delivery times for leased lines than in other member states, and that carrier pre-selection was not available for local calls.
 - a. Was the cause of these problems that competitors were unable to reach agreements?

The New Telecoms Framework

6. New Directive 2002/21/EC (framework): RegTP stressed in the past that it is not adequately empowered to conduct the market analysis (necessary enquiries could not be done).
 - a. Was that due to missing powers/functions?
 - b. How has the market analysis been conducted?
 - c. Did the market analysis show that market segments had to be redefined? If yes, which ones?
 - d. Did RegTP have to adjust/remove/introduce regulation after the market analysis was conducted?

- e. Did the analysis affect the market segments with 'significant market power'?
- 7. The five new directives in general.
 - a. In addition to the new powers in interconnection during pending appeals, will RegTP enjoy new powers?
 - b. During the transposition phase of the new directives, were there any special difficulties and could RegTP use the experience gained during the transposition of the previous framework?
 - c. Will German telecoms legislation meet the 25 July deadline?

C.1.3 Greece

Market Intervention by EETT

1. The topography of Greece (islands, mountains) considerably differs from other member states.
 - a. Does this present any major challenges for the market and EETT?
 - b. Does the topography of Greece have special implications for the ex-post and the ex-ante powers/functions of EETT?
 - c. Is the topography a factor that hinders the development of effective competition?
2. The European Commission notes in its Eighth Report that the cost accounting system administered by EETT was inadequate in the past, especially regarding the cost information of operators with 'significant market power'. The Report also shows that adjustments to the cost accounting system have been made, especially the discriminatory pricing of leased lines noted by the Commission.
 - a. Does the adjusted system help to prevent arbitrary pricing in leased lines?
 - b. Does the corrected system provide better information regarding the interconnection pricing of operators with 'significant market power'?
 - c. Could these issues have been avoided by pursuing a more proactive approach to market intervention within existing ex-post powers/functions?

The New Regulatory Framework

5. New Directive 2002/21/EC (framework).

- a. How has the market analysis been conducted?
 - b. Did the market analysis reveal that market segments have to be redefined? If yes, which ones?
 - c. Did the market analysis affect those market segments with 'significant market power'?
 - d. Did EETT have to adjust/remove/introduce regulation after the market analysis was conducted?
6. The five new directives in general.
- a. Will EETT obtain new ex-post/ex-ante powers/functions?
 - b. Will there be changes to the cost accounting system?
 - c. Were there any major difficulties during the transposition period and could EETT draw on experience gained during the transposition of the previous framework (government meddling, etc.)?
 - d. Will the Greek telecoms legislation meet the deadline of 25 July 2003?

C.1.4 The Netherlands

Market Intervention by OPTA

1. The Eight Report of the European Commission notes that regulatory decisions are generally appealed against by OPTA and by the operator(s) in question before decisions are implemented.
 - a. Is this statement correct?
2. The Eight Report also notes that OPTA sometimes cannot implement decisions effectively when the Ministry issues a regulation, which concerns OPTA's jurisdiction.
 - a. Could you please clarify this issue?
3. The Dutch telecoms sector has been considered as advanced in the past.
 - a. Does OPTA share this view?
4. The Telecoms Act distinguishes between ex-ante and ex-post powers/functions of OPTA. The Implementation Reports of the European Commission note in this context that OPTA generally acts when a complaint is lodged by operators.

The Main Questions Asked in the Interviews

- a. The Commission generally advocates a more proactive approach to telecoms market intervention. What is OPTA's position?
 - b. Does this situation reflect a market-driven understanding of competition and regulation?
5. The Eight Report also notes that OPTA generally follows a case-by-case approach. It could be argued that this does not solve the basic problem if there is one (examples: carrier pre-selection and delivery periods of leased lines). Therefore, sorting one case may not prevent the problem from reoccurring with other operators.
- a. What is OPTA's position?
6. The Eight Report notes that carrier pre-selection for local calls was not implemented until recently.
- a. What was the problem?

The New Regulatory Framework

7. New Directive 2002/21/EC (framework): OPTA has emphasised in the past that it was not empowered to conduct the market required, namely OPTA was not empowered to collect the necessary information from the market.
- a. Did the urgent legislative proposal mentioned in the Eighth Report give OPTA the necessary powers?
 - b. How has the market analysis been conducted?
 - c. Did the market analysis reveal that market segments have to be redefined? If yes, which ones?
 - d. Did the market analysis affect those market segments with 'significant market power'?
 - e. Did OPTA have to adjust/remove/introduce regulation after the market analysis was conducted?
8. The five new directives in general.
- a. In addition to better empowerment to collect market data, does OPTA expect to enjoy new powers?
 - b. Were there any other difficulties during the transposition period?
 - c. Will the Dutch telecoms legislation meet the deadline of 25 July 2003?

C.2 Common Questions

C.2.1 Authorising Operators, 'Rights of Way' and Market Entry

In FICORA's/RergTP's/EETT's/OPTA's understanding, is the willingness to enter the market negatively affected by strict authorisation regimes?

Which effect do legislative obstacles and cumbersome procedures to obtain 'rights of way', have on market entry? In other words, would companies still enter even if legislative obstacles are unreasonably high?

Are investment decisions of telecoms companies long-term or short-term orientated (quickly into the blacks or slowly and steadily)?

C.2.2 Concluding Questions

Would you like to raise any questions that we have not talked about, but you feel are important?

Thank you very much for your support. May I call back if the analysis shows that some questions need further clarification?

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