



## **REGULATORY SCORECARD**

**Report on the relative effectiveness**

**of the regulatory frameworks for electronic communications in**

**Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece,  
Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, Sweden and  
the United Kingdom**

**11 December 2006**

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**SPC Network**

## EXECUTIVE SUMMARY

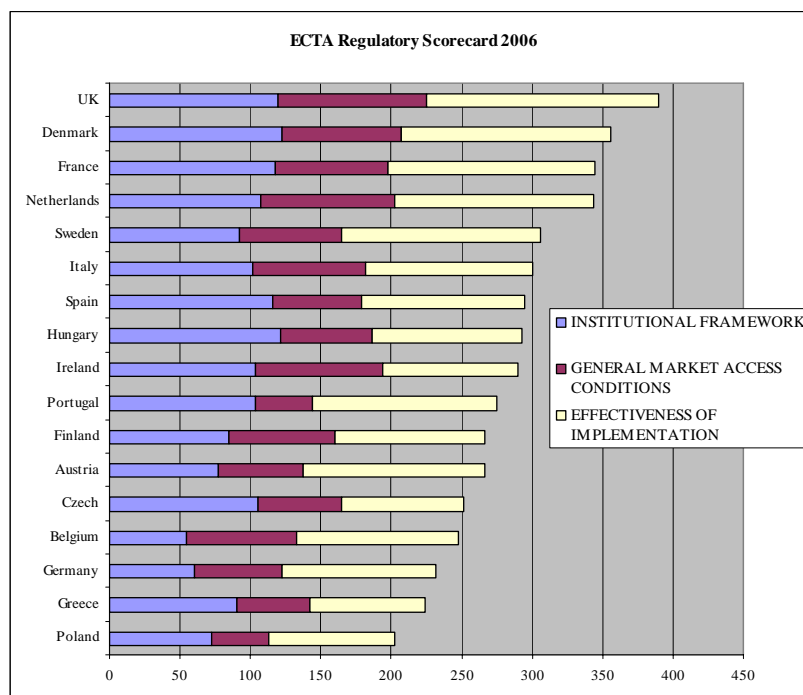
1. The purpose of this report is to compare the regulatory environment in 17 EU Member States in the electronic communications sector and its effectiveness in promoting the objectives of the EU regulatory framework. The Member States surveyed in this Report are Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, Sweden and the United Kingdom.

2. For each country surveyed, the authors of the report have requested NRAs and ECTA members to respond to detailed questions designed to assess the effectiveness of the regulatory framework in their country. The issues covered in the questionnaire fall under three main categories: (i) the institutional framework (Section A); general market access conditions (Section B); and the competitive and regulatory conditions for operating in four key market segments (Section C).

3. The criteria were selected following a review of a range of inputs, including the various Directives under the EU regulatory framework, the World Trade Organisation (WTO) reference paper on telecommunications, the OECD, as well as inputs from NRAs, carriers, economic experts, and other stakeholders. For each category, the authors have identified a number of relevant criteria which are reflected in the questionnaire. This year, the questionnaire is composed of 97 questions in total and has also been determined following consultation with the NRAs of the surveyed countries.

4. On the basis of the responses received for each Member State, a comparative quantitative analysis was carried out, resulting in an overall score for the effectiveness of the regulatory environment in each country. The overall results of the Scorecard are shown in Figures 1 and 2.

**Figure 1: Overall Results of Scorecard**



**Figure 2: Scorecard Results**

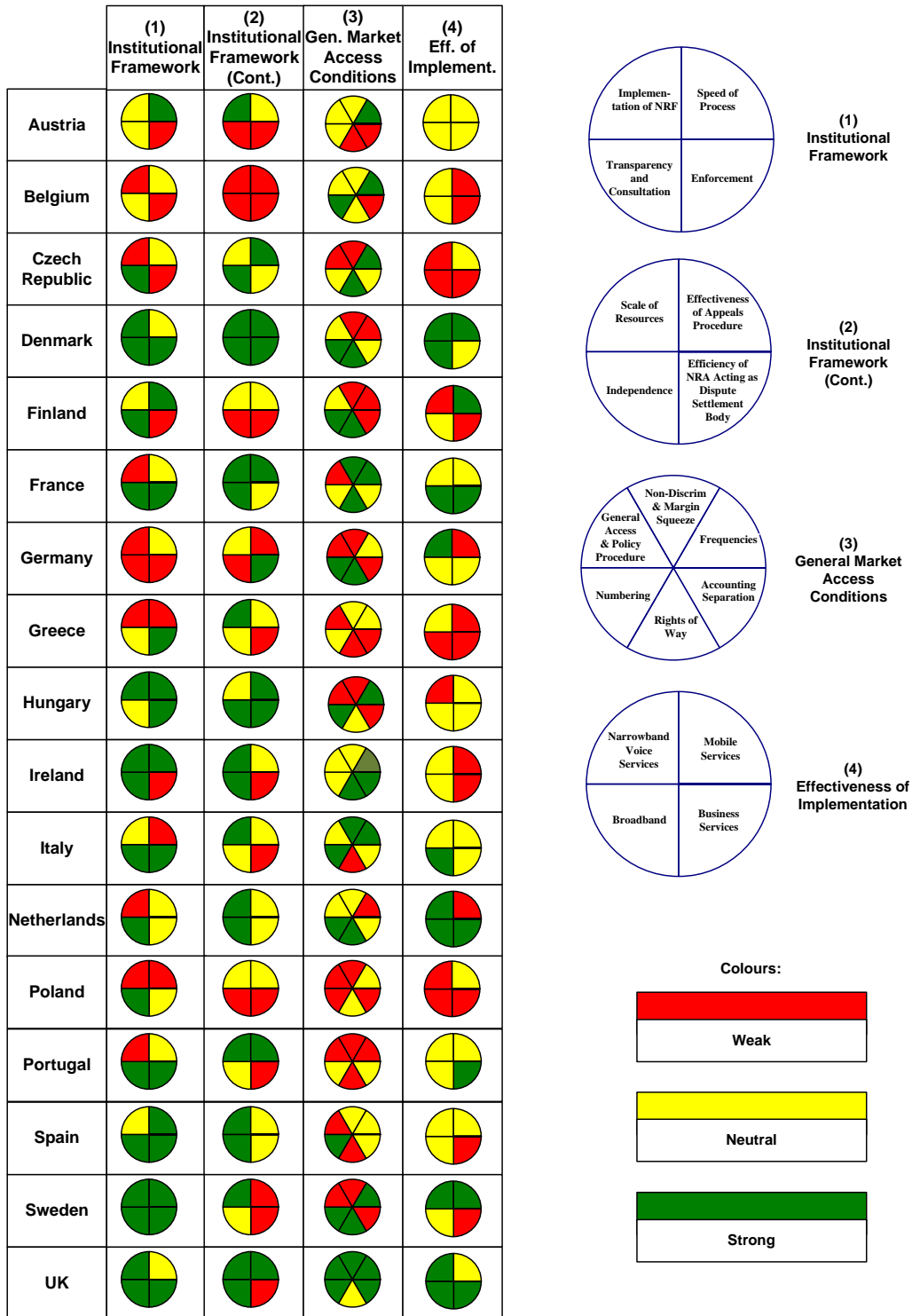
	INSTITUTIONAL FRAMEWORK	GENERAL MARKET ACCESS CONDITIONS	EFFECTIVENESS OF IMPLEMENTATION	TOTAL
UK	120	105	165	390
Denmark	123	85	149	356
France	118	80	148	345
Netherlands	108	95	141	344
Sweden	93	73	141	306
Italy	101	80	119	300
Spain	116	63	116	295
Hungary	121	65	106	293
Ireland	104	90	96	290
Portugal	104	40	131	275
Austria	78	60	129	266
Finland	85	75	106	266
Czech	105	60	86	251
Belgium	55	78	115	248
Germany	60	63	109	231
Greece	90	53	81	224
Poland	73	40	90	203

\* The scores in Figure 2 have been rounded to the nearest whole number.

5. Figure 3 overleaf presents the strengths and weaknesses of each country graphically. The three sections have been divided into pie charts with each slice representing a sub-section. Please note that Section A is presented as two pies due to the relatively large number of sub-sections. A green slice is a relative strength and indicates that a country has scored 70% or more of the available points for that subsection (rounded to the nearest whole number). A yellow slice indicates some problems and reflects a score between 45% and 70% of the available marks. A red slice indicates a particular weakness, i.e. a score of less than 45%.

**Figure 3: Overview of Strengths and Weaknesses of the Surveyed Countries**

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6. The overall results of the report show that, three years after the adoption of the regulatory framework and eight years since the complete liberalization of the sector in 1998, the application of regulation across Europe is fragmented and there is still considerable scope for progress. Whilst some Governments and regulators have implemented the framework relatively rigorously, many remain behind on introducing critical market opening measures. In addition, due to the high degree of granularity in the report, it is possible to identify key issues and specific strengths and weaknesses for the countries examined.

- Transposition of the framework. Many Member States were late in transposing the regulatory framework, with only 6 Member States out of the 17 countries surveyed adopting the framework on the due date. Moreover, there have also been a number of issues in relation to the correct transposition of the framework. This would suggest that more attention is needed from Member States on ensuring timely and correct implementation.
- Speed of process. The timeframe taken to complete market analyses has further delayed the effective application of the framework in a significant number of Member States, with some NRAs taking more than 18 months to reach a conclusion. Timescales for decision-making seem to have been a particular issue in Italy and Poland, and this is an area where the UK, otherwise a strong performer, is relatively weak.
- Transparency. In most Member States, market players appear to be generally satisfied with the transparency of the NRA's processes. Implementation of the new framework also appears to have improved such transparency. However, there still appear to be particular concerns in Germany, where questions have been raised about whether the balance between protecting business secrets and disclosure has been addressed appropriately.
- Enforcement and sanctioning powers. Regulators with the most effective enforcement powers are Spain, Portugal and Greece. By contrast, penalties have been much more seldom applied by NRAs in the new Member States and Finland, Austria, Belgium and Germany. The power to suspend the launch of commercial offers, pending the assessment of their compatibility with SMP obligations (including, in particular, the non-discrimination obligation), appears to be lacking in a significant number of Member States. Such a power is, however, considered of critical importance given the first mover advantages that can be generated on electronic communications markets.
- Appeal procedure. Lengthy and restrictive appeal practices (with some appeals taking up to 3 years) continue to delay the effective application of the regulatory framework in many countries. Sweden's problems are well-documented, with most of the regulator's important decisions still under review by the courts. Swifter and more effective systems are found in the UK, France, Denmark and the Czech Republic.
- Independence. Independence, not only from industry, but also from political influence, remains a critical issue in ensuring predictability and stability in the regulatory environment. Progress has been made in several countries, but a number of large Member States still maintain substantial shareholdings in their incumbents including France, Germany, Sweden, Poland, Belgium and Greece, whilst others retain the right to issue Ministerial directions to the NRA.

- Dispute settlement body. The assessment of the effectiveness of the dispute settlement body procedure shows that, in most Member States (*i.e.*, in 9 of the 17 surveyed Member States), such procedures generally exceed the mandatory four-month timeframe. Moreover, in most Member States, the dispute settlement body does not have the power to impose interim measures, which increases the detrimental effects resulting from such delays for new entrants.
- Accounting separation. Although accounting separation is generally recognised as an essential component for ensuring a proper enforcement of cost orientation and non-discrimination remedies, only a very limited number of Member States have effectively implemented it. The report finds, however, that progress has been made compared to the previous years.
- Non-discrimination. Most regulators have yet to adequately define and enforce the concept of non-discrimination, one of the key barriers to enabling competitors to compete on equal terms with SMP operators. The UK, which has introduced functional separation as a means of strengthening measures to combat discrimination is considered one of best practice examples, as are Italy and France, which have worked on addressing discrimination and margin squeeze in the context of developing the broadband ladder of investment. For most countries, however, there is a lack of clarity on how discrimination is handled.
- Rights of way. Effective rights of way have long been identified as critical in enabling infrastructure investment to the extent this is viable. Germany is particularly strong on rights of way and Denmark, Sweden, Finland and the Netherlands also perform relatively well, whilst problems have, in particular, been identified in the UK, Greece, Austria, Poland, Spain and Italy. It is noteworthy that Portugal has introduced duct access since 2005. In view of the interest in this development across Europe, this will be included as a criterion in future reports.
- Numbering. Number portability appears have been implemented in all surveyed countries which constitutes a significant enabler for developing competition on the market. However, market players have highlighted concerns about restrictions for the provision of VoIP services and the absence of synchronization between NP and LLU processes in some countries.
- Narrowband voice services. Narrowband voice services were amongst the first elements on the market to be liberalized and appear to be relatively competitive in a number of countries, particularly the UK, Denmark, Netherlands, Sweden and Germany. However, the new Member States as well as Finland remain behind, although it is notable that mobile regimes in this latter group of countries perform rather better, and may, as result, be used to some extent as a substitute.
- Mobile services. Finland, Sweden and Denmark offer the most attractive mobile competitive environments with relatively low retail prices, but a number of countries - and particularly Germany, the Netherlands and Ireland - continue to offer comparatively poor value with insufficient choice.
- Business services. The UK, Netherlands, Portugal and France are considered to offer the communications environment most conducive to business communications services, a key engine for economic growth. However, this important aspect of regulation had been neglected in many countries - including large Member States such as Germany and Spain, as well as otherwise well-developed economies such as Ireland, Finland and Sweden.

- Broadband. The regimes considered most effective in implementing the broadband ladder of investment (in accordance with national circumstances) are France, the UK, Italy, Netherlands and Denmark. Conversely, according to the Scorecard, Poland, Greece, the Czech Republic and Ireland fall behind in enforcing measures to open broadband markets.

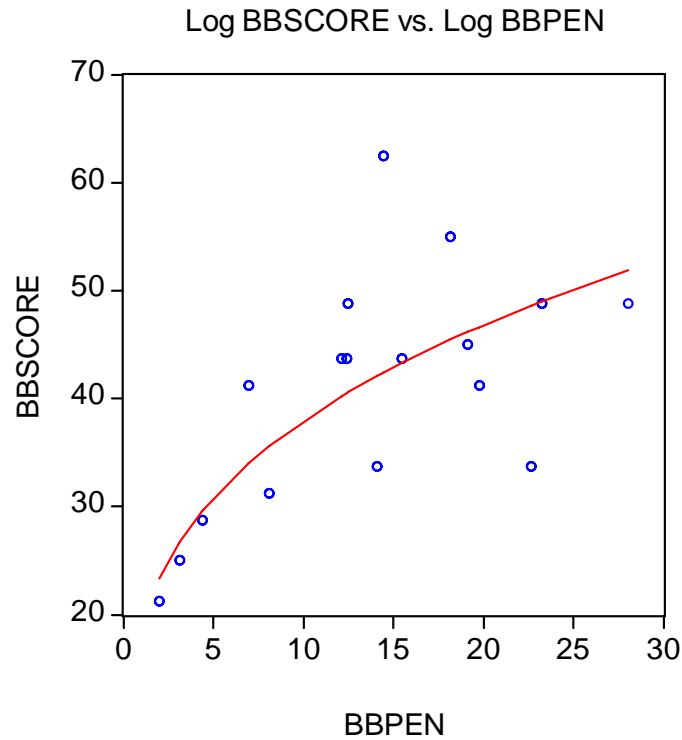
7. The ranking of the countries is broadly similar to those in the previous reports. In particular, the groups of best-performing, mid-level and low-performing countries have stayed fairly constant across the years, with consistently high rankings for the UK, Denmark and now France (which has retained its high position following an improvement in the regulatory environment from 2003 to 2004), and lower scores for Poland, Greece, Czech Republic, Belgium and Germany. However, it is notable that the performance of Spain seems to have improved from 10<sup>th</sup> place in 2005 to joint 5<sup>th</sup> in 2006, largely due to a reported improvement in the regulatory environment. There have also been changes in the positions of Austria (11<sup>th</sup> in 2006, 4<sup>th</sup> in 2005) and the Netherlands (4<sup>th</sup> in 2006, 9<sup>th</sup> in 2005), which may partly be explained by changes in the report (such as an increased focus on certain issues and reduced emphasis on other aspects), as well as regulatory factors. Whilst the headline scores should provide a useful indicator, we advise assessing the results of the Scorecard on a more granular level for a full understanding of the market and regulatory picture.

8. In previous years, the findings made on the basis of this quantitative assessment were correlated with economic data on investments in order to determine whether a correlation existed between regulatory effectiveness and investment levels. For all three previous Scorecards, this economic analysis has demonstrated a strong and positive relationship between effective regulation and the level of investment in the electronic communications sector. As data from the OECD on investment levels is only published every two years (with the next edition of the Communications Outlook expected mid-2007), we were unable to carry out an analysis on the basis of official recent investment data at this time. However, we plan to carry out this investment analysis as an addendum to this report once data is available.

9. In the meantime, we have analysed regulatory performance in the broadband market, and also assessed the extent to which weighting the Scorecard in different ways affects the outcome. In respect of broadband, we have produced a regression model of broadband penetration against ‘regulatory effectiveness in broadband’ as measured by the Scorecard (using logs to adjust for the non-linear relationship) and Gross Domestic Product (GDP) per capita. On the basis of this regression, we find a very strong and positive relationship with an adjusted R<sup>2</sup> of 0.75, suggesting that 75% of the variation in broadband penetration can be explained by the equation, and a confidence level in excess of 99%. The graph is shown below and the equation for the relationship (with the t-stat for broadband score and GDP per capita in beneath) is:

$$\text{LOG(BBPEN)} = -8.9 + 1.4*\text{LOG(BBSCORE)} + 0.6*\text{LOG(GDPCAP)}$$

(3.8) (3.3)



10. In the analysis of the weightings, we found that whilst using different weightings for different questions or sections of the report does change the rankings slightly, particularly between countries whose scores are similar, the weights applied statistically make little difference to the overall results with a correlation coefficient of 0.971 or higher in all cases. We believe this should address any concerns that the use of particular weightings may unduly influence the results (the headline results shown above are unweighted).

11. In conclusion, evidence from the broadband analysis undertaken for this exercise, and previous ECTA analyses concerning the link between effective regulation and investment, as now corroborated in a report prepared by London Economics and PWC for the European Commission, all highlight the importance of effective regulation in driving competitiveness and growth in the telecoms sector and beyond. The Commission’s Implementation Reports also show how prices have fallen and new services such as broadband have surged following action by Governments and regulators to open markets to competition. Taken together, these findings suggest that raising the standard for implementation and enforcement of pro-competitive reforms in telecoms, so that all countries match up to the best, could substantially improve Europe’s telecoms markets to the benefits of consumers and ultimately Europe’s economy.

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## **I. Introduction**

12. The purpose of this report is to assess whether the regulatory framework on electronic communications networks and services in selected European countries is effectively applied and enforced towards securing certain fundamental objectives. In particular, the report examines whether the regulatory regime in place on 31 August 2006<sup>1</sup>: (i) facilitates the establishment of public electronic communications networks and the provision of public electronic communications services, (ii) encourages investment in telecommunications infrastructure, and (iii) ensures a level playing field for all players to stimulate investment, innovation, and sustainable competitive development. Proper application of this regime should also enhance employment and international competitiveness in these countries and the EU as a whole.

13. This is the fourth ECTA Regulatory Scorecard Report. Since the first report was published in November 2002, both the scope and methodology have been reviewed in light of the experience gained from the first study, the valuable feedback received from regulators and industry, implementation of the new EC regulatory framework and technological evolutions. The report will, however, continue to require revision as individual regimes, markets and technology evolve. The authors therefore welcome further comments and suggestions from NRAs, third party operators, and others.

14. This report covers leading economies in the EU, including the main EU economies and certain new accession countries. The countries surveyed are: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, Sweden and the United Kingdom.

15. In completing the questionnaires, the authors have relied on information provided by NRAs and ECTA members. The authors are particularly grateful for the detailed input received from the various stakeholders, which has been very valuable for their analysis. Where diverging opinions have been expressed on particular issues, we have tried to formulate the responses to adequately reflect the respective views.

16. The report also relies on some comparative statistical and pricing data based on the Commission's 11<sup>th</sup> Implementation Report and other sources. Whilst the authors have tried to use the most current information available, some information dates from 2005 (certain data is, for example, based on the latest Implementation Report of 20 February 2006). However, the authors do not consider that this unduly affects the report's value in terms of measuring the relative performance of Member States. Moreover, whenever possible, recent trends or updated data have been mentioned.

17. The authors also recognize that some data contained in this report is based on assumptions or estimates of market players that have been used in the absence of precise statistical data (*e.g.*, the various questions pertaining to appeal procedures). The authors hope that this situation will constitute an incentive for the various

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<sup>1</sup> The report is based on the situation as it existed on 31 August 2006. However, in various instances, certain subsequent developments have also been mentioned to the extent that these provided indications of the evolutionary trend followed by the regulatory framework.

stakeholders to collect or publish more reliable data where this appears to be lacking today.

18. The assessment is based on selected key criteria, including: the overall institutional environment (which covers the legislator, the NRA, the dispute settlement body and the judiciary courts) (Section A), general market access conditions (Section B) and the regulatory effectiveness and competitiveness of key access markets and services (Section C). It should therefore be emphasized that this report does not assess the effectiveness of the regulators but constitutes a much broader assessment of the effectiveness of regulatory and competitive environment as a whole. Although the NRAs play a key role, other important factors include, the legislative framework, the effectiveness of the judiciary courts, the conduct of market players and, in particular, SMP operators, etc.

19. For each of the assessed areas, the authors have aimed as far as possible to identify objective parameters, which are used to evaluate national legislation and authorities and the competitiveness of the prevailing market conditions. Whilst the authors of the report consider that the selected criteria provide strong insights into what is necessary to achieve the EU's objectives for electronic communications markets, they also recognize that a number of relevant criteria are not included in this report. Further criteria can, of course, be included in the future versions depending on the feedback received from the various stakeholders.

20. The scoring assessment has been made by the authors in accordance with the methodology set out below and the country annexes. Jones Day has overseen the legal issues pertaining to this exercise, and SPC Network has overseen the quantification of such assessment.

21. This report first explains the various areas subject to the assessment, the reasons why they were chosen, their content, and the methodology used for the assessment (Section II). Subsequently, the report presents the quantitative assessment made on the basis of the country questionnaire and the general conclusions on the in-country assessment (Section III). The questionnaires are attached in annex to the report and are based on the replies received from local specialists, national regulators, and other stakeholders.

## **II. Areas of assessment**

22. The chosen areas of assessment reflect the main principles set out in the 1996 WTO Reference Paper on Telecommunications<sup>2</sup>, to which the EC is a signatory and which underpins the regulatory regimes in place in the EC, the US, and the majority of developed countries. In this regard, the first area of assessment in this survey pertains to the institutional framework. The second area deals with the Framework established by the regulator for applying access rules and regulations. The third

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<sup>2</sup> For a copy of the reference paper, see [www.wto.org](http://www.wto.org). Principles include the prevention of anti-competitive practices in the telecommunications sector by providing that interconnection with a major supplier be ensured at any feasible point of the network, on non-discriminatory terms, on an unbundled basis, and on cost based tariffs. It also mandates an effective dispute settlement procedure overseen by an independent regulator.

relates to the application in practice of regulations and the degree of competition in key markets. Each of the three sections is scored as follows:

Institutional environment	150
General market access conditions	125
Regulatory effectiveness and competitiveness of key access markets and services	210
Total	485

#### **A. Institutional environment**

23. The first section examines the effectiveness of the institutional framework and environment. This section concerns not only the NRA, but also seeks to cover other relevant institutional players such as the legislator (responsible for transposing the framework), the dispute settlement body (if different from the NRA) and the appeal system. The criteria for assessing the effectiveness of each institutional player have been reviewed in the present report in order to reflect the changes brought about by the new regulatory framework, market developments and relevant factual data reflecting the effectiveness of each institutional player. Given the institutional complexity, this section is composed of eight different areas of assessment.

24. **Section A.1** examines the timely and proper transposition of the new regulatory framework. Failures in transposition of the framework are a cause of legal uncertainty, and can hamper or delay the application of regulation in key areas of concern such as number portability, mobile termination services or wholesale broadband access services, for example. The issues covered in this section are summarized in the table below.

25. **Question 1.** Question 1 assesses the timely transposition of the regulatory framework. As regards the original EU 15 countries, a maximum score is given to countries that implemented the framework in their national legislation on 25 July 2003, the legal deadline. An intermediate score is given to countries with implementing legislation in force between 25 July 2003 and 31 December 2003. A score of zero is given to countries whose implementing legislation came into force on 1 January 2004 or after. As regards the new accession countries, they received a maximum score when their implementing legislation came into force on or before 1 May 2004, an intermediate score when their implementing legislation was adopted before 1 January 2005 and a score of zero when their implementing legislation was adopted after that date.

26. **Question 2.** Question 2 examines whether the Member States have correctly transposed the regulatory framework. Infringement proceedings by the Commission have been used as a measurable proxy for the adequacy of such transposition. Full marks are given to countries with no infringement proceedings initiated by the Commission. An intermediate score is given to countries with between one and three infringement proceedings initiated by the Commission, and a score of zero is given to countries with four or more infringement proceedings initiated by the Commission. The number of infringement proceedings initiated by the Commission is determined on the basis of information publicly available on the Commission's website

([http://europa.eu.int/information\\_society/policy/ecom/doc/implementation\\_enforcement/infringements/inf\\_nonconform\\_oct2006.pdf](http://europa.eu.int/information_society/policy/ecom/doc/implementation_enforcement/infringements/inf_nonconform_oct2006.pdf)).

27. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
1	Timely transposition of the NRF	Maximum, intermediate and zero	Maximum score of framework transposed on 25 July 2003 (EU 15) or 1 May 2004 (accession countries) Intermediate score for countries with implementing legislation in force between 25 July 2003 and 31 December 2003 (EU 15) and 31 December 2004 (accession countries) Zero for transposition after 31 December 2003 (EU 15) or 31 December 2004 (accession countries)
2	Proper transposition of the NRF	Maximum, intermediate and zero	Maximum score for countries with no infringement proceedings initiated by the Commission Intermediate score for countries with 1 to 3 infringement proceedings Zero for countries with 4 or more infringement proceedings initiated by the Commission

28. **Section A.2** examines the efficiency of regulators' internal processes in terms of timing. Speed of process is particularly important in a sector such as the electronic communications sector, which is characterized by rapid technological innovation, short investment cycles and significant first mover advantages. In this report, the NRA's speed of process has been assessed on the basis of the time required for conducting the SMP market analyses and the time required for the allocation of numbers. The weighting given to the assessment criteria of this section is set out in the table below.

29. **Question 3.** Question 3 examines the number of markets reviewed by the NRA on 31 August 2006 (the cut-off date for this assessment). Countries that finished their review of 16 or more markets received maximum scoring. An intermediate score is given to countries that analysed between 12 and 15 markets by such date, and a score of zero is given to countries that, by 31 August 2006, analysed 11 markets or less.

30. **Question 4.** Question 4 examines the time required for conducting the market analysis (whereby only complete market reviews, *i.e.*, reviews including the remedy assessment have been included). Countries where the average duration of the market analysis lasts 12 months or less are given maximum scores. An intermediate score is given where the market analysis lasted between 13 and 18 months and zero scores were given where this lasted 19 months or more. In the case of countries that split the assessment of market definition, SMP and remedies, this criteria is applied so as to take account of the time needed to adopt a decision on all three points.

31. **Question 5.** Question 5 examines the time required for allocating numbers to operators. Countries where the average duration for allocation of numbers takes 10 working days or less are given a maximum score. An intermediate score is given where this takes between 11 and 20 days, and a score of zero where it takes 21 days or more.

32. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
3	Number of markets for which the NRA has adopted a final decision	Maximum, intermediate and zero	Maximum score if 16 markets analysed on 31 August 2006 Intermediate score if 12 to 15 markets analysed Zero if 11 or less markets analysed on 31 August 2006
4	Average (median) duration of a market analysis procedure by the NRA	Maximum, intermediate and zero	Maximum score if 12 months or less Intermediate score if between 13 and 18 months Zero if 19 months or more
5	Average (median) timeframe for obtaining the allocation of numbers	Maximum, intermediate and zero	Maximum score if 10 working days Intermediate score if between 11 and 20 days Zero if 21 days or more

33. **Section A.3** examines the transparency of the NRA's decision-making process and the ability for all stakeholders to actively contribute to the decision-making. NRAs play a critical role in shaping the market environment in the new regulatory framework. A transparent decision-making process has therefore become increasingly important. Moreover, lack of transparent decision-making undermines legal certainty and increases the potential for political interference. The criteria for assessing the NRA's transparency are the existence of a consultation process, the timescale given for commenting, the obligation for publishing the decisions, and the public availability of the NRA's costs of operation.

34. **Question 6.** Question 6 examines whether the NRA is legally obliged to hold public consultations involving all market players prior to deciding on issues of general interests or whether, in the absence of such consultations, the NRA generally holds such consultations in practice. A maximum score is given to countries with a legal obligation or a general practice of consulting on issues of general interest. An intermediate score is given where such consultations take place on an ad hoc basis in the absence of any formal legal obligation to do so, and a score of zero in the absence of such an obligation or practice.

35. **Question 7.** Question 7 examines the average timescale for market players to participate in public consultations. A maximum score is given where four to eight weeks are given to third parties to comment, and zero in instances where the consultation lasts less than four weeks or extends to more than eight weeks. An intermediate score is given where market players have expressed concerns about the timing for the consultation process. For example, in certain cases, the positive outcome of timely processes is hampered by excessively long delays in the publication of the results of the consultation or by the NRA's discretionary power to modify the effective consultation deadlines. This scoring scale is slightly different from that applied last year (optimal timeframe set between three to six weeks). This is in order to take account of the fact that, in certain countries, the consultation process has been set longer than six weeks due to the complexity of certain

consultations, and yet these longer deadlines do not appear to constitute an impediment to the effectiveness of the consultation process.

**36. Question 8.** Question 8 examines the measures of transparency and publication of NRA decisions. A maximum score is given to countries with a legal obligation or a general practice of publishing decisions. An intermediate score is given where such publication takes place on an ad hoc basis in the absence of any formal legal obligation to do so, and a score of zero in the absence of such an obligation or practice.

**37. Question 9.** Question 9 examines the existence of a public, forward-looking, action plan and the ability for market players to participate in its elaboration through a prior consultation procedure. A maximum score is given to countries publishing and consulting on their annual action plan, an intermediate score is given where the NRA publishes but does not consult on its action plan. Zero is given if only a retrospective annual report is published or no annual report is published at all.

**38. Question 10.** Question 10 examines the existence of detailed publicly accessible accounts showing the NRAs' costs of operation. A maximum score is given if accounts are published in sufficient detail. An interim score is given if accounts are published, but with insufficient details, and zero if there is no publication of accounts. This criteria has been slightly amended from last year, in order to take account of the level of detail provided in such accounts.

39. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
6	Requirement for or practice of the NRA to hold public consultations prior to deciding on issues of general interest	Maximum, intermediate and zero	Maximum score if legal obligation or general consultation practice Intermediate score if occasional consultation on ad hoc basis Zero if no practice of consultation
7	Timescale usually given to interested parties to respond to consultation	Maximum, intermediate and zero	Maximum score if four to eight weeks Intermediate score if procedural difficulties Zero if less than four weeks and more than 8 weeks
8	Requirement for or common practice of the NRA to publish all its decisions upon adoption	Maximum, intermediate and zero	Maximum score if legal obligation or general publication practice Intermediate score if publication practice on ad hoc basis Zero if no practice of publication

9	Regular disclosure and consultation by the NRA on its action plan	Maximum, intermediate and zero	Maximum score if publication and prior consultation Intermediate score if publication without consultation Zero if no plan published
10	Transparent costs of operating the NRA	Maximum, intermediate and zero	Maximum score if publication of accounts with sufficient detail Intermediate score if publication of accounts with insufficient detail Zero if no publication at all

40. **Section A.4** examines the enforcement powers entrusted to the NRA. The NRA bears the primary responsibility for ensuring compliance with the SMP-obligations, where required after a market review. To that effect, the NRA should have specific investigatory and sanctioning powers. In order to ensure effective compliance with SMP-obligations, the NRA's sanctioning powers should in particular allow it to impose fines with a sufficient deterrent effect, and these powers should be exercised whenever a violation of the SMP obligations is established. Indeed, anti-competitive practices can have structural effects on the electronic communications market and often allow operators to reap long term benefits from illegal practices. SMP operators have, for example, engaged in anti-competitive practices in developing markets (such as broadband) in order to reap first mover advantages and create artificial barriers to entry on these markets. Sanctions should therefore be sufficiently high, taking into account the substantial commercial benefits that can be achieved by the illegal practice. Moreover, the threat of sanctions should also be sufficiently real to deter SMP operators from not conforming with their regulatory obligations.

41. **Question 11.** Question 11 examines whether the NRA is empowered to impose fines and whether the level of the fines it can impose is a sufficient deterrent. A maximum score is given if the NRA is itself in a position to impose fines with deterrent effect (*i.e.*, 5% or more of turnover of activity concerned), an intermediate score if there is an ability to impose fines but with an unlikely deterrent effect, and a score of zero if the NRA does not itself have the power to impose any fine.

42. **Question 12.** Question 12 examines whether the NRA is empowered to impose periodic penalty payments, on the basis that these are considered to constitute a particularly effective mechanism to encourage compliance. A maximum score is given if the NRA has the power to impose a penalty payment, and a zero score is given if the NRA does not have such power.

43. **Question 13.** Question 13 examines the NRA's power to order the suspension of commercial offers pending the assessment of compliance of such offer with *ex ante* regulation. A maximum score is given if the NRA has the power to suspend the launch of a commercial service pending such compliance assessment. Zero is given if the NRA does not have such power.

44. **Question 14.** Question 14 examines the NRA's practice of imposing fines and assesses whether market players consider that the NRA has effectively used its sanctioning powers to penalize practices by SMP operators violating their *ex ante*

obligations and distorting competition on the market. A maximum score is given if the NRA has a tendency to impose sanctions in the event of illegal practices. An intermediate score is given if the NRA exhibits some reluctance to use its powers in practice. Zero is given if the NRA does not impose fines in practice.

45. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
11	Power of the NRA to impose fines. Level and a sufficient deterrent effect (if applicable)	Maximum, intermediate and zero	Maximum if the NRA has the power to impose deterrent fines Intermediate if the NRA has the power to impose fines with no deterrent effect Zero if the NRA has no power to impose fines
12	Power of the NRA to impose periodic penalty payments	Maximum or zero	Maximum score if the NRA has the power to impose a penalty payment Zero if the NRA does not have such power
13	Power of the NRA to suspend the commercial launch of services pending compliance	Maximum or zero	Maximum score if the NRA has the power to suspend a commercial service Zero if the NRA does not have such power
14	Recourse to these powers by the NRA and tendency to use them, in particular in relation to illegal practices of the SMP operator (if applicable)	Maximum, intermediate and zero	Maximum score if the NRA has a tendency to impose sanctions in the event of illegal practices Intermediate if the NRA has the power to impose fines, but has a certain reluctance to use such powers in practice Zero if the NRA does not impose fines in practice

46. **Section A.5** examines the NRA's scale of resources. The NRA's financial and operational means play an important role to ensure a good and efficient regulatory environment. The number of employees, the NRA's ability to have recourse to outside expertise and its ability to attract qualified employees are particularly important parameters for assessing the NRA's scale of resources.

47. **Question 15.** Question 15 examines the number of qualified employees employed by the NRA. A maximum score is given if the NRA has at least 30 employees, which is considered to be the minimal number of employees for an effective NRA. Zero is given if the NRA has less than 30 employees.

48. **Question 16.** Question 16 examines whether the NRA has the ability to make use of third party experts. A maximum score is given if the NRA has recourse to outside expertise. Zero is given if the NRA has no recourse to outside expertise.

49. **Question 17.** Question 17 examines whether the NRA has the legal and financial ability to set the level of remuneration of its employees in order to attract and retain qualified staff. A maximum score is given if the NRA has the ability to set the level

of remuneration of its staff. Zero is given if the NRA has no such power or does not have sufficient financial resources.

50. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
15	Total number of qualified employees employed by the NRA for general regulatory issues in the e- communications sector	Maximum or zero	Maximum score if the NRA has at least 30 employees Zero if the NRA has less than 30 employees
16	Recourse to outside expertise and availability of financial means for outside expertise	Maximum or zero	Maximum score if the NRA has recourse to outside expertise Zero if the NRA has no recourse to outside expertise
17	Financial capability of your NRA to attract and retain suitably qualified key staff	Maximum or zero	Maximum score if the NRA has the ability to set the level of remuneration of its staff Zero if the NRA has no such power or has insufficient financial resources

51. **Section A.6** examines the effectiveness of the appeal procedure. The possibility of appealing decisions of the regulator and the way in which such appeals are implemented in practice can significantly impact the effectiveness of a regulatory regime. Experience shows that, in certain jurisdictions, incumbents tend to appeal most, if not all, NRA decisions. The suspensive effect of such appeals, or the possibility of suspending the decisions of the regulator by means of a Court injunction, has proven to present a potential hurdle for new entrants seeking to ensure that SMP operators effectively comply with the decisions of the regulator. In addition, the timeframe for obtaining a decision on appeal and the likelihood that decisions are overturned is important, given the inherent legal uncertainty caused by such appeal processes and their potential retroactive effects. To the extent that this information was not available in detail, the answers are based on the contributors' general estimates of the SMP operator's general tendency to challenge NRA decisions.

52. **Question 18.** Question 18 examines whether the appeal of the NRA decision automatically suspends the application of such decision. A maximum score is given if there is no automatic suspensive effect. Zero is given if there is an automatic suspension because of a statutory provision or applicable case law.

53. **Question 19.** Question 19 examines the standard applied by the competent court to suspend an NRA decision that is being appealed. A maximum score is given if the conditions are applied restrictively, and a zero score is given if not.

54. **Question 20.** Question 20 examines the number of decisions since September 2002 concerning the incumbent operator that have been appealed by the incumbent. Scores have been given depending on the percentage of decisions being appealed or the incumbent's tendency to systematically challenge NRA decisions. A maximum score is given to countries with a small number of appeals, an intermediate score for countries where a substantial number of decisions are being appealed, and zero has been given for countries where all or almost all decisions are appealed. A high

number of appeals against NRA's decisions is considered to be a factor of legal uncertainty and indicative of the presence of legal issues in the adoption process.

**55. Question 21.** Question 21 examines the average timing required for conducting a procedure on appeal (the total duration is measured including all instances). A maximum score is given for appeal processes shorter than 12 months. An intermediate score is given for appeal processes ranging between 12 and 24 months. Zero is given for appeal processes exceeding 24 months.

**56. Question 22.** Question 22 examines the proportion of NRA decisions which have been annulled or overturned on appeal. A maximum score is given for countries where a limited number of decisions were annulled. Zero is given for countries with a significant number of annulments.

**57. Question 23.** Question 23 examines the *locus standi* requirements which third parties must fulfill in order to be allowed to intervene in appeal proceedings involving the NRA's decisions and to challenge said decisions. Restrictive *locus standi* requirements are considered detrimental insofar as this limits the ability for new entrants to intervene in proceedings involving SMP operators, although they are affected by those SMP obligations. It also limits the courts' ability to obtain inputs from key stakeholders. A maximum score is given when the *locus standi* requirements allow interested parties to challenge NRA decisions or to intervene in appeal proceedings. An intermediate score is given when there are doubts on the possibility for interested parties to intervene, and zero is given for countries where *locus standi* requirements have restricted the ability for interested parties to intervene.

58. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
18	Automatic suspension of the NRA's decisions upon appeal	Maximum or zero	Maximum score if there is no automatic suspensive effect Zero if there is an automatic suspension because of a statutory provision or case law
19	Applicable standard to obtain such suspension and application in practice (if applicable)	Maximum or zero	Maximum score if there is a strict standard Zero if there is a lax standard
20	Percentage of NRA decisions appealed and incumbent's tendency to appeal	Maximum, high intermediate, low intermediate or zero	Maximum score if no or a low percentage of decisions are appealed High intermediate scores if less than half of decisions are appealed Low intermediate score if more than half of decisions are appealed Zero if all or almost all decisions are appealed
21	Average (median) timeframe between the filing of an appeal and the final decision	Maximum, intermediate or zero	Maximum score if process less than 12 months Intermediate score if appeal process ranging between 12 and 24 months Zero if appeal process exceeds 24 months

22	Proportion of decisions rendered on appeal, reached since September 2002, that resulted in the NRA determination being annulled or overturned	Maximum or zero	Maximum score for countries where a limited number of decisions were annulled Zero for countries with a significant number of annulments
23	<i>Locus standi</i> requirements for third parties to be allowed to intervene in the appeal proceedings	Maximum, intermediate or zero	Maximum score for <i>locus standi</i> requirements which allow interested parties to challenge NRA decisions or intervene in appeal proceedings Intermediate score if there are doubts regarding the possibility for interested parties to appeal or intervene Zero where <i>locus standi</i> requirements restrict the ability for interested parties to appeal or intervene

59. **Section A.7** examines the NRA's independence. This can be assessed, *inter alia*, on the basis of: the potential and actual extent of political intervention, the term of office of the NRA's management, the grounds for removal, and eligibility requirements for appointments. Political influence is the most direct means of influencing the regulator. The mere possibility of political intervention may put the regulator under pressure. Such pressure is likely to increase when the Government wholly or partially owns or controls the incumbent operator. Indeed, it cannot be overlooked that in most EU countries, the electronic communications sector is still characterized by the existence of former government-owned ex-monopolies. In many of these countries, liberalization has only been in place for approximately 8 years.

60. **Question 24.** Question 24 examines whether the NRA is independent from the Government and whether such independence is effectively secured in practice. This question assesses whether, legally, the NRA's independence is adequately provided for (*e.g.*, through absence of any provision for political direction) and whether the NRA's management can be (or has in practice been) subject to political influence, for example as a result of the appointment process. Political nominations and other examples of political interferences in the NRAs activities have been taken into account to respond to this question. A maximum score is given if there is no legal basis for political interference nor evidence of interference in practice. An intermediate score is given when there is no legal basis for interference but there is evidence of political interference in practice. Zero is given if there are no sufficient legal guarantees for the NRA's independence.

61. **Question 25.** Question 25 examines the grounds for removal of the NRA's head. A maximum score is given if the grounds for removal are limited and restrictive (limiting the risk for politically motivated decisions). Zero is given if the grounds for removal are broad or allow for politically motivated removals.

62. **Question 26.** Question 26 examines the duration of the NRA's management. A maximum score is given if the minimal term of appointment is sufficiently long to ensure independence (set between three years to six years). Zero is given if the term is shorter than three years, exceeds six years or is unlimited in time. This scoring has been modified on the basis of collected evidence from market players, who consider

that appointments for very short periods increase the potential for political intervention, whilst unlimited contracts can mean that insufficient scrutiny is given to past performance.

63. **Question 27.** Question 27 examines the percentage of the incumbent’s share capital which is held by the Government. A maximum score is given if the incumbent has been entirely privatized. An intermediate score is given where there is State ownership without control and below 30%. Zero is given for State ownership conferring control or exceeding 30%.

64. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
24	Injunctions from a political authority to the NRA when performing its regulatory tasks. Legal basis for such intervention or any illustrative precedent of such political interference	Maximum, intermediate or zero	Maximum score if no legal basis for political interference nor evidence of interference in practice Intermediate score if no legal basis but evidence of political interference in practice Zero if no sufficient legal guarantees for NRA independence
25	Grounds for removal of the head of your NRA	Maximum or zero	Maximum score if the grounds for removal are restrictive Zero if grounds for removal are very broad or allow for politically motivated removals
26	Duration of office of your NRA's management	Maximum or zero	Maximum score if the minimal term of appointment between three to six years Zero if the term is shorter than three years, longer than six years or unlimited in time
27	Percentage of the incumbent’s share capital held by the Government	Maximum, intermediate or zero	Maximum score if full private ownership Intermediate score for State ownership without control and below 30% Zero for State ownership conferring control or exceeding 30%

65. **Section A.8** examines the activity of the NRA acting as dispute settlement body. In the previous reports, the activity of the dispute settlement body was a separate section. Given that this activity, however, is being exercised by the same institution in all Member States reviewed (except Belgium), most criteria overlapped with the section pertaining to the NRA. It was therefore decided to incorporate the assessment of the dispute settlement in to the section pertaining to the institutional environment. The selected criteria for assessing the effectiveness of the activities of the dispute settlement body are its ability to impose interim measures and the average timeframe for obtaining interim and final decisions.

66. **Question 28.** Question 28 examines whether the dispute settlement body is entitled to impose interim measures. A maximum score is given if the dispute settlement body can order interim measures. Zero is given if the dispute settlement body does not have such power.

67. **Question 29.** Question 29 examines the average timeframe required for obtaining an interim decision from the dispute settlement body. A maximum score is given if interim measures can be ordered within a short timeframe (estimated between zero to ten days). An interim score is given if interim measures can be obtained within a reasonable timeframe (estimated at 11 days to one month). Zero is given if interim measures cannot be obtained within a sufficiently rapid timeframe (exceeding one month) or cannot be obtained for lack of power.

68. **Question 30.** Question 30 examines the timeframe required for obtaining a final decision from the dispute settlement body. A maximum score is given if decisions are adopted within the legally required timeframe of four months. An interim score is given if decisions are adopted within a timeframe ranging between four to eight months. Zero is given if the decision is adopted within a timeframe exceeding eight months.

69. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
28	Power of the dispute settlement body to adopt interim measures	Maximum, intermediate or zero	Maximum score if the dispute settlement body can order interim measures Intermediate score if the powers are legally uncertain Zero if the dispute settlement body does not have such power
29	Average (median) timeframe for obtaining an interim decision from the dispute settlement body over the past two years (if applicable)	Maximum, intermediate or zero	Maximum score if interim measures can be ordered within a short timeframe (estimated between zero to ten days) Intermediate score if interim measures can be obtained within a reasonable timeframe (estimated at 11 days to one month) Zero if interim measures cannot be obtained within a sufficiently rapid timeframe (exceeding one month) or cannot be obtained for lack of power
30	Average (median) timeframe for obtaining a final decision from the dispute settlement body, over the past two years	Maximum, intermediate or zero	Maximum score if decision is adopted within the legally required timeframe of four months Intermediate score if decision is adopted within a timeframe ranging between four to eight months Zero if decision is adopted within a timeframe exceeding eight months

## **B. General market access conditions**

70. New entrants/competitive carriers do not have direct physical connections to all or even the majority of end-users, and in many cases, duplication of existing access networks is not economically feasible in the medium term. Therefore, in order to ensure that competitors can provide services and offer choice and variety to end-users, it is necessary for regulators to have comprehensive policies to mandate the provision of access where one or more operators have SMP (dominance) in the access market. In addition, the ability for new entrant operators to provide electronic communication services and roll-out alternative networks also depends on their ability to benefit from rights of way enabling them to build or share physical infrastructure, and have access to suitable numbering ranges and frequencies. The section therefore examines the general market access conditions and is composed of six sections.

71. **Section B.1** examines the general access policy and procedures. This section examines whether the NRA has adopted general guiding principles on core access issues. The section examines first whether there is a clear price control methodology. Whilst price control regulations may vary, ECTA considers that the existence of a common pricing methodology limits the risk for incoherent and discretionary price regulation and increases legal certainty. Second, this section examines whether there is an appropriate procedure to support negotiations for non-standard forms of access and which may help to avoid the need to resort to regulatory intervention in every case. Finally, the section also examines whether there is a consultation process for assessing questions related to the migration to Next Generation Networks and the transition to IP interconnection. The regulatory assessment following the migration to these new networks is a major issue of debate and causes significant uncertainty in the market. A transparent process should therefore be in place to ensure that the access issues will be properly addressed after consulting with all stakeholders.

72. **Question 31.** Question 31 examines whether there are general methodological principles for the price regulation of SMP products and whether such rules are published. A maximum score is given if the rules for price regulation have been clearly set out and published. An intermediate score is given if price regulation principles have been developed on an ad hoc basis for individual markets or products. Zero is given if no rules are published.

73. **Question 32.** Question 32 examines whether there is a standard procedure for the negotiation of access products and services that are not included in the reference offer. A maximum score is given if such a procedure exists. Zero is given if no such procedure exists.

74. **Question 33.** Question 33 examines whether the NRA has initiated a market consultation to assess the issues related to Next Generation Networks and the transition to IP interconnection. A maximum score is given where the NRA has set-up a specific consultation process on NGNs involving market players. An intermediate score is given if the NRA has given some consideration to these issues (e.g., in relation to VoIP). Zero has been given if the NRA has not given any consideration to these issues.

75. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
31	Transparent and coherent methodological rules for price regulation of SMP products	Maximum, intermediate or zero	Maximum score if the rules for price regulation have been clearly set out and published Intermediate scores if price regulation principles have been developed on an ad hoc basis for individual markets or products or are unclear Zero if no rules are published
32	Standard procedure facilitating the negotiation by market players of non-standard access or interconnection agreements with SMP operators	Maximum or zero	Maximum score if a procedure exists Zero if no procedure exists
33	Consultation process established for assessing and addressing questions related to Next Generation Networks and the transition to IP interconnection in collaboration with operators	Maximum, intermediate or zero	Maximum score if the NRA has set-up a specific consultation process on NGNs Intermediate score if the NRA has given some consideration to these issues Zero if the NRA has not given any consideration at all on these issues

76. **Section B.2** examines whether there is an effective accounting separation regime. Accounting separation is another important condition which enables NRAs to closely monitor compliance with access obligations and prevent cross-subsidization practices between regulated and non-regulated services. In order to assess the effectiveness of such remedies, it is necessary to determine whether the NRA has provided for such a remedy when imposing a non-discrimination or price control obligation on an SMP operator. The methodology for accounting separation should also be clearly specified and determined on the basis of a public consultation process. Finally, the accounts should clearly reflect the charging arrangements between regulated products and downstream markets in order to prevent cross-subsidization practices.

77. **Question 34.** Question 34 examines whether the NRA has imposed an accounting separation remedy as an accompanying measure to a remedy of non-discrimination or cost orientation. A maximum score is given if an accounting separation remedy has been imposed in conjunction with a cost orientation and/or non-discrimination remedy. Zero is given if no such obligation has been imposed in conjunction with a cost orientation and/or a non-discrimination remedy.

78. **Question 35.** Question 35 examines whether a methodology exists for accounting separation and whether such methodology has been determined following a market consultation. A maximum score is given if a clear methodology exists for accounting separation following a public consultation. An interim score is given whenever certain methodological principles are publicized, but are considered insufficient or when such principles have not yet been implemented. Zero is given if no methodology exists, or if it is not publicly available.

79. **Question 36.** Question 36 examines whether the accounts of an SMP operator under an accounting separation obligation remedy are published. A maximum score is given if the accounts are published in a timely fashion. Zero is given if the accounts are not published on time or if there is a significant delay before publication.

80. **Question 37.** Question 37 examines whether the separated accounts clearly show the transfer charges between SMP products and relevant downstream products. A maximum score is given if the accounts show internal transfer charging. Zero is given if the accounts are not published or do not show internal transfer charging.

81. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
34	Cost accounting separation imposed by the NRA as accompanying measure to non-discrimination and/or cost-orientation remedy	Maximum or zero	Maximum score if an accounting separation remedy has been imposed in conjunction with a cost orientation and/or non-discrimination remedy Zero if no such obligation has been imposed
35	Methodology for accounting separation clearly specified and subject to consultation	Maximum, interim or zero	Maximum score if a clear methodology exists and is published Interim score if certain principles are publicized but are considered insufficient or are not yet implemented Zero if no publicly available methodology exists
36	Publication of accounts drawn in accordance with cost accounting separation	Maximum or zero	Maximum score if the accounts are published in a timely fashion Zero if the accounts are not published or not published in time
37	Clear distinction in separated accounts of transfer charging arrangements between SMP products and all relevant downstream markets	Maximum or zero	Maximum score if the accounts show internal transfer charging Zero if the accounts are not published or do not show internal transfer charging

82. **Section B.3** examines whether the NRA has adequate guidelines and processes in place for preventing discriminatory and margin squeeze practices. The non-discrimination obligation remains one of the most important access remedies, since it determines whether or not competitors who rely on the access conditions of another network have the ability to compete on a level playing field. A price squeeze practice also constitutes a pricing practice of typical concern for markets where downstream competition relies on wholesale inputs provided on bottleneck networks. This section therefore reviews the existence of clear rules for applying the non-discrimination obligation and preventing price squeeze practices, whether such rules have been adequately published and whether non-price discrimination practices can also be sufficiently prevented.

83. **Question 38.** Question 38 examines whether there is a clear methodology on the application of the non-discrimination obligation in an *ex ante* context. A maximum score is given if there are clear guidelines on the application of the non-discrimination remedy in an *ex ante* context for all markets for which a non-discrimination remedy has been imposed (whether in the form of general guidelines or for all relevant markets). An interim score is given if certain general indications have been provided on the application of the non-discrimination remedy but are not considered sufficiently detailed, or if this remedy has been imposed and determined on an ad hoc basis in the context of certain market reviews. Zero is given if the NRA has not given

any further indications on the application of the non-discrimination remedy in an *ex ante* context.

84. **Question 39.** Question 39 examines whether there is a clear methodology on the interpretation and application of the price squeeze test in an *ex ante* context. A maximum score is given if there are clear rules for price squeeze. An interim score is given if the existing rules are not sufficiently clear or if the NRA is in the process of adopting specific rules and has already conducted a market consultation in relation to this. Zero has been given if there are no rules in relation to price squeeze practices.

85. **Question 40.** Question 40 examines whether the rules and methodology for a price squeeze analysis have been published. A maximum score is given if the price squeeze rules have been published. An interim score is given if price squeeze rules have only been published in relation to specific markets or products. Zero has been given if no rules are published.

86. **Question 41.** Question 41 examines whether the NRA has foreseen specific provisions to prevent non-price discrimination by imposing transparency obligations for internal contracts and service provisioning, publication of internal SLAs, use of KPIs, etc. A maximum score is given if the NRA has specific provisions for preventing discrimination on non-price terms (*e.g.*, publication of internal SLAs, KPIs etc.). An interim score is given if rules are in place against non-price discrimination but these are not considered as sufficiently effective or limited to specific SMP access products. Zero is given if no such provisions exist.

87. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
38	Existence of clear rules and methodology on the non-discrimination obligation in an <i>ex ante</i> context	Maximum, interim or zero	Maximum score if there are clear guidelines Interim score if general indications have been given on the application of the non-discrimination remedy or if they have been imposed on an ad hoc basis Zero if there are no further indications on the application of the non-discrimination remedy
39	Clear rules and methodology on the interpretation and application of the price squeeze test in an <i>ex ante</i> context	Maximum, interim or zero	Maximum score if clear rules for price squeeze have been published Interim score if the existing rules are not sufficiently clear or the NRA is still in the process of adopting specific rules Zero if there are no rules
40	Publication of the rules and methodology for any price squeeze test	Maximum, interim or zero	Maximum score if the price squeeze rules have been published Interim score if price squeeze rules have only been published in relation to specific markets or products Zero if no rules are published

41	Specific provisions for the NRA to enforce non-discrimination on non-price terms	Maximum, interim or zero	Maximum score if the NRA has specific provisions for preventing discrimination on non-price terms Interim score if there are rules but these are not considered to be sufficiently effective or are limited to specific SMP access products Zero if no such provisions exist
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88. **Section B.4** examines the regime pertaining to the rights of way. The roll out of new networks requires the ability for new entrant operators to benefit from entitlements to rights of way (in particular, for free rights of way over public land) at reasonable and non-discriminatory conditions. Such rights of way reduce costs for the roll-out of this network and therefore constitute an important enabler to promote infrastructure competition. For the purpose of assessing the regime pertaining to rights of way, the report assesses whether there are clear and non-discriminatory procedures in place enabling operators to apply for rights of way. It should also be assessed whether these rights can be exercised at reasonable cost and within a reasonable timescale. Finally, the report also considers the effectiveness of the appeal process for decisions regarding rights of way.

89. **Question 42.** Question 42 examines whether there are clear and non-discriminatory procedures in place enabling operators to apply for rights of way. A maximum score is given if there are clear rules in place. Zero is given if no such rules exist.

90. **Question 43.** Question 43 examines whether the rights of way can be exercised at a reasonable cost, taking account of all associated costs involved in the transaction. A maximum score is given if rights of way are free or are charged at reasonable rates. Zero is given where authorities charge rights of way which are considered excessive.

91. **Question 44.** Question 44 examines whether operators can obtain rights of way within a reasonable timescale on the basis of the operator's assessment. A maximum score is given if rights of way are obtained within a reasonable timescale. Interim scores are given if timescales for obtaining rights of way vary. Zero is given where authorities impose excessive timescales.

92. **Question 45.** Question 45 examines whether there is an effective appeal mechanism for exercising rights of way. A maximum score is given if an effective appeal process is in place. Zero is given if the appeal process is not considered effective.

93. The weighting given to the assessment criteria of this section is set out in the table below:

	Criteria	Weight	Comments
42	Clear and non-discriminatory procedures in place enabling operators to apply for rights of way	Maximum or zero	Maximum score if there are clear rules in place Zero if no such rules exist
43	Cost for obtaining rights of way	Maximum or zero	Maximum score if rights of way are free or are charged at reasonable rates Zero if authorities charge rights of way which are considered excessive

44	Possible to exercise these rights of way in a reasonable timescale	Maximum, interim or zero	Maximum score if rights of way are obtained within a reasonable timescale Interim score if timescales for obtaining rights of way vary Zero if authorities impose excessive timescales
45	Effective mechanism to appeal decisions on rights of way	Maximum or zero	Maximum score if an effective appeal process is in place Zero if the appeal process is not considered effective

94. **Section B.5** examines the effectiveness of the regime pertaining to numbering. Numbering raises not only issues of number availability, but also number portability, a requirement under EC Directives. The availability of number ranges for VoIP is also considered to be a key market enabler favouring the development of competition on the market.

95. **Question 46.** Question 46 examines whether number portability for fixed numbers is available. A maximum score is given if number portability is available. An intermediate score is given if there are restrictions on number portability, such as restrictions pertaining to certain ranges of numbers. Zero is given if fixed number portability is not implemented at all.

96. **Question 47.** Question 47 examines whether number portability for mobile numbers is available. A maximum score is given if number portability is available. An intermediate score is given if there are restrictions on number portability, such as restrictions pertaining to certain ranges of numbers. Zero is given if mobile number portability is not implemented at all.

97. **Questions 48 and 49.** Questions 48 and 49 examine the level of the wholesale charges for number porting. Scores are given on the basis of a comparison of the price for number portability. The highest score is given to countries whose prices fall into the lowest third of the range between the most expensive and the lowest costs. An interim score is given for those in the middle third, and zero is given where the price falls into the highest third.

98. **Questions 50 and 51.** Questions 50 and 51 examine the proportion of numbers ported in 2005 for fixed numbers and mobile numbers. The score is given on the basis of a comparison of the proportion of ported numbers. The highest score is given to countries where the proportion of ported numbers falls into the highest third of the spread between the fewest and most ported numbers. An interim score to those in the middle. Zero is given to countries in the lowest third.

99. **Question 52.** Question 52 examines whether there are specific restrictions or conditions for the use of certain number ranges for VoIP services. A maximum score is given if no restrictions are imposed. Zero is given if VoIP services are limited to special non-geographic number ranges.

100. **Question 53.** Question 53 examines whether number portability is available in synchronization with local loop unbundling. A maximum score is given for countries where number portability is synchronised with LLU. An interim score is

given if specific synchronisation is available but problems are reported. Zero is given if number portability is not available.

101. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
46	Availability of number portability for fixed numbers. For all types of numbers or limited to geographic numbers	Maximum, intermediate and zero	Maximum score if number portability is available Intermediate score if number portability is available but subject to certain restrictions Zero if no number portability is available
47	Availability of mobile number portability	Maximum, intermediate and zero	Maximum score if number portability is available. Intermediate score if number portability is available but subject to certain restrictions Zero if no number portability available
48	Average wholesale price for porting fixed numbers	Maximum, intermediate and zero	Maximum if in lowest third of price range Intermediate if in middle third Zero if in bottom third
49	Average wholesale price for porting mobile numbers	Maximum, intermediate and zero	Maximum if in lowest third of price range Intermediate if in middle third Zero if in bottom third
50	Proportion of fixed numbers ported in 2005	Maximum, intermediate and zero	Maximum if in top third of countries by ported numbers Intermediate if in middle third Zero if in bottom third
51	Proportion of mobile numbers ported in 2005	Maximum, intermediate and zero	Maximum if in top third of countries by ported numbers Intermediate if in middle third Zero if in bottom third
52	Restrictions on the number ranges available for VoIP	Maximum, intermediate and zero	Maximum score if no restrictions are imposed Intermediate if there are certain restrictions for using geographic numbers Zero if the VoIP is limited to special non-geographic number ranges
53	Availability of number portability with LLU	Maximum, intermediate and zero	Maximum score if synchronised number portability available Intermediate score if possibility of synchronisation with some difficulties Zero if number portability is not available

102. **Section B.6** examines the effectiveness of the regime pertaining to frequencies. The convergence of fixed and mobile services and the development of new mobile technologies and services have made frequency allocation conditions an important factor for promoting competition and investments in alternative networks and services.

103. **Question 54.** Question 54 examines whether the frequency allocation principles are based on the principle of technological neutrality. A maximum score is given to countries actively applying technological neutrality. Zero is given in all other cases.

104. **Question 55.** Question 55 examines whether rules for spectrum trading are envisaged or in place. A maximum score is attributed in countries where spectrum trading is available and rules are in place. An intermediate score is given in countries where spectrum trading is in process and a score of zero in countries where spectrum trading is not contemplated.

105. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
54	Granting of spectrum in a technologically neutral fashion	Maximum, intermediate and zero	Maximum score where technological neutrality actually applied Zero if technological neutrality not applied
55	Rules on spectrum trading envisaged or in place	Maximum, intermediate and zero	Maximum score if spectrum trading available Intermediate score if spectrum trading envisaged Minimum score if spectrum trading not regulated

### **C. Effectiveness of regulation and competitiveness in key access markets and services**

106. This section examines the application and implementation of access regulation and the effectiveness of competition in key access markets and services. This is measured through assessing the availability of certain wholesale products, which are widely recognised as playing an important role in ensuring competitive markets – or are otherwise indicators of competition. This section assesses these key access products in light of the ‘ladder of investment’<sup>3</sup> principle, as described by ERG. In this regard, the ERG recognizes that new entrants may enter a market relying on third party infrastructure to develop a client base and then migrate those customers onto their own network once certain economies of scale have been developed. In this context, the availability of a range of key products from dominant providers on reasonable terms, and the ability to migrate from one product to another is crucial to

<sup>3</sup> ERG, "Common position on the approach to appropriate remedies in the new regulatory framework", ERG (03) 30 rev 1.

stimulating investment in competing infrastructures. In addition, the section also seeks to measure key indicators of market competitiveness, such as market shares (including alternative end-to-end infrastructure), take-up of products and end-user prices. When developing this section, the authors have taken into account comments received from various persons and authorities, including NRAs. Therefore, the questions pertaining to access products have been expanded so as to attain an improved granularity in the assessment of the various access products as available in the various Member States surveyed.

107. The services covered by this section include: (i) narrow band voice services, (ii) mobile services, (iii) access services relevant to business customers, and (iv) broadband services. Each type of access service or market constitutes a separate section:

108. **Section C.1** examines the competitive conditions prevailing for the provision of narrowband voice telephony services. The criteria for assessing the effectiveness of the regulation and/or competition for the provision of narrowband voice services include a comparison of the retail and wholesale tariffs, since higher tariffs typically reflect a lack of effective enforcement of the cost orientation obligation or a lack of competition on the market. The report also assesses whether there is sufficient flexibility to allow for cost recovery in termination, particularly for new entrants, which may face higher costs that are not due to inefficiencies, but to later market entry and the absence of an inherited customer base. The respective market shares of the operators are also considered to reflect the competitiveness of a market. Finally, the report has also examined the availability of certain services such as carrier selection services and wholesale line rental. The provision of carrier pre-selection services is an obligation which must be imposed pursuant to the Universal Service Directive. Wholesale line rental is a remedy that may be imposed on the basis of a market analysis, but we note that for the relevant market in question (access for narrowband telephony), all regulators have reported market shares around or above 80%. This is a level which clearly constitutes dominance, and such remedy could be seen as a natural adjunct to carrier pre-selection enabling single billing.

109. **Questions 56, 57 and 58.** Questions 56, 57 and 58 examine the level of the fixed incumbent's termination charges at local level, single tandem level and double tandem level. The score is given on the basis of a comparison of the tariffs. Prices have been calculated as a simple average of peak and off peak call per minute for three minute call. Where a call set up charge is included, this has been divided by three and added to the per minute cost. The highest score is given to countries whose price falls into the lowest third of the range between the most expensive and lowest costs. An interim score is given for those in the middle third, and zero is given where the price falls into the highest third.

110. **Question 59.** Question 59 examines whether different termination costs are taken into account for determining termination charges (*e.g.*, if the price regulation imposed for fixed call termination services takes account of the higher costs for new entrants compared to established operators with a large, inherited customer base). A maximum score is given if the objective differences are taken into account. Zero is given if such differences are not taken into account and symmetrical prices are imposed.

111. **Question 60.** Question 60 examines whether the carrier selection and pre-selection facility has been implemented and is available. A maximum score is given if it is available, and zero if it is not.

112. **Question 61.** Question 61 examines the proportion of end users which use an alternative fixed network operator for their fixed line (including the access line). The score is given on the basis of a comparison of the percentage of the alternative operator’s market share. Data are sourced from Figure 19 on page 23 of Annex II of the 11<sup>th</sup> Implementation Report. The highest score is given to countries where the market share of alternative fixed operators falls into the highest third of the range of market shares. An interim score is given to those in the middle third, and zero is given to countries in the lowest third.

113. **Question 62.** Question 62 examines the alternative operator’s market share for the provision of voice telephony services. The score is given on the basis of a comparison of the percentage of the alternative operator’s market share. The highest score is given to countries where the market share of alternative fixed operators falls into the highest third of the spread of market shares. An interim score is attributed to those in the middle third, and zero is given to countries in the lowest third.

114. **Question 63.** Question 63 examines whether wholesale line rental (“WLR”) is offered (whether on a regulatory or commercial basis). A maximum score is given if this wholesale access service is available. An intermediate score is given if WLR has been mandated but is not effective. Zero is given if the service is not available.

115. **Questions 64 and 65.** Questions 64 and 65 examine the value of the retail price basket (*i.e.*, the monthly average expenditure) for residential and business customers. The score is given on the basis of a comparison of the value of the retail price basket. The data source for these questions are Figures 84 and 85 on page 78 of Annex 2 of the 11<sup>th</sup> Implementation Report. The highest score is given to countries whose price basket fall into the lowest third of the range between the most expensive and cheapest costs. An interim score is given to those in the middle third, and zero where the price falls into the highest third.

116. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
56	Level of the incumbent’s interconnection tariffs for call termination with interconnection at the local switch level	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
57	Level of the incumbent’s interconnection tariffs for call termination with interconnection at the single tandem switch level	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
58	Level of the incumbent’s interconnection tariffs for call termination with interconnection at the double tandem switch level	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third

59	Different termination costs taken into account for determining termination charges	Maximum or zero	Maximum score if cost differences are taken into consideration Zero if cost differences are not taken into consideration
60	Implementation of carrier selection and pre-selection	Maximum, intermediate or zero	Maximum score if CSC/CPS is available Intermediate score if CS/CPS is available but implementation problems have been reported Zero if CSC/CPS is not available
61	Proportion of customers using an alternative provider to the incumbent for direct access to telephone services	Maximum, intermediate and zero	Maximum score if in top third of market share for Altnets Intermediate if in middle third Zero if in bottom third
62	Market share (revenue) of alternative operators in the fixed voice market	Maximum, intermediate and zero	Full grading scale with higher scores for high market shares
63	Availability of WLR available. Proportion of active incumbent fixed lines wholesaled through WLR	Maximum or zero	Maximum score if WLR is available Intermediate score if it is imposed but not effective Zero if WLR is not available
64	Value of the retail price basket for residential customers	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
65	Value of the retail price basket for business customers	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third

117. **Section C.2** examines the effective regulation and degree of competition prevailing on the mobile markets. The first criterion included in this section pertains to call termination services. The traditionally high cost of calling mobile networks in a calling party pays environment has generally been perceived as detrimental to consumers and distorts competition and investment. It has, in particular, allowed incumbent mobile network operators to create artificially high barriers to entry and subsidize their retail operations. Moreover, termination services on mobile networks are considered to constitute a bottleneck facility which is not subject to sufficient competitive constraints from the retail markets. The report has therefore compared the level of the tariffs applied for the provision of voice call termination services (at wholesale level) and the effective regulation of such services in accordance with the ERG and Commission's recommendations. In addition to the issue of mobile termination, the overall level of prices at the retail level for mobile services and the presence of MVNOs on the market provide a good indicator of the effectiveness of competition in the mobile sector as a whole. Finally, it is also critical to encompass the possible restrictions to competition that can arise from a mobile operator's ability to provide integrated fixed to mobile services in the context of VPN offers and to determine to what extent regulations are in place to limit the possibility of discriminatory treatment, such as via on-net tariffs that cannot be replicated in light of the termination rates publicly offered.

118. **Question 66.** Question 66 examines the level of the termination charges of the largest mobile network operator for peak hours. The score is given on the basis of a comparison of the tariffs. The highest score is given to countries whose price falls into the lowest third of the range between the most expensive and cheapest costs. An interim score is given for those in the middle third, and zero is given where the price falls into the highest third.

119. **Question 67.** Question 67 examines whether mobile to mobile termination services are subject to *ex ante* regulation. Maximum score is given if such *ex ante* regulation has been imposed. Zero is given if no *ex ante* regulation has been imposed.

120. **Question 68.** Question 68 examines whether fixed to mobile termination services are subject to *ex ante* regulation. A maximum score is given if such *ex ante* regulation has been imposed. Zero is given if no *ex ante* regulation has been imposed.

121. **Question 69.** Question 69 examines whether a price regulation has been imposed and whether such price regulation imposes the application of cost oriented tariffs or foresees the application of a glide-path. Maximum marks are awarded if termination prices are cost oriented, intermediate marks are given if a glide-path is in place towards cost orientation, and zero is given if prices are not cost oriented and no glide-path is in place.

122. **Question 70.** Question 70 examines whether the non-discrimination remedy has been imposed for fixed to mobile and mobile to mobile on/off-net traffic. It also examines whether the NRA verifies compliance with this requirement. Maximum marks are awarded if a non-discrimination remedy has been imposed. Zero if no such remedy has been imposed.

123. **Question 71.** Question 71 examines the market shares of the two largest mobile network operators. The score is given on the basis of a comparison of the percentage of the operator's market shares. Maximum marks are awarded to countries where the market share of the two largest operators falls in the lowest third of such market shares. Intermediate marks are awarded for countries in the middle third, and zero to countries where the market shares of the two largest operators are in the highest third.

124. **Questions 72 and 73.** Questions 72 and 73 examine the value of the retail mobile price basket (*i.e.*, the monthly average expenditure) for lowest users and for average users. The data source for these questions are Figures 50 and 51 respectively on pages 49 and 50 of Annex 2 of the 11<sup>th</sup> Implementation Report. The cheaper of the two operators shown in each country has always been chosen. The highest score is given to countries whose basket prices fall into the lowest third of the spread between the most expensive and lowest costs. An interim score is given for those in the middle third, and zero is given where the price falls into the highest third.

125. **Question 74.** Question 74 examines whether mobile virtual network operators are operational (on a commercial or regulatory basis) on the market and their market share. A maximum score is awarded if one or more MVNOs is operational, zero if no MVNO is operational. The Commission, in the context of its Article 7 procedures under the Framework Directive, has identified the presence of MVNOs as an indicator and/or potential driver of competition in mobile markets.

126. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
66	Peak-rate fixed to mobile termination charge applied by the largest (in revenue) mobile operator in your country	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
67	Regulation of fixed to mobile termination	Maximum, intermediate or zero	Maximum score if fixed to mobile is regulated Intermediate score if certain operators are not subject to regulation or if regulation is considered to be ineffective Zero if not regulated
68	Regulation of mobile to mobile termination	Maximum, intermediate or zero	Maximum score if fixed to mobile is regulated Intermediate score if certain operators are not subject to regulation or if regulation is considered to be ineffective Zero if not regulated
69	Cost-orientation requirement (if applicable). Glide-path and date when prices projected to reflect the value arrived at as a result of the cost analysis (if applicable)	Maximum, intermediate and zero	Maximum score if cost orientation Intermediate score if on glidepath Zero if no cost orientation or glidepath
70	Requirement for the mobile operator to demonstrate that it is not discriminating with respect to its own 'internal' onnet rates (if applicable)	Maximum or zero	Maximum score if requirement exists Zero if no requirement
71	Market shares (by revenues) on the retail market of the 2 largest mobile operators	Maximum, intermediate and zero	Maximum score if in lowest third of combined market shares Intermediate score if in middle third Zero if in highest third
72	Price of the basket for low users of mobile retail services	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
73	Price of the basket for average users of mobile retail services	Maximum, intermediate and zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
74	Operation of one or more MVNOs	Maximum or zero	Maximum score if MVNOs exist Zero if no MVNOs

127. **Section C.3** examines the effective regulation and degree of competition for the provision of services to business customers. The access services essential to the business segment consist, in particular, of leased lines, PPCs and successor products. Besides the existence and tariffs of these access service, it is also important to ensure that strict service level agreements are foreseen which prevent non-price

discrimination and quality deterioration. Moreover, there should also be clear paths enabling operators to migrate from leased line solutions to PPCs. In view of recent technical developments, it is also important to assess whether wholesale Ethernet offers are available.

128. **Question 75.** Question 75 examines the proportion of business users which use an alternative network operator for their fixed access lines. The score is given on the basis of a comparison of the percentage of the operator's market shares. The highest score is given to countries where the market share of alternative fixed operators falls into the highest third of the spread of market shares. An interim score to those in the middle third, and zero to countries in the lowest third.

129. **Question 76.** Question 76 examines whether there is an offer for wholesale PPCs. A maximum score is given if such a wholesale offer exists. Zero is given if no such offer exists.

130. **Questions 77 and 78.** Questions 77 and 78 compare the tariffs for certain types of PPCs (*i.e.*, 2Mbit/s, 5km and 34Mbit/s, 5km). The score is given on the basis of a comparison of the value of the PPCs tariffs. The data are taken from figures 36, 37, 38 and 39 on pages 37 – 40 of the 11<sup>th</sup> Implementation Report. Annual costs have been calculated on the basis of a five year contract, *i.e.* the price is based on monthly rental times 12 plus one-off charge divided by five. The highest score is given to countries whose price falls into the lowest third of the spread between the most expensive and cheapest costs. An interim score is given for those in the middle third, and zero is given where the price falls into the highest third.

131. **Question 79.** Question 79 examines whether the wholesale leased line offer and the PPC offer include service level agreements (including delivery and restoration times and financial penalties for failure to meet targets). Maximum scores are given to countries with an SLA, and zero to countries without an SLA. Intermediate scores have been awarded where an SLA exists but is considered to be insufficient, *e.g.* it does not include penalties.

132. **Question 80.** Question 80 examines whether there is a standard procedure for migrating leased lines to PPCs. A maximum score is given if such a procedure exists. Zero is given if no such procedure exists.

133. **Question 81.** Question 81 examines whether a wholesale Ethernet offer is available or whether the NRA is considering regulating the provision of such a service. A maximum score is given if such a service exists. Zero is given if no such service exists.

134. **Questions 82 and 83.** Questions 82 and 83 compare the tariffs for certain types of retail leased lines from the incumbent (*i.e.*, 2Mbit/s, 200 km and 34Mbit/s, 200 km). The score is given on the basis of a comparison of the cost of the leased lines. Data are taken from Figures 112 and 114 on pages 95 and 96 of Annex II of the 11<sup>th</sup> Implementation Report. The highest score is given to countries whose price falls into the lowest third of the spread between the most expensive and cheapest cost. An interim score is given for those in the middle third, and zero is given where the price falls into the highest.

135. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
75	Proportion of subscribers using an alternative provider for direct access	Maximum, intermediate or zero	Maximum score if market share in highest third Intermediate score if in middle third Zero if in lowest third
76	Existence of PPCs in your country	Maximum or zero	Maximum score if wholesale PPCs are offered Zero if wholesale PPCs are not offered
77	Price of set-up and monthly rental for a 2Mbit/s, 5km PPC	Maximum, intermediate or zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
78	Price of set-up and monthly rental for a 34Mbit/s, 5km PPC	Maximum, intermediate or zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
79	Availability for leased line wholesale and PPC products of a SLA	Maximum, intermediate or zero	Maximum score if effective SLA required Intermediate score if insufficient SLA Zero if no SLA
80	Standard procedure for the migration from leased lines to PPCs	Maximum or zero	Maximum score if migration rules exist Zero if migration rules do not exist
81	Availability of WES	Maximum or zero	Maximum score if WES is offered Zero if WES is not offered
82	Price of a 2Mbits/s, 200km leased lines from the incumbent	Maximum, intermediate or zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third
83	Price of a 34Mbit/s, 200km leased line from the incumbent	Maximum, intermediate or zero	Maximum score if in lowest third of prices Intermediate score if in middle third Zero if in highest third

136. **Section C.4** examines the effective regulation and degree of competition for the provision of broadband services. The economics of access networks mean that the last mile to the customer is typically not competitive and, therefore, regulation is needed to ensure that consumers have a choice of broadband supplier. This is also confirmed by the fact that the ULL Regulation is still part of the new regulatory framework and must be applied until the market analysis has been conducted and the competitiveness of the local access market has been examined. Thus far, following such market analyses, all NRAs have confirmed that the provision of ULL services should be regulated.

137. This section also considers whether the provision of wholesale broadband access is competitive. The provision of wholesale broadband services (particularly bitstream) is generally considered to be pro-competitive, as it enables competitive operators to reach geographic areas where network roll-out to local exchanges is not economically feasible. It also provides a step for operators on the 'ladder of investment'. The ability for new entrants to compete for the provision of broadband service is also dependent on the existence of service level agreements and clear and effective migration rules. The assessment is therefore not limited to a review of the financial conditions applicable to ULL and bitstream, but also integrates non-price issues, such as the presence or absence of SLAs.

138. It is also useful to assess the practical usability of broadband access products by examining the take-up of such products in the market. The effectiveness of regulation and the ability to move up in the ladder of investment will also depend on whether the incumbent is subject to specific remedies such as non-discrimination obligations and price squeeze. Whilst nearly all countries have found significant market power across the broadband ladder of investment, we recognise that in a few countries with particular geographic characteristics and historic infrastructure, significant market power has not been found in certain aspects of bitstream. We have thus made an assessment based on the availability (rather than regulation) of bitstream, on the basis that is likely to be a feature of a well-functioning competitive market.

139. **Questions 84 and 85.** Questions 84 and 85 examine whether full and shared access to the local loop is offered. Maximum scores are given where access is available. Zero where there is no unbundled access.

140. **Questions 86 and 87.** Questions 86 and 87 compare the tariffs for LLU. The score is given on the basis of a comparison of the value of access. Data are taken from Figures 70 – 74 on pages 69 and 70 of Annex II of the 11<sup>th</sup> Implementation Report. Prices are calculated at the annual cost, assuming a two year contract. The formula used is  $(\text{monthly rental} \times 12) + (\text{connection fee} / 2)$ . The highest score is given to countries whose price falls into the lowest third of the spread between the most expensive and lowest costs. An interim score is given for those in the middle third, and zero where the price falls into the highest third.

141. **Question 88.** Question 88 examines whether the associated facilities such as co-location and backhaul must be provided at cost oriented tariffs. A maximum score is given if such services must be provided at cost oriented tariffs. Zero is given if such services are not subject to the cost orientation principle.

142. **Question 89.** Question 89 compares the number of unbundled lines and shared access compared to the total number of DSL lines based on the ECTA Broadband Scorecard. The highest score is awarded to countries where the proportion of LLU lines is the highest third, an intermediate score is given to countries in the middle third, and an intermediate score to countries in the lowest third.

143. **Question 90.** Question 90 examines whether the LLU offers include service level agreements (including delivery and restoration times and financial penalties for failure to meet targets). A maximum score is given if such SLAs are provided for. Zero is given if this is not foreseen.

144. **Question 91.** Question 91 examines the connectivity options offered for wholesale ADSL bitstream access services following the ERG classification. Maximum points are awarded to countries offering at least ERG options 2 and 3. A high intermediate score is given for 2 or 3, a low intermediate score for option 4 (resale) and zero where no option is available.

145. **Question 92.** Question 92 compares the percentages of DSL lines provided by competitors on the basis of wholesale bitstream access (ERG options 2 and 3) compared as a proportion of the total incumbent DSL lines (at wholesale level) based on the ECTA Broadband Scorecard. Resale (ERG option 4) is not included in this assessment, as is not considered to allow for sufficient differentiation between players to stimulate competition. The highest score is awarded to countries where the proportion of bitstream access is in the highest third, an intermediate score is given to countries in the middle third and a zero score to countries in the lowest third.

146. **Question 93.** Question 93 examines whether the wholesale bitstream offers include service level agreements (including delivery and restoration times and financial penalties for failure to meet targets). A maximum score is given if such SLAs are provided for. Zero is given if this is not foreseen.

147. **Question 94.** Question 94 examines whether there is a standard procedure for migrating from a resale ADSL offer to a bitstream offer to LLU. A maximum is given if such a procedure exists. Zero is given if no such procedure exists.

148. **Question 95.** Question 95 examines whether the NRA conducts a price squeeze analysis between LLU and bitstream tariffs and whether such analysis is conducted across the value chain. A maximum score is given if such an analysis is conducted. Zero is given if not.

149. **Question 96.** Question 96 examines the percentage of broadband lines supplied end to end (*i.e.*, without use of the incumbent's fixed network) by competitors (by alternative non-mobile access networks). The highest score is awarded to countries where the proportion of broadband lines provided end to end by competitors is in the highest third, intermediate score is given to countries in the middle third, and zero score to countries in the lowest third.

150. **Question 97.** Question 97 examines whether a wholesale naked DSL offer is available and whether it is under consideration by the NRA. A maximum score is given if such an offer is available. Zero is given if it is not available.

151. The weighting given to the assessment criteria of this section is set out in the table below:

	<b>Criteria</b>	<b>Weight</b>	<b>Comments</b>
84	Availability of full LLU	Maximum or zero	Maximum score if LLU is offered Zero if LLU is not offered
85	Availability of shared ULL access	Maximum or zero	Maximum score if shared access is offered Zero if shared access is not offered
86	Set-up and recurrent tariff charged for full ULL	Maximum, intermediate or zero	Maximum score for countries in the lowest third

		zero	Intermediate for countries in the middle third Zero in the highest third
87	Set-up and recurrent tariff charged for shared ULL access	Maximum, intermediate or zero	Maximum score for countries in the lowest third Intermediate score for countries in the middle third Zero in the highest third
88	Requirement for facilities associated to ULL to be made available at cost-oriented rates	Maximum or zero	Maximum score if cost orientation obligation applies to associated facilities Zero if cost orientation does not apply
89	Number of unbundled lines and shared access as a percentage of total DSL lines	Maximum, intermediate or zero	Maximum score if LLU share if in highest third Intermediate score if in middle third Zero if in lowest third
90	Inclusion in contracts for ULL and associated facilities of a SLA	Maximum or zero	Maximum score if SLA is offered Zero if SLA is not offered
91	Connectivity options available for ADSL bitstream	Maximum, intermediate or zero	Maximum score if ERG options 2 and 3 offered High intermediate score if either 2 or 3 offered Low intermediate score if only option 4 Zero if none offered
92	Percentage of DSL lines provided by competitors on the basis of wholesale bitstream access as a proportion of total DSL lines	Maximum, intermediate or zero	Maximum score if bitstream share is highest third Intermediate score if in middle third Zero if in lowest third
93	Inclusion by wholesale broadband products of a SLA	Maximum or zero	Maximum score if SLA is offered Zero if SLA is not offered
94	Standard procedure for the migration from a resale ADSL offer to a bitstream offer to fully unbundled or shared loops	Maximum or zero	Maximum score if migration rules exist Zero if migration rules do not exist
95	Price squeeze test applied by the NRA in relation to wholesale DSL products and LLU. Application across the whole value chain (if applicable)	Maximum or zero	Maximum score if price squeeze test is applied across the value chain Zero if price squeeze test is not applied across the value chain
96	Percentage of broadband lines supplied end to end by competitors	Maximum, intermediate or zero	Maximum score if share in highest third Intermediate score in middle third Zero in lowest third
97	Availability of naked DSL	Maximum or zero	Maximum score if wholesale naked DSL is offered Zero if wholesale naked DSL is not offered

### **III. Scoring Methodology and Weighting**

152. In earlier versions of Scorecard, we worked on a bottom-up principle in the assignment of points to individual criteria. We began by assessing the importance of each criterion and assigning a number of points, usually 2.5, 5 or 10, to such criterion. The total number of points was therefore the sum of all the points assigned to the various individual criteria. In the 2005 Scorecard, the total available points was 518. Following comments from various parties, we have taken different approach in this year's Scorecard.

153. For 2006, we have adopted a top down principle. We have begun by deciding on the maximum number of points to be allocated to all 97 criteria, which we have set as 485. The points are then allocated to individual criteria based on the weighting assigned to each criterion.

154. We have received a number of comments that the assigned weighting affects the overall outcome of the Scorecard. To address this, the "base" version of this year's Scorecard is unweighted; that is, all criteria carry an equal weight across. We have also produced other versions assigning weights to each criteria. The process for doing this is described below.

155. The vast majority of questions have been weighted 'medium' to signify that, in the absence of any evidence to the contrary, we assume that they have an equal contribution to the effectiveness of regulation. Where a 'high' or 'low' weight has been applied, there are two possible reasons:

- The criterion has been recognised as significant to effective regulation in the context of other studies (*e.g.*, in the case of absence of Government ownership in incumbents, which is commonly recognized as an indicator of greater independence of the regulatory regime)
- To balance the weightings in a particular section, such that there is neutrality in the weightings amongst the type of questions asked. Thus, for example, interconnect tariffs are weighted low because there are a number of such questions specifically concerning interconnect, whilst WLR is rated high because within that section there is only one question on that topic.

156. In addition, we considered it of interest to examine whether applying different weightings to the different sections of the report might affect the scores – for example, through adjusting the relative weights given to 'implementation in practice' (Section C) versus 'the Regulatory Framework' (Section A), which outlines the regime under which regulation is applied. For the 2006 Scorecard, therefore, we have produced several versions using different weightings for the Sections. In all versions, we begin with a total number of points to be distributed across the criteria in the Scorecard. In the versions named "Weightings 1" and "Weightings 2", we have first assigned a different weight to each Section. For example, in Weightings 2, 50% of the total points are assigned to Section C, 'Effectiveness of Implementation'. In these weighted versions, each sub-section is allocated a proportion of the points assigned,

based on an assumption of the relative significance of each issue to effective regulation, whilst each criterion is weighted according to the system described above.

157. In the version “Unweighted Sections”, we have assigned an equal proportion of points to each of the three Sections. Within each Section, all criteria, carry the same weight, *i.e.* medium. This results in questions one of the three Sections carrying different scores from those in the other sections, as there are more questions in some sections than others.

158. Table 1 below summarizes the points assignment.

159. Table 2 shows the overall results of the Scorecard according to the different weightings. As can be seen, the points earned by each country change very little according to the weights. However, due to the closeness of some countries, the rankings change rather more.

160. Table 3 shows the coefficients of correlation between each of the various weightings. As can be seen, the lowest coefficient is 0.980, indicating that the weights applied make very little difference to the overall results.

**Table 1 : Weightings Table**

Version	Section			Sub-Section								Sub-Section						Sub-Section			
	A	B	C	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4
Weighting 1	29	21	50	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	16.7	16.7	16.7	16.7	16.7	16.7	22	26	26	26
Weighting 2	33	17	50	10.6	12.1	12.1	12.1	10.6	12.1	18.2	12.1	14.7	17.6	17.6	17.6	14.7	17.6	22	26	26	26
Unweighted Section %	33.3	33.3	33.3	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	16.7	16.7	16.7	16.7	16.7	16.7	25	25	25	25

**Table 2: Results by Weightings**

	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
Unweighted	266	248	251	356	266	345	231	224	293	290	300	344	203	275	295	306	390
Weighting 1	244	218	236	336	252	325	199	184	266	263	268	297	165	261	263	276	379
Weighting 2	247	214	242	340	254	331	198	188	273	265	272	299	168	268	268	280	383
Unweighted Sections	231	211	239	312	235	298	192	187	272	277	259	305	171	235	269	260	357

**Table 3: Correlation Matrix of Model Versions**

	Unweighted	Weighting 1	Weighting 2	Unweighted Sections
Unweighted	100	0.984	0.981	0.978
Weighting 1		100	0.999	0.972
Weighting 2			100	0.971
Unweighted Sections				100

#### IV. In-country analysis

##### INSTITUTIONAL FRAMEWORK

###### **Implementation of NRF**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	1	1	Date NRF adopted & in force	5	2.5	0	0	5	5	0	0	0	5	5	2.5	0	2.5	0	2.5	5	5
		2	Have infringement proceedings been initiated	5	2.5	0	2.5	5	0	2.5	0	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
			TOTAL	10	5	0	2.5	10	5	2.5	0	2.5	7.5	7.5	5	2.5	2.5	2.5	5	7.5	7.5

###### **Speed of Process**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	2	3	No. of markets for which final decision adopted	5	5	0	5	2.5	5	2.5	0	0	5	5	2.5	5	0	2.5	2.5	5	5
		4	Average duration of market analysis procedure	5	5	5	5	0	5	5	2.5	5	5	5	0	0	0	0	5	2.5	2.5
		5	Average timeframe for allocation of numbers	5	5	5	0	5	5	2.5	5	0	2.5	5	2.5	2.5	0	5	5	5	2.5
			TOTAL	15	15	10	10	7.5	15	10	7.5	5	12.5	15	5	7.5	0	7.5	12.5	12.5	10

###### **Transparency and Consultation**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	3	6	Is NRA required to hold public consultations	5	5	5	5	5	5	5	2.5	2.5	5	5	5	5	5	5	5	5	5
		7	Timescale for responses	5	5	2.5	2.5	5	5	5	5	5	0	5	5	5	5	2.5	2.5	5	0
		8	Is NRA required to publish all decisions	5	2.5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5
		9	Does NRA disclose and consult on action plan	5	0	2.5	2.5	2.5	5	2.5	0	0	2.5	5	5	5	5	2.5	0	2.5	5
		10	Are NRA costs transparent	5	2.5	0	5	5	5	2.5	2.5	2.5	2.5	5	5	5	5	2.5	5	5	5
			TOTAL	25	15	15	20	22.5	25	20	10	15	15	25	25	25	25	17.5	17.5	22.5	20

**Enforcement**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	4	11	Is NRA entrusted to impose fines	5	0	5	2.5	5	2.5	5	2.5	5	2.5	0	5	5	5	5	5	5	5
		12	Is NRA empowered to impose periodic penalty payments	5	0	0	5	5	5	0	5	5	5	0	0	5	0	5	5	5	5
		13	Is NRA empowered to suspend commercial launch	5	5	0	0	0	0	5	0	5	5	5	5	0	0	5	5	5	5
		14	Has NRA ever used this possibility	5	0	0	0	5	0	5	0	5	5	2.5	5	2.5	5	5	5	0	2.5
			TOTAL	20	5	5	7.5	15	7.5	15	7.5	20	17.5	7.5	15	12.5	10	20	20	15	17.5

**Scale of Resources**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	5	15	Total no. of qualified employees	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		16	Recourse to outside expertise	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		17	Financial capability to attract suitably qualified staff	5	5	0	0	2.5	0	5	0	5	0	2.5	5	5	0	5	5	5	5
			TOTAL	15	15	5	10	12.5	10	15	10	15	10	12.5	15	15	10	15	15	15	15

**Effectiveness of Appeals Procedure**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	6	18	Does appeal suspend effects of decisions	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		19	What is the applicable standard for suspension	5	5	5	5	5	5	5	0	5	5	0	5	5	5	5	5	0	5
		20	Percentage of decisions appealed	5	0	0	0	2.5	0	5	2.5	0	2.5	1.3	0	0	0	5	0	0	5
		21	Average timeframe between appeal and final decision	5	5	2.5	5	5	2.5	5	0	0	2.5	5	0	5	0	0	0	0	5
		22	Proportion of NRA decisions being annulled	5	0	0	5	0	0	5	0	0	5	0	5	0	5	5	5	0	5
		23	Have standards been applied restrictively	5	0	0	5	5	2.5	5	0	5	5	5	5	0	5	5	2.5	0	5
			TOTAL	30	15	12.5	25	22.5	15	30	7.5	15	25	16.3	20	15	20	25	17.5	5	30

**Independence**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	7	24	Is NRA subject to political injunctions	5	0	0	5	5	0	5	0	2.5	5	0	5	5	0	0	5	5	5
		25	Grounds for removal of head of NRA	5	0	2.5	5	5	0	5	0	5	5	5	5	5	0	5	5	5	5
		26	Duration of NRA's management term of office	5	5	5	5	5	0	5	5	5	5	5	0	5	5	5	5	0	0
		27	Percentage of incumbent owned by government	5	0	0	5	5	2.5	0	0	0	3.8	5	3.8	5	0	3.8	3.8	0	5
			<b>TOTAL</b>	<b>20</b>	<b>5</b>	<b>7.5</b>	<b>20</b>	<b>20</b>	<b>2.5</b>	<b>15</b>	<b>5</b>	<b>12.5</b>	<b>18.8</b>	<b>15</b>	<b>13.8</b>	<b>20</b>	<b>5</b>	<b>13.8</b>	<b>18.8</b>	<b>10</b>	<b>15</b>

**Efficiency of NRA Acting as Dispute Settlement Body**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
A	8	28	Can NRA adopt interim measures	5	0	0	5	5	0	2.5	2.5	2.5	5	0	0	5	0	0	5	0	0
		29	Average timeframe for obtaining interim decision	5	0	0	2.5	5	0	2.5	5	2.5	5	0	0	0	0	0	2.5	0	0
		30	Average timeframe for obtaining final decision	5	2.5	0	2.5	2.5	5	5	5	0	5	5	2.5	5	0	2.5	2.5	5	5
			<b>TOTAL</b>	<b>15</b>	<b>2.5</b>	<b>0</b>	<b>10</b>	<b>12.5</b>	<b>5</b>	<b>10</b>	<b>12.5</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>2.5</b>	<b>10</b>	<b>0</b>	<b>2.5</b>	<b>10</b>	<b>5</b>	<b>5</b>

**GENERAL MARKET ACCESS CONDITIONS**
**General Access and Policy Procedures**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
B	1	31	Transparent Price Rules	5	2.5	2.5	5	5	5	2.5	2.5	2.5	5	2.5	5	5	0	2.5	2.5	2.5	5
		32	Standard procedure for non-standard interconnection agreements	5	5	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5
		33	Consultation process re NGNs	5	0	2.5	0	5	5	2.5	2.5	2.5	0	0	5	5	0	0	0	2.5	5
			<b>TOTAL</b>	<b>15</b>	<b>7.5</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>7.5</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>2.5</b>	<b>2.5</b>	<b>5</b>	<b>15</b>

**Accounting Separation (Art 11 AD)**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
B	2	34	Does cost accounting separation accompany non-discrimination	5	5	5	5	5	5	5	0	5	5	5	5	2.5	5	5	5	5	5
		35	Is cost accounting separation methodology clearly specified	5	0	0	5	5	0	5	0	0	2.5	5	2.5	5	0	5	5	0	5
		36	Are accounting separation accounts published	5	0	0	0	0	0	0	0	0	0	5	0	2.5	0	0	0	0	5
		37	Do separated accounts show transfer charging	5	0	0	0	0	0	0	0	0	0	5	5	2.5	0	0	0	0	5
			TOTAL	20	5	5	10	10	5	10	0	5	7.5	20	12.5	12.5	5	10	10	5	20

**Non-Discrimination and Margin Squeeze**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
B	3	38	Are there clear rules for non-discrimination in an ex ante context	5	2.5	2.5	0	2.5	2.5	2.5	0	2.5	2.5	2.5	5	2.5	0	0	2.5	0	5
		39	Clear rules for price squeeze test	5	2.5	2.5	0	0	0	5	0	2.5	0	2.5	5	5	0	0	2.5	2.5	2.5
		40	Have rules for price squeeze test been published	5	0	0	0	2.5	0	5	0	2.5	0	2.5	5	5	0	0	2.5	0	2.5
		41	Does NRA have provisions for non-price discrimination	5	5	5	0	2.5	2.5	5	0	2.5	0	2.5	0	0	5	2.5	2.5	2.5	5
			TOTAL	20	10	10	0	7.5	5	17.5	0	10	2.5	10	15	12.5	5	2.5	10	5	15

**Rights of Way and Facilities Sharing (Art 11 FD)**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
B	4	42	Clear rules for applying for ROW	5	5	5	5	5	5	5	5	0	2.5	5	0	5	0	5	0	5	2.5
		43	Reasonable cost for ROW	5	0	5	5	5	5	0	5	0	2.5	5	0	5	5	0	0	0	0
		44	Reasonable timescale for ROW	5	0	2.5	5	5	5	5	5	2.5	2.5	5	0	5	5	0	0	5	5
		45	Effective mechanism for appeal	5	0	0	0	2.5	2.5	5	5	0	5	0	5	5	0	0	0	5	2.5
			TOTAL	20	5	12.5	15	17.5	17.5	15	20	2.5	12.5	15	5	20	10	5	0	15	10

**Numbering**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
B	5	46	Is fixed number portability available	5	5	5	2.5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		47	Is mobile number portability available	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		48	Average wholesale price for fixed NP	5	5	5	0	5	5	5	5	5	5	5	5	5	2.5	5	5	5	5
		49	Average wholesale price for mobile NP	5	2.5	5	0	2.5	2.5	0	0	2.5	5	0	2.5	5	2.5	0	5	5	5
		50	Proportion of fixed numbers ported in 2005	5	0	2.5	5	5	5	2.5	5	0	2.5	2.5	2.5	5	0	2.5	2.5	0	5
		51	Proportion of mobile numbers ported in 2005	5	0	2.5	0	5	5	0	5	0	0	5	5	5	0	0	5	2.5	0
		52	Restrictions on number ranges for VOIP	5	0	2.5	2.5	5	5	2.5	2.5	5	2.5	2.5	0	5	0	0	2.5	5	5
		53	Is NP available with LLU	5	5	2.5	5	5	5	5	5	2.5	5	2.5	5	2.5	0	2.5	5	5	5
			TOTAL	40	22.5	30	20	37.5	37.5	25	32.5	25	30	27.5	30	37.5	15	20	35	32.5	35

**Frequencies**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
B	6	54	Has spectrum been granted in a technologically neutral manner	5	5	5	5	2.5	0	2.5	5	2.5	5	5	5	2.5	0	0	5	5	5
		55	Are rules for spectrum trading in place	5	5	5	5	0	0	5	0	2.5	2.5	5	2.5	0	5	0	0	5	5
			TOTAL	10	10	10	10	2.5	0	7.5	5	5	7.5	10	7.5	2.5	5	0	5	10	10

**EFFECTIVENESS OF IMPLEMENTATION**

**Narrowband Voice Services**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
C	1	56	Local call termination interconnect rate	5	2.5	5	0	5	0	5	5	2.5	2.5	5	5	5	2.5	5	2.5	2.5	5
		57	Single tandem call termination interconnect rate	5	2.5	5	2.5	5	0	2.5	5	2.5	2.5	5	5	5	2.5	5	2.5	5	5
		58	Double tandem call termination interconnect rate	5	0	5	2.5	5	0	2.5	2.5	2.5	5	5	2.5	5	2.5	5	2.5	5	5
		59	Different termination costs accounted for in charges	5	5	5	0	5	5	5	5	5	0	5	5	5	0	5	5	5	0
		60	Is CS/CPS implemented	5	5	5	5	5	5	5	5	2.5	5	5	5	5	5	5	5	5	5
		61	Percentage of customers using altnets for direct access services	5	2.5	2.5	0	0	0	0	2.5	0	0	0	0	5	2.5	2.5	2.5	0	5
		62	Market share of altnets in fixed voice market	5	5	2.5	0	2.5	5	0	5	2.5	0	0	2.5	0	0	0	2.5	5	2.5
		63	Is WLR available	5	2.5	0	0	5	0	2.5	0	0	0	5	0	0	0	5	0	5	5
		64	Value of retail price basket - residential	5	2.5	0	2.5	2.5	0	2.5	2.5	2.5	5	0	0	5	2.5	0	5	5	5
		65	Value of retail price basket - business	5	2.5	0	0	2.5	0	0	2.5	2.5	0	0	0	5	0	0	2.5	2.5	5
			TOTAL	50	30	30	12.5	37.5	15	25	35	22.5	20	30	25	40	17.5	32.5	30	40	42.5

**Mobile Services**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
C	2	66	Peak rate fixed to mobile termination charge	5	5	2.5	2.5	2.5	5	5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5	5	2.5
		67	Is fixed to mobile termination subject to regulation	5	5	5	5	2.5	2.5	5	5	2.5	5	5	5	0	5	5	5	5	5
		68	Is mobile to mobile termination subject to regulation	5	5	5	5	2.5	5	5	5	5	5	5	5	0	5	5	5	5	5
		69	Are prices required to be cost-oriented. Has glide path been applied	5	2.5	2.5	5	0	5	5	2.5	2.5	0	2.5	2.5	0	2.5	0	2.5	5	5
		70	Is mobile operator required to show non-discrimination for on-net rates	5	0	2.5	0	5	5	2.5	2.5	2.5	0	0	5	0	5	2.5	2.5	2.5	2.5
		71	Market share of two largest operators	5	0	0	2.5	5	0	0	0	0	0	0	0	2.5	2.5	0	0	2.5	5
		72	Low user price basket	5	0	2.5	5	5	5	2.5	0	2.5	5	0	2.5	2.5	5	5	2.5	5	0
		73	Average user price basket	5	2.5	0	2.5	5	5	2.5	0	2.5	5	0	0	5	5	2.5	2.5	5	0
		74	Is one or more MVNOs operational	5	5	0	0	5	5	0	0	0	0	0	0	5	0	0	0	5	5
			TOTAL	45	25	20	27.5	32.5	37.5	27.5	17.5	20	22.5	15	22.5	17.5	30	22.5	22.5	40	30

**Business Services**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
C	3	75	Proportion of subscribers using an altnet for direct access	5	0	0	0	2.5	0	5	0	0	0	0	0	5	0	0	5	0	5
		76	Are wholesale PPCs available	5	5	5	5	5	2.5	5	2.5	0	5	5	5	5	0	5	5	0	5
		77	Set-up and monthly rental 2 mbit/s 5km PPC	5	5	0	0	5	5	2.5	5	5	5	0	2.5	5	2.5	5	0	2.5	5
		78	Set-up and monthly rental 34 mbit/s 5km PPC	5	5	0	0	0	5	2.5	5	0	0	0	0	5	2.5	5	0	2.5	5
		79	Is an SLA included	5	2.5	5	5	2.5	0	5	0	2.5	5	5	5	2.5	5	5	5	5	5
		80	Standard migration path from leased lines to PPCs	5	5	0	0	0	0	2.5	0	0	0	5	0	5	0	0	0	0	5
		81	Is WES available	5	0	0	5	5	2.5	5	0	0	5	0	5	0	0	5	0	0	5
		82	Price of 2 mbit/s 200km leased line from incumbent	5	5	5	2.5	5	0	2.5	5	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5
		83	Price of 34 mbit/s 200km leased line from incumbent	5	2.5	5	0	5	5	2.5	5	5	0	0	2.5	2.5	5	2.5	2.5	5	0
			TOTAL	45	30	20	17.5	30	20	32.5	22.5	17.5	22.5	20	22.5	35	17.5	32.5	20	20	37.5

**Broadband**

Section	Sub-section	Question	Question	Weight	AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK	
C	4	84	Is full LLU available	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
		85	Is shared LLU available	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
		86	Set up and recurrent charges of full LLU	5	5	2.5	0	5	0	5	5	5	0	0	5	5	2.5	5	5	0	5	
		87	Set up and recurrent charges of partial LLU	5	0	5	0	5	0	5	5	2.5	0	0	5	5	0	5	5	2.5	5	
		88	Are related facilities required to be available at cost oriented rates?	5	5	2.5	5	5	5	5	2.5	2.5	5	0	5	2.5	0	5	5	5	5	
		89	Number of LLU as percentage of total DSL lines	5	2.5	0	0	2.5	5	5	5	0	0	0	2.5	5	0	2.5	0	5	0	
		90	Do contracts for LLU include SLA	5	5	2.5	2.5	2.5	0	5	0	0	5	5	5	5	5	5	5	5	5	
		91	What connectivity options are available for ADSL bitstream	5	3.8	5	1.3	3.8	3.8	5	1.3	1.3	3.8	3.8	3.8	3.8	0	3.8	1.3	3.8	5	
		92	Percentage of DSL lines from competitors via wholesale bitstream access	5	0	2.5	0	2.5	0	2.5	0	0	2.5	2.5	0	0	0	0	0	0	0	5
		93	Do wholesale broadband products include an SLA	5	2.5	2.5	0	0	2.5	5	2.5	0	5	5	5	2.5	5	2.5	5	0	5	
		94	Standard procedure for migration from resale DSL to LLU	5	0	2.5	5	5	0	5	0	0	0	0	0	5	0	0	5	0	5	
		95	Price squeeze test applied to wholesale DSL and LLU	5	0	0	0	0	0	5	2.5	0	0	2.5	2.5	0	0	5	0	0	2.5	
		96	Percentage of DSL lines end to end by competitors	5	5	5	5	2.5	2.5	0	0	0	5	2.5	0	5	2.5	0	2.5	5	2.5	
		97	Is naked DSL available	5	5	5	0	5	5	5	0	0	5	0	5	0	0	0	0	5	0	
			TOTAL	70	43.8	45	28.8	48.8	33.8	62.5	33.8	21.3	41.3	31.3	48.8	48.8	25	43.8	43.8	41.3	55	

## **V. Analysis of Scorecard Results**

161. In this section, we report on an analysis that we have undertaken of the Scorecard results covering: the internal relationships between scores for subsections and for each country's overall result; the relationship between the score for Section C.4 (Broadband) and current levels of broadband penetration in the EU; and the relationship between the Scorecard and investment.

162. There are 18 subsections within the Scorecard. The scores and rankings for each subsection are shown below. Please note that for presentation purposes, the scores have been rounded to the nearest whole number.

163. Figure 3 overleaf shows the scores for each subsection, and Figure 3 shows the rankings. They clearly demonstrates how each country has strengths and weaknesses and that, therefore, no country can afford to be complacent. Some highlights are noted after Figure 4.

**Figure 3: Scores for Individual Subsections**

		AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
<b>A. INSTITUTIONAL FRAMEWORK</b>																		
A1	Implementation of NRF	5	0	3	10	5	3	0	3	8	8	5	3	3	3	5	8	8
A2	Speed of Process	15	10	10	8	15	10	8	5	13	15	5	8	0	8	13	13	10
A3	Transparency & Consultation	15	15	20	23	25	20	10	15	15	25	25	25	25	18	18	23	20
A4	Enforcement	5	5	8	15	8	15	8	20	18	8	15	13	10	20	20	15	18
A5	Scale of Resources	15	5	10	13	10	15	10	15	10	13	15	15	10	15	15	15	15
A6	Effectiveness of Appeal Procedure	15	13	25	23	15	30	8	15	25	16	20	15	20	25	18	5	30
A7	Independence	5	8	20	20	3	15	5	13	19	15	14	20	5	14	19	10	15
A8	Efficiency of NRA as Dispute Settlement Body	3	0	10	13	5	10	13	5	15	5	3	10	0	3	10	5	5
<b>B. GENERAL MARKET ACCESS CONDITIONS</b>																		
B1	General Access & Policy Procedures	8	10	5	10	10	5	5	5	5	8	10	10	0	3	3	5	15
B2	Accounting Separation	5	5	10	10	5	10	0	5	8	20	13	13	5	10	10	5	20
B3	Non-discrimination & Margin Squeeze	10	10	0	8	5	18	0	10	3	10	15	13	5	3	10	5	15
B4	Rights of Way & Facilities Sharing	5	13	15	18	18	15	20	3	13	15	5	20	10	5	0	15	10
B5	Numbering	23	30	20	38	38	25	33	25	30	28	30	38	15	20	35	33	35
B6	Frequencies	10	10	10	3	0	8	5	5	8	10	8	3	5	0	5	10	10
<b>C. EFFECTIVENESS OF IMPLEMENTATION</b>																		
C1	Narrowband Voice	30	30	13	38	15	25	35	23	20	30	25	40	18	33	30	40	43
C2	Mobile Services	25	20	28	33	38	28	18	20	23	15	23	18	30	23	23	40	30
C3	Business Services	30	20	18	30	20	33	23	18	23	20	23	35	18	33	20	20	38
C4	Broadband	44	45	29	49	34	63	34	21	41	31	49	49	25	44	44	41	55
<b>TOTAL</b>		<b>266</b>	<b>248</b>	<b>251</b>	<b>356</b>	<b>266</b>	<b>345</b>	<b>231</b>	<b>224</b>	<b>293</b>	<b>290</b>	<b>300</b>	<b>344</b>	<b>203</b>	<b>275</b>	<b>295</b>	<b>306</b>	<b>390</b>

**Figure 4: Rankings by Individual Subsection**

		AT	BE	CZ	DK	FI	FR	DE	EL	HU	IE	IT	NL	PL	PT	ES	SE	UK
<b>A. INSTITUTIONAL FRAMEWORK</b>																		
A1	Implementation of NRF	6	16	10	1	6	10	16	10	2	2	6	10	10	10	6	2	2
A2	Speed of Process	1	7	7	11	1	7	11	15	4	1	15	11	17	11	4	4	7
A3	Transparency & Consultation	13	13	8	6	1	8	17	13	13	1	1	1	1	11	11	6	8
A4	Enforcement	16	16	12	6	12	6	12	1	4	12	6	10	11	1	1	6	4
A5	Scale of Resources	1	17	12	10	12	1	12	1	12	10	1	1	12	1	1	1	1
A6	Effectiveness of Appeal Procedure	11	15	3	6	11	1	16	11	3	10	7	11	7	3	9	17	1
A7	Independence	14	13	1	1	17	6	14	11	4	6	9	1	14	9	4	12	6
A8	Efficiency of NRA as Dispute Settlement Body	13	16	4	2	8	4	2	8	1	8	13	4	16	13	4	8	8
<b>B. GENERAL MARKET ACCESS CONDITIONS</b>																		
B1	General Access & Policy Procedures	7	2	9	2	2	9	9	9	9	7	2	2	17	15	15	9	1
B2	Accounting Separation	11	11	5	5	11	5	17	11	10	1	3	3	11	5	5	11	1
B3	Non-discrimination & Margin Squeeze	5	5	16	10	11	1	16	5	14	5	2	4	11	14	5	11	2
B4	Rights of Way & Facilities Sharing	13	9	5	3	3	5	1	16	9	5	13	1	11	13	17	5	11
B5	Numbering	14	8	15	1	1	12	6	12	8	11	8	1	17	15	4	6	4
B6	Frequencies	1	1	1	14	16	7	10	10	7	1	7	14	10	16	10	1	1
<b>C. EFFECTIVENESS OF IMPLEMENTATION</b>																		
C1	Narrowband Voice	7	7	17	4	16	11	5	13	14	7	11	2	15	6	7	2	1
C2	Mobile Services	8	13	6	3	2	6	15	13	9	17	9	15	4	9	9	1	4
C3	Business Services	5	10	15	5	10	3	7	15	7	10	7	2	15	3	10	10	1
C4	Broadband	7	6	15	3	12	1	12	17	10	14	3	3	16	7	7	10	2
<b>Overall</b>		<b>11</b>	<b>14</b>	<b>13</b>	<b>2</b>	<b>11</b>	<b>3</b>	<b>15</b>	<b>16</b>	<b>8</b>	<b>9</b>	<b>6</b>	<b>4</b>	<b>17</b>	<b>10</b>	<b>7</b>	<b>5</b>	<b>1</b>

164. The UK, while strongest overall, ranks poorly for Rights of Way and Facilities sharing (11<sup>th</sup>), Transparency and Consultation (8<sup>th</sup>) and Efficiency of the NRA as a Dispute Settlement Body (8<sup>th</sup>). Its poor showing on Rights of Way is largely due to the costs of bringing cables over the foreshore, which is seen as increasing costs unnecessarily. The UK's overall score for transparency is good (20 out of an available 25 points) but this still places it in 8<sup>th</sup> place, largely due to overly lengthy consultation periods. Similarly, its position on dispute settlement is affected by its lack of ability to impose interim measures.

165. At the other end of the Scorecard, Poland ranks well on Transparency and Consultation and on Mobile Services. It ranks poorly, though, on all five areas which are most closely correlated with the overall results (see below). Germany's strengths are Dispute Settlement and Rights of Way, whilst its weaknesses are Accounting Separation and Transparency and Consultation.

166. We have examined the correlation between each of these subsections and the overall results. The five subsections with the strongest and weakest correlation coefficients are (in descending order with the coefficient in brackets):

**Strongest Relationship:**

1<sup>st</sup> Broadband (0.81)

2<sup>nd</sup> Business Services (0.75)

3<sup>rd</sup> Accounting Separation (0.66)

4<sup>th</sup> = General Access and Policy Procedures (0.60)

4<sup>th</sup> = Narrowband Voice (0.60)

**Weakest Relationship:**

18<sup>th</sup> Frequencies (0.06)

16<sup>th</sup> = Rights of Way and Facilities Sharing (0.20)

16<sup>th</sup> = Mobile Services (0.20)

15<sup>th</sup> Speed of Process (0.26)

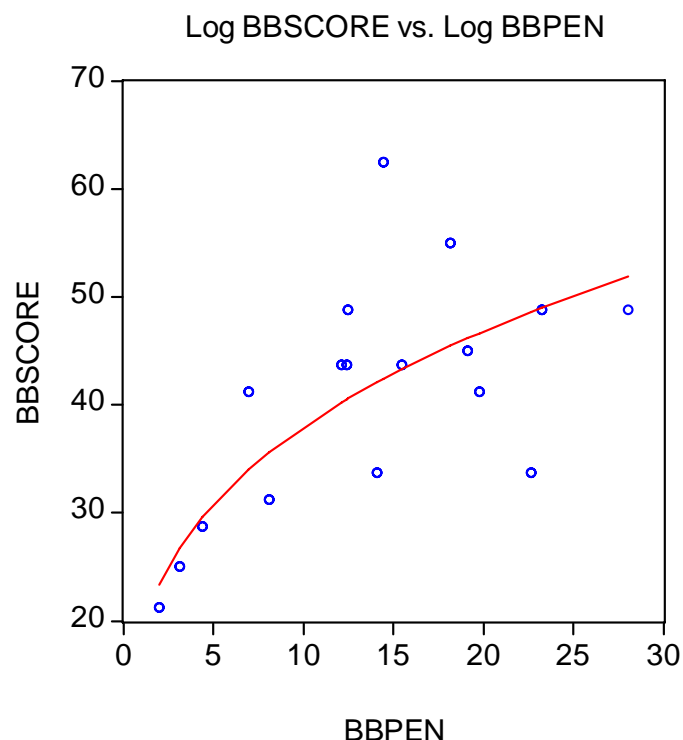
14<sup>th</sup> Transparency and Consultation (0.32)

167. Three of the five subsections having the strongest relationship with the overall result concern the effective regulation and development of competition in fixed markets and, in particular, broadband and business services. Effective regulatory environments, which have fostered competition, have also tended to have implemented the NRF earlier and with few, if any, infringement proceedings.

168. Given the importance of broadband to the overall result and the general high level of interest, we were also keen to explore the relationship, if any, between the

score for the broadband section and the current levels of broadband penetration<sup>4</sup> in the 17 countries covered in this report. The first observation is that this relationship is non-linear, as shown in Figure 5.

**Figure 5: Relationship between Broadband Score and Penetration**



169. From the literature review (see below), and our own analysis, we know that Gross Domestic Product (GDP) per capita is important in understanding the variation in the take up of broadband. Using a double log multi-variate regression, with the score for the broadband section of Scorecard (BBSCORE) and GDP per capita as the explanatory variables, and broadband penetration as the dependent variable, we find a very strong and positive relationship. The equation for the relationship (with the t-stat for in brackets beneath) is:

$$\text{LOG}(\text{BBPEN}) = -8.9 + 1.4 \cdot \text{LOG}(\text{BBSCORE}) + 0.6 \cdot \text{LOG}(\text{GDPCAP})$$

(3.8) (3.3)

170. The high t-stat indicates that the confidence level is in excess of 99%. The equation has an R<sup>2</sup> of 0.75, suggesting that 75% of the variation in broadband penetration can be explained by the equation. We cannot, on the basis of this result, find causation, *i.e.* we are not in a position to say that higher levels of broadband penetration are a result of better regulation and competition. However, we can say that countries with higher levels of broadband penetration are generally also those with better regulation and a more competitive environment as measured by the Scorecard and tend to have a higher GDP per capita.

<sup>4</sup> Using broadband sales figures from the ECTA Broadband Scorecard, Q1 2006.

171. In previous versions of the ECTA Regulatory Scorecard, which were published at intervals of 18-24 months, we have examined the relationship between the effectiveness of regulation and investment in telecommunications. In all three Scorecards, we have found a strong and positive relationship. The investment data used have been provided by the Organisation for Economic Co-operation and Development (OECD), taken from their biannual publication Communications Outlook.

172. This year, we have moved to annual Scorecard assessment; thus, updated investment data are not yet available from the OECD, as the next edition of the Communications Outlook will not be published until mid 2007. There are a number of official alternative sources of investment data: the ITU, Eurostat and World Bank, as well as some National Regulatory Authorities. Whilst the data provided by these organisations are generally more contemporary than Communications Outlook 2005 (which contains investment data for the year 2003), none of these organisations provides a consistent set of data for one year. We have thus been unable to find official recent investment data from any other single source.

173. In view of these circumstances, as a proxy, we have compiled data on investment levels using a number of sources: those cited above, and where recent data has not been available from these official sources, we have supplemented this with data researched by London Economics and PriceWaterhouseCoopers for the European Commission (LE PWC 2006). We have taken the most recently available data, such that investment data are as close to contemporary with the Scorecard as available, and the median investment level is taken where more than one source provided data for the most recent year.

174. Using this composite dataset, we continue to find a strong and positive relationship ( $R = 0.72$ ) between regulatory effectiveness as measured by the Scorecard and investment per capita across our sample of 17 EU Member States. Given that the state of economic development varies across our sample, we have produced a multiple regression model incorporating both the Scorecard results and Gross Domestic Product (GDP) per capita as the explanatory variables. Again, we find a strong relationship (Adjusted  $R^2 = 0.64$ ), with the coefficients for both Scorecard and GDP per capita being significant at 95%.

175. Whilst the results reported above are affirmative of the relationship between investment and regulation, we are not confident that the investment data used in these models are sufficiently consistent to be robust, nor are these taken from the same year. We have therefore decided to postpone a more detailed analysis of the relationship between investment and regulation until the OECD Communications Outlook is next published.

176. However, we have undertaken a literature review of other studies that have examined this relationship. We will report on this literature review in detail when we publish the economic analysis in 2007. A brief summary of some of the key papers is presented below.

## Review of the Literature

177. Several academic and consultancy studies have been undertaken to identify the link, if any, between the effectiveness of a regulatory regime and levels of investment. In July 2006, London Economics and PriceWaterhouseCoopers (LE PWC 2006) produced a report for the European Commission assessing the relationship between the regulatory framework, growth and investment in telecommunications. They find that “better performing regulatory regimes, as measured by the OECD regulatory index, contribute to higher investment levels”.

178. The LE PWC model examined a number of possible determinants of investment, including: country specific characteristics (GDP per capita, population density, land area); market specific characteristics (regulation); and firm specific characteristics.

179. The LE PWC model finds that GDP per capita has a positive impact on investment. With regard to regulation, it was concluded that:

*“... a better performing regulatory regime, as measured by the OECD index, does contribute to higher levels of investment. Use of an alternative regulatory index, the ECTA index, suggests a similar contribution to investment levels. However, the magnitude of this effect may be low compared to some other factors.”*

180. LE PWC finds, in particular, that regulatory uncertainty is an important factor which affects investment decisions. The factors that contribute to regulatory certainty are listed as including:

- Clear legislation
- Timely implementation of legislation
- Comprehensive guidance on the interpretation of legislative requirements
- Harmonisation between Member States
- Clear communications from NRAs
- Adequate appeal processes
- Adequate enforcement powers.

181. LE PWC examined the relationship between specific aspects of regulation, based on measures in the ECTA Regulatory Scorecard 2005, and found that the following had the most significant effect on investment levels:

- “Effectiveness of Sanctions” in disputes and settlements;
- “Availability of Information” in the application of access regulation;
- “Voice interconnection” and “Partial Private Circuits” and leased lines when accessing products; and
- Transposition of the New Regulatory Framework by NRAs”

182. LE PWC point out that these factors are consistent with the factors important to regulatory certainty.

183. Several academic studies have examined the relationship between regulation and outcomes other than investment, such as mainline penetration and efficiency (mainlines per employee). We briefly report on some of these below.

184. Wallsten (2002) finds that countries that established separate regulatory authorities prior to privatization saw increased telecom investment, fixed telephone penetration, and cellular penetration compared to countries that did not. Moreover, Wallsten finds that investors are willing to pay more for telecom firms in countries that established a regulatory authority prior to privatization. This increased willingness to pay is consistent with the hypothesis that investors require a risk premium to invest where regulatory rules for the promotion of competition remain unclear.

185. Gutierrez and Berg (2000) studied the effects of telecommunications regulation and political variables on network expansion in 20 Latin American countries, but the study was limited to a short time sample (1986, 1990, 1995) and to the effects of the overall polity on telecommunications performance. They found that political and institutional variables help explain the level of network expansion. Their index of regulatory framework was found to be positively associated with network deployment, which means that a better, specific regulatory environment leads to a greater investments in telecommunications

186. Gutierrez (2003) finds a statistically significant and positive direct effect of his regulatory index both on teledensity and efficiency. This result occurs both in static and dynamic models and after testing for the endogeneity of regulation. The estimated effect of a 1-point increase in the index on mainlines per 100 inhabitants varies somewhat depending on the precise model specification but is, in general, in the order of 20%.

187. Outside the telecommunications sector, Cubbin and Stern (2005) found that regulatory law and higher quality governance are positively and significantly associated with higher per capita electricity generation capacity levels.

## **References**

Cubbin J and Stern J (2005) Regulatory Effectiveness and the empirical impact of variations in regulatory governance: Electricity Industry Capacity and Efficiency in Developing Countries World Bank Policy Research Working Paper 3535, March 2005

Gutierrez, L. (2003) Regulatory Governance in the Latin American Telecommunications Sector Utilities Policy 11: 225-240

Gutierrez, L. and Berg, S (2000) Telecommunications Liberalisation and Regulatory Governance: Lessons from Latin America Telecommunications Policy 24: 865-884

LE PWC (2006) An Assessment of the Regulatory Framework for Electronic Communications – Growth and Investment in the EU e-Communications Sector July 2006

Wallsten, S., (2002) Does Sequencing Matter? Regulation and privatisation in telecommunications reform World Bank Working Paper No. 2817