



REGULATORY SCORECARD

Report on the relative effectiveness

of the regulatory frameworks for electronic communications in

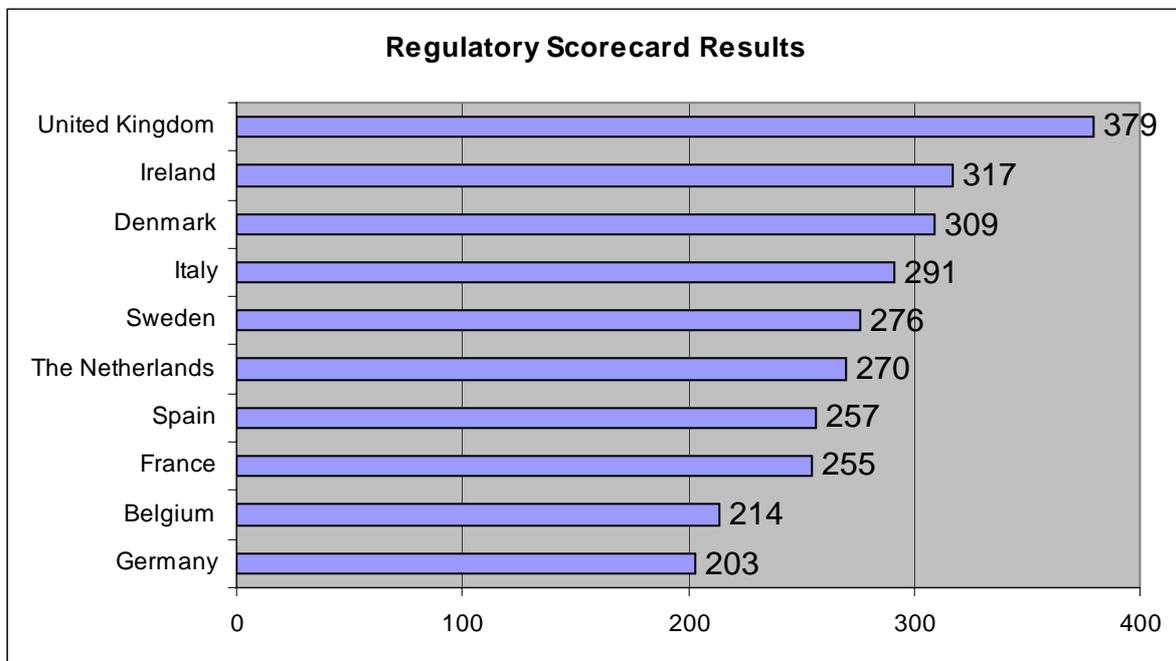
**Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands,
Spain, Sweden and the United Kingdom**



SPC Network

EXECUTIVE SUMMARY

1. This is the second Regulatory Scorecard and the first to be produced since the introduction of the New Regulatory Framework ("NRF") in July 2003. The Framework Directive places various obligations on National Regulatory Authorities ("NRAs"). In particular Article 8 requires NRAs to promote competition amongst electronic communications networks, services and associated facilities by, *inter alia*, ensuring there is no distortion or restriction of competition and by encouraging efficient investment in infrastructure and promoting innovation.
2. By measuring the powers and performance of NRAs and the regulatory regimes overall, the Scorecard seeks to determine how effectively each of ten countries promotes investment and competition as at 31st December 2003.
3. The ten countries covered in the report are: Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and the United Kingdom.
4. The Scorecard allocates a score for each of 66 criteria divided into five Sections: general powers of the NRA, effectiveness of the dispute settlement body, application of access regulations, availability of key access products and implementation of the NRF. The criteria have been selected following a review of a range of inputs including the various Directives making up the NRF, World Trade Organisation (WTO) reference paper on telecommunications, the OECD and inputs from carriers, economic experts and third parties.
5. The overall results of the Scorecard are shown in Figure 1.

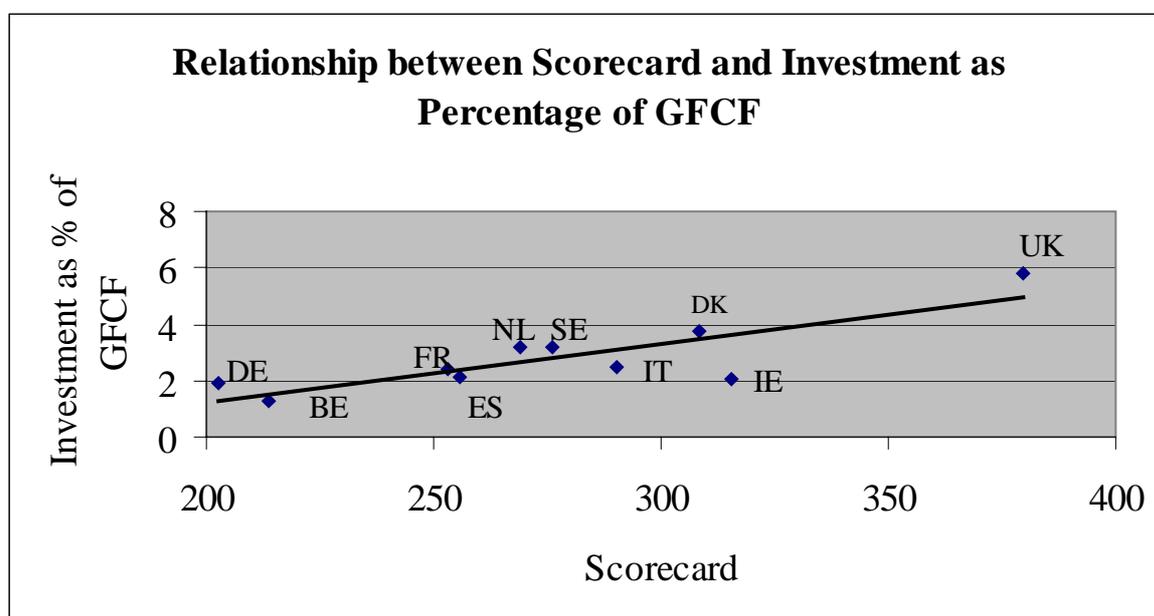


6. All countries have specific strengths and weaknesses. The UK, which is strong overall, is weak for both the speed of process for dispute settlement and local loop unbundling.

Germany, whilst weak overall, is strong on rights of way over public land. In general countries which score well have fully privatised SMP operators whilst those which score less well have active state ownership in the incumbent.

7. We have used the results of the Scorecard to measure the relationship between the effectiveness of the regulatory environment in each of the Member States surveyed and the level of investment in telecommunications in that country, using data provided by the OECD. We have found that there is a very strong relationship between regulatory effectiveness, as measured by the Scorecard, and investment levels across a range of regression models: all with strong statistical significance.

8. The strongest results are for the relationship between the Scorecard results and telecommunications investment as a percentage of gross fixed capital formation, *i.e.*, the importance of telecommunications in relation to other capital asset investment in the economy. Our model suggests that 90% of the variation between countries can be explained by the results of the Scorecard.



9. The key conclusions from the Scorecard are threefold:

- The powers granted to regulators and their implementation vary significantly across the ten Member States covered by this report.
- Whilst some countries have made significant strides forward in improving their regulatory environment, the extent of these improvements has been somewhat patchy.
- There is a strong and statistically significant relationship between the effectiveness of regulation and investment levels.

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I. Introduction

10. 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 to secure certain fundamental objectives. In particular, the report examines whether the regulatory regime in place on 31 December 2003¹: (i) facilitates the establishment of public telecommunications networks and the provision of public telecommunications 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.

11. This report is the second of its type. In November 2002, Jones Day and Beaufort International published the first Regulatory Scorecard Report, which constituted a first attempt to conduct a highly detailed comparative analysis of the telecommunications framework in certain EU Member States. In this second report, both the scope and methodology have been reviewed in light of the experience gained from the first study and the valuable feedback received from regulators and industry as a whole. Furthermore, as the first report was published at the advent of the entry into force of the new EC regulatory framework, it sought to foresee likely changes in the regulatory environment for 2004. The present report will be limited to an assessment of the current situation only. Where relevant, however, likely prospective changes are also mentioned although no scores have been given for such prospective changes.

12. This report covers leading economies in the EU: Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Spain, Sweden, and the United Kingdom. We recognise that this is a wide-ranging report, which will require revision as individual regimes evolve. We would therefore welcome comments from third party operators, NRAs and others that will allow us to enhance and update the report. Future expansion of the report may include additional Member States, as well as a wide range of non-EU countries.

13. We are particularly grateful for the information provided by NRAs, various telecommunications operators, law firms, including in particular Jones Day, and the British Institute of International and Comparative Law ("BIICL"). The Report also draws on the information provided by the European Commission in its 9th Implementation Report, in particular for the tariff comparison of certain interconnection and access services. Although these figures may not correspond to the latest tariffs, and while the methodology used in the 9th Implementation Report may overlook certain complexities in tariff structure (*e.g.*, tariffs for wholesale leased lines and interconnection tariffs for termination services on mobile networks), they are the only consistent publicly available source of information. The assessment is based on selected key criteria, including: the independence and the powers entrusted to the regulator and the dispute settlement body as well as the manner in which they exercise their powers; the availability of access products; the effectiveness of access regulations; and the implementation of the EC telecommunications package.² While there

¹ The report is based on the situation as it existed on 31 December 2003 although, in particular instances, certain subsequent developments have been mentioned as well.

² This includes, in particular: (i) Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and

may be other relevant criteria and which may be covered in future reports, the present criteria, provide strong insights into what is necessary to achieve the EU's objectives for electronic communications markets. For each of these targeted areas, we have determined objective parameters, which are used to evaluate national legislation and authorities.

14. It should be noted that the report also touches upon issues that do not fall within the scope of competence of the regulators, but rather belong to the legislator's tasks or other administrative or judicial bodies (*e.g.*, the national competition authorities or judicial courts). This is, for example, the case in relation to the section on the implementation of the new regulatory framework into national law, which is essentially a task for legislators and national or regional governments. Another example constitutes the various issues raised by the appeals procedure, for example in Germany, where the length of the appeal process has materially undermined the effectiveness of the NRA's actions in certain respects. Therefore, this report should not be viewed as a study that seeks to compare the effectiveness of the regulators only, but rather of the regulatory environment in general.

15. This report first explains the various areas subject to the assessment, the reasons why they were chosen, and their content (Section II). It then describes the methodology used for the assessment (Section III) and applies this methodology in each country reviewed (Section IV). Section IV also presents general conclusions on the in-country assessments and the scoring attributed to the various countries. The scores for each country are based on the replies and comments from local specialists, national regulators, and other parties which are contained in the attached annexes.

16. Section V analyses the relationship between the relative regulatory effectiveness scores and the investment intensity in telecommunications in each of these countries. There is a strong and positive relationship between these two elements, which highlights the importance of efficient regulation in telecommunications markets. Failures clearly impact competitive forces and negatively affect investments in telecommunications.³

17. The following table summarises graphically the outcome of the Scorecard for each of the sections⁴.

(continued...)

services (Framework Directive), OJ L108/33, 24.4.2002; (ii) Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive), OJ L108/7, 24.4.2002; (iii) Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive), OJ L108/21, 24.4.2002; (iv) Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users rights relating to electronic communications networks and services (Universal Service Directive), OJ L108/51, 24.4.2002; (v) Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector, OJ L201/37, 31.07.2002, (vi) Commission Directive 2002/77/EC of 16 September 2002 on competition in the markets for electronic communications networks and services, OJ L249/21, 17.09.2002.

³ See *inter alia* Communications Outlook Reports, <http://www.oecd.org/>.

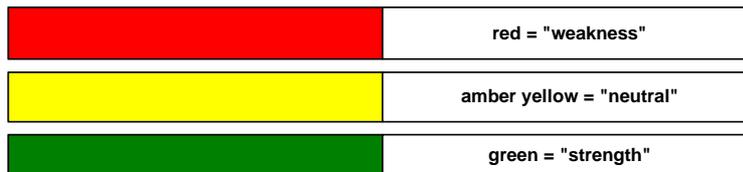
⁴ It should be noted, however, that the proportionate division of the pie charts do not reflect the respective weightings given to the assessed criteria.

Report on the effectiveness of national regulatory frameworks and investment impact

Friday, May 21, 2004



	Regulator: General	Regulator: Dispute Settlement	Access: Regulation	Access: Products	Transposition Of The NRF
Belgium					
Denmark					
France					
Germany					
Ireland					
Italy					
Netherlands					
Spain					
Sweden					
United Kingdom					



II. Areas of assessment

18. The chosen areas of assessment reflect the main principles set out in the 1996 WTO Reference Paper on Telecommunications⁵, 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 two areas of assessment in this survey pertain to the regulator and the dispute settlement body, their modus operandi and effectiveness. The third area deals with the manner in which access rules and regulations are applied. The fourth relates to the availability and quality of access products. The fifth and final criterion is based on the timely and effective implementation of the new regulatory framework without which the availability of many of the critical elements of the regime is in question and certainty of investment is reduced.

A. Effectiveness of the regulator in relation to the exercise of its general powers

19. Many of the regulator's tasks pertain to granting authorisations (*e.g.*, frequency and number authorisations) and enforcing significant market power (SMP) regulations (*e.g.*, *ex ante* approval of standard interconnection offers, compliance with cost accounting rules, etc.). These functions can differ greatly from the role of the dispute settlement body. Therefore, as in the WTO Reference Paper cited above, these two functions are treated separately. The effectiveness of the regulator is, essentially, a function of its: (i) speed of process, (ii) transparency of activities, (iii) effectiveness of sanctions and scale of resources; (iv) effectiveness of the appeal procedure; and (v) degree of independence.

B. Effectiveness of the dispute settlement body

20. Evaluation of the efficiency of the dispute settlement body can be assessed on the basis of criteria similar to those used to assess its general powers, including its: (i) speed in exercising its powers, (ii) respect for due process rules, (iii) effectiveness of sanctions and scale of resources and (iv) effectiveness of appeal procedure.

C. Application of access regulation

21. New entrants/competitive carriers do not have direct physical connections to all or even the majority of end-users. Therefore, to secure customer access (regardless of whether such access is used for call collection or call termination purposes, data services or their equivalents), new entrants/competitive carriers rely on access to the networks of SMP-operators. The application of such access rules can be best assessed by considering the following components: (i) compliance with cost orientation obligations, (ii) compliance with cost accounting regulations, (iii) the scope of information disclosure allowing private

⁵ For a copy of the reference paper, see 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.

enforcement, (iv) the existence or availability of procedures allowing the effective and timely satisfaction of special or ad hoc access requests and interconnection, and (v) the availability of effective rights of way.

D. The existence and availability of key access products

22. Given the importance of access issues, this section will further examine the availability and effectiveness of various access products on SMP-operators' networks available to fixed operators. The products highlighted are widely recognised as playing an important role in ensuring competitive markets. Furthermore, it is generally accepted that such products form part of a continuum of services driving investment in alternative networks, innovation, and ultimately, international competitiveness. For example, 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. The availability of key products from monopoly providers, on mandated terms, is crucial to stimulating investment in competing infrastructures.

These products/services include: (i) fixed voice interconnection, (ii) partial private circuits (also known as half links, data tails or wholesale leased lines) and leased lines, (iii) fixed to mobile interconnection services, (iv) local loop unbundling, and (v) wholesale DSL services. The scoring also recognises any barriers to their effective provision.

23. The authors realise that there are various issues that have not been included in this section, which were brought to their attention by a number of respondents in the course of their inquiry and which significantly contribute to ensuring the development of a competitive market. These issues include, for instance, the possibility for introducing MVNO's, the existence of service level agreements for unbundled local loop and bitstream, rules for migration from leased lines to half links and from an ADSL resale offer to a bitstream offer, and the existence of an elaborated bitstream offer (such as, for example the BROBA II bitstream offer in Belgium, which allows new entrants to use the ATM backbone network). Although these issues could not be included in the present Report, it is the author's intention to include them in a future report.

E. Implementation of the new regulatory framework

24. In its 9th Implementation Report, the Commission stressed the importance of a "*full, effective and timely transition*" to the new regulatory framework, which is expected to support the further development of a competitive market. In addition, the new regulatory framework provides for increased powers for NRAs and reduced regulatory barriers to entry by abolishing the licensing regime. Late implementation of the new regulatory framework will also be detrimental to the effectiveness of regulation, as this increases legal uncertainty. The report has used two criteria to assess the "*full, effective and timely implementation*" of the new regulatory framework. These are (i) the timely transposition of the EC Directives, and the (ii) the completion of the market analysis on the basis of which the NRAs can regulate SMP operators.

III. Methodology

25. This section explains the methodology used for assessing each of the areas described in Section II. Each of the five sections is scored as follows:

Regulator General Functions	110
Regulator Dispute Settlement	95
Application of Access Regulations	90
Key Access Products	100
Implementation of the new regulatory framework	50

26. The slight divergences of scoring attributed to the four first sections essentially reflect the fact that the weighting that should be given to the effectiveness of the NRA acting in its general functions constitutes an essential requirement that underpins all other (substantive issues). The implementation of the new regulatory framework has also been given a lower score to avoid giving a disproportionate weight to one single criterion as the report seeks to have a maximum degree of granularity in assessing the issues it covers.

A. Regulator - General functions

27. The respective weight given to each criterion under this section is as follows: speed of process (20), transparency (25), effectiveness of sanctions and scale of resources (20), effectiveness of appeal procedure (20), and independence (25).

1. Speed of process

28. One of the best ways of assessing efficiency is to evaluate the speed at which the regulator delivers necessary authorisations, such as the average timeframe for obtaining reservation of numbers. The process for reviewing and approving standard interconnection offers ("RIOs"), as well as the average time for negotiation of new services by new entrants with the incumbent operator, are also good indications of a regulator's efficiency and/or its resources. The standard timeframe within which the NRA examines the reference interconnection offer should, however, also take into account the scope of the services covered by a reference offer. The speed of process and the existence and respect of transparent, defined timeframes are both critical to encouraging investment and competitive market entry.

Criteria	Weight	Comments
Average timeframe for obtaining reservation of numbers	0 to 5	+5 for best country; Intermediate score based on performance relative to best and worst countries; 0 for worst country.
Average timeframe for reviewing standard interconnection offers, assessed over the past three years ⁶	0 to 5	+5 for best country; Intermediate score based on performance relative to best and worst countries; 0 for three worst country.
Average timeframe for negotiation of new interconnection services by new entrants	0 to 10	+10 for best country; Intermediate score based on performance relative to best and worst countries; 0 for three worst country.

2. Transparency

29. The transparency of a regulatory regime is contingent on the regulator's obligation to: (i) make public consultations prior to deciding on issues of general interest, (ii) ensure that the parties concerned in the decision are aware of the NRA's concerns before a final decision is taken, (iii) effectively explain the details underlying its decisions, and (iv) publish them upon their adoption. Furthermore, the existence and publication of a "management plan" (*i.e.*, a forward-looking plan setting out regulatory priorities on, for example, an annual basis) also ensures higher transparency of regulatory activities. These factors all benefit investment, which requires clear and transparent rules and outcomes.

Criteria	Weight	Comments
Recourse to public consultation	0 to 5	+5 if general obligation to use public consultation; Intermediate score if occasional recourse to public consultations on <i>ad hoc</i> basis; 0 if no practice of recourse to public consultations and no legal requirement for same.
Transparency of decision-making process leading to adoption of decision	0 to 5	+5 if fully transparent process; 0 if absence of transparency safeguards in decision-making process.
Explanation of details underlying decisions and effectiveness of appeal in event of failure to provide detailed explanation	0 to 5	Scoring dependent on the scope of the obligation to issue reasoned decisions and the quality of the arguments developed and disclosed.
General obligation to publish all decisions	0 to 5	+5 if obligation exists as a matter of general administrative law or legislative requirement; Intermediate score if self-imposed obligation which is generally complied with; 0 if no such obligation exists.
Existence of management plan adopted on an annual basis	0 to 5	+5 if there is a public management plan; Intermediate score if some statement of objectives in "after the event" annual report; 0 if no public management plan.

⁶ We have also taken into account, for the purpose of our assessment, the comprehensiveness of the respective RIOs reviewed.

3. Effectiveness of sanctions and scale of resources

30. The effectiveness of a regulator is essentially a function of: the powers entrusted to it (in particular, the possibility of imposing fines), its ability to recruit a sufficient number of competent personnel and its access to outside expertise, where needed. It should be noted, however, that the number of personnel cannot be used as an absolute reference. Indeed, some NRA functions are purely technical or not within the ambit of economic telecommunications regulations (*e.g.*, spectrum management). Therefore, personnel in these areas should not be taken into account for the purpose of assessing the headcount of the NRA's workforce effectively available to fulfil regulatory functions. Consideration is also given to relative workloads and any delays due to lack of resources.

Criteria	Weight	Comments
Effectiveness of sanction powers	0 to 5	+5 if possibility of imposing effective sanctions ⁷ ; 0 if no possibility of imposing sanctions.
Powers of regulator defined by law	0 to 2.5	+2.5 if powers are clearly described; 0 if not clearly described.
Total number of employees used for general regulatory issues (excluding frequency and numbering management) and availability of competition economists	0 or 5	Scores have been given on a scale of 0 to 5 depending on the number of staff that can effectively be used for market regulation purposes (excluding technical aspects such as numbering and frequency management). This grade scale is broken down into an objective parameter (up to 3 points), depending on the total number of employees (a maximum grade of 3 points is awarded to countries with more than 30 staff members), and a subjective parameter (up to two points) factoring in an assessment as to whether the NRA has sufficient resources adequately to perform its role. Scoring also takes into account the percentage of those employees who are specialised competition economists
Existence of procedures for selecting employees	0 to 2.5	+2.5 if control over selection criteria by NRA; 0 if no control over selection criteria by NRA.
Salaries and benefits able to attract and retain key staff – in particular, pay and benefits commensurate with external market	0 to 2.5	+2.5 if able to attract and retain key staff; 0 if unable to do so.
Access to outside expertise	0 to 2.5	+2.5 if access and sufficient resources for outside expertise; Intermediate score if some restrictions on use of outside expertise; 0 if no access.

4. Effectiveness of appeal procedure

31. 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, decisions of NRAs. 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 constitute a

⁷ Including, *inter alia*, effective fines or interim measures (*e.g.*, the ability to suspend commercial launch of services) in case of failure to comply with regulatory obligations.

potential hurdle for new entrants to ensuring that incumbents effectively comply with the decisions of the regulator. In addition, the timeframe for obtaining a decision on appeal is critical, as it reduces the period of legal uncertainty. The methodology for assessing the effectiveness of the appeal procedure is the following:

Criteria	Weight	Comments
Automatic suspensive effect of appeal	0 to 5	+5 if no automatic suspensive effect; 0 if automatic suspension.
Standard for suspension and application in practice	0 to 5	+5 if strict standard; 0 if lax standard.
Percentage of decisions appealed	0 to 5	Scores have been given on a scale of 0 to 5, depending on the percentage of decisions being appealed.
Timeframe for an appeal procedure	0 to 5	Scores have been given on a scale of 0 to 5, depending on the timeframe for an appeal.

5. Independence

32. The independence of the regulator can be assessed, *inter alia*, on the basis of: the potential and actual extent of political intervention, the duration of office of NRA management, grounds for removal, and eligibility requirements for appointments. The clarity of objectives given to the NRA may also have some influence on the NRA's independence and its relative effectiveness. The grading scale applied reflects the respective importance of these criteria.

33. 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 telecommunications environment is still characterised by existing or former government-owned dominant enterprises. In many of these countries, liberalisation has only been in place for approximately 4-5 years. Nonetheless, it is undeniably difficult objectively to quantify the influence on NRAs created by factors such as government ownership of the incumbent telecommunications operator. Other criteria, such as the duration of appointments, also affect regulatory independence, although to a substantially lesser degree than the preceding criterion. The following weighting is therefore applied.

Criteria	Weight	Comments
Absence of intervention from political authority other than through removal	0 to 5	+5 if no likelihood of interference; 0 if likelihood of interference or evidence of same.
Duration of office of NRA management	0 to 3	A duration of 5 years is taken as a reference: +3 if duration exceeds or is equal to 5 years; Reducing score for shorter term.
Grounds for removal of NRA management	0 to 4	+4 if for fraud or serious fault or equivalent; 0 if for general interest reasons.
Eligibility requirements for NRA management	0 to 4	+4 if conditions maximising quality, specialisation and independence ⁸ ; 0 if no conditions foreseen.
Objectives given to and/or	0 to 4	+4 if clear objectives given and published by NRA;

⁸ This criteria also takes into account whether qualitative regulations are appointed in practice.

published by NRA in terms of long term action		0 if conflicting or no objectives given and published by NRA.
State ownership/control	0 to 5	+5 if private ownership; Intermediate score if State ownership without control ⁹ ; 0 if State ownership and control. ¹⁰

B. Dispute settlement body

34. The respective weight given to each criterion in this section is as follows: speed of process (25), due process (30), effectiveness of sanctions and amount of resources (20), and effectiveness of appeal procedure (20). NRAs differ greatly in their ability to impose effective sanctions to ensure the enforcement of their decisions. The ability to mandate and enforce its decisions, as well as the use of sanctions, is ultimately the key criterion for measuring the effectiveness of the regulator acting in the capacity of dispute settlement body.

1. Speed of process

35. The main criterion for assessing the speed of process is the average timeframe for obtaining a decision. The possibility to impose interim measures is also pertinent.

Criteria	Weight	Comments
Average timeframe for obtaining a decision	0 to 15	Determined average timeframe for obtaining a decision over the past two years: +15 for best country; Intermediate score based on performance relative to best and worst countries; 0 for worst country.
Possibility to impose effective interim measures	0 or 10	+10 if possible; 0 if not possible.

2. Due process

36. The main criteria for assessing due process and procedures are the extent to which parties are given the right to be heard and the possibility to appeal decisions.

Criteria	Weight	Comments
Right to respond / access to documents	0 to 10	+10 if general obligation to communicate documents to other parties; 0 if no general obligation to communicate documents to other parties.
Availability and effectiveness of appeal procedures	0 to 20	+20 if decisions can be appealed on the merits before a specialised body and with competence to review the substance of the decisions; Intermediate score if judicial review but no appeal; 0 if no appeal/judicial review.

⁹ "Control" is defined in accordance with Article 3 of the Council Regulation (EC) N° 139/2004 of 20 January 2004 on the control of concentrations between undertakings.

¹⁰ *i.e.*, a controlling interest held by the State.

3. Effectiveness of sanctions and scale of resources

37. The main criteria for assessing effectiveness under this heading are: the ability of NRAs to impose appropriate sanctions (e.g., fines, suspensory powers, or periodic penalty payments) and to enforce their own decisions.

Criteria	Weight	Comments
Effectiveness of sanction powers	0 or 10	+10 if right to impose fines or periodic penalty payments or to suspend particular conduct, and the effective use of these powers; Intermediate score if sanctions considered to be weak; 0 if no right to impose fines or periodic penalty payments, no suspensory powers, or no effective use of these powers.
Power to enforce decisions	0 or 10	+10 if power to enforce decisions; Intermediate score if formal power enforcement required by another body; 0 if no power to enforce decisions.

4. Effectiveness of appeal procedure

38. The effectiveness of the dispute settlement procedure also depends on the effectiveness of the appeal process. This is assessed on the basis of the same type of criteria as those applied in relation to the NRA.

Criteria	Weight	Comments
Automatic suspensive effect of appeal	0 to 5	+5 if automatic suspensive effect; 0 if no automatic suspension.
Standard for suspension and application in practice	0 to 5	+5 if strict standard; 0 if lax standard.
Percentage of decisions appealed	0 to 5	Scores have been given on a scale of 0 to 5, depending on the percentage of decisions being appealed.
Timeframe for an appeal procedure	0 to 5	Scores have been given on a scale of 0 to 5, depending on the timeframe for an appeal.

C. Application of access regulation

39. The various criteria in this category are weighted as follows: cost orientation (30), cost accounting separation (15), availability of information (20), availability of procedures for the satisfaction of specific interconnection requests (15), and the availability of free rights of way (10).

1. Cost orientation

40. The main criteria for assessing the effectiveness of cost orientation are the existence of cost models and the type of cost accounting methodology used. In particular, it is generally recognised that the forward looking long run incremental costs ("LRIC") methodology is

most appropriate for encouraging rapid development of an open and competitive market¹¹. Additionally, the regulator's ability to monitor retail tariffs is an important criterion.

41. The methodology for evaluating cost orientation is the following:

Criteria	Weight	Comments
Existence of detailed cost model for SMP operators	0 to 10	+10 if detailed cost orientation model exists and is fully published; Intermediate score if detailed cost orientation model exists but publication is limited to key parameters; 0 if no detailed cost orientation model exists.
Cost accounting methodology used	0 to 10	+10 if LRIC-based; Intermediate score for partial application of LRIC cost accounting methodology; 0 in all other instances.
Power of regulator to seek cost orientation of retail tariffs for SMP operators	0 or 10	10 if power to seek cost orientation of retail tariffs; 0 if not.

2. Cost accounting separation

42. Most national legislation contains some sort of cost accounting separation obligation. However, in many countries, such legislation is unclear and in a few cases is non-existent. Alternately, the mechanisms used are not transparent, preventing third parties from taking effective action to secure the regulatory commitments made by the SMP-operator or from identifying anti-competitive activities. Generally, the majority of Member States have done very little to actually enforce cost accounting obligations¹². This is due, to a large extent, to the fact that the applicable EC legislation is substantially lacking in detail. Unfortunately, this is also the case in the new regulatory framework. Notwithstanding this ambiguity, the EC has been forced to take enforcement actions against a number of Member States in response to the absence of any real rules in this crucial area¹³. The lack of an effective regime has, in particular, hindered proper cost oriented pricing and impeded effective third-party enforcement of the rules (non-discrimination rules in particular). It is very hard to determine, without the relevant information, if the rules are being broken. In many jurisdictions, even the main parameters used by the NRAs are unknown.

43. The assessment of cost accounting obligations is undertaken on the basis of the following criterion:

Criteria	Weight	Comments
Effective enforcement of cost accounting separation obligations by regulator	0 to 15	Score based on effectiveness of enforcement of the cost accounting rules and extent to which pricing is subject to such obligations. See verification notes for further information.

¹¹ See Commission Recommendation 98/322/EC of 8 April 1998 on interconnection in a liberalised telecommunications market OJ L141/6, 13.05.98.

¹² See the Andersen Business Consulting Study prepared for DG InfoSoc, "Study on the implementation of cost accounting methodologies and accounting separation by telecommunications operators with significant market power" (July 2002).

¹³ e.g., the Commission has successfully brought a case against Belgium before the ECJ - See case C-221/01, 19 September 2002, OJ C274/14, 9.11.2002.

3. Availability of information

44. The availability of information on operator compliance with cost orientation and accounting separation obligations is probably the most essential factor in ensuring the effective application of such obligations. Indeed, information allows competitors to verify compliance and facilitates the application of rules prohibiting cross-subsidisation and undue discrimination. It is therefore essential that all third parties be informed of the parameters used for assessing cost models. These include, for instance: the number of subscribers, the weighted average cost of capital ("WACC"), and the key for cost allocation between the network's various parts. Also important is the availability of separate published accounts drawn in accordance with cost accounting separation obligations.

45. The criteria for assessing the effective disclosure of information on cost orientation and cost accounting separation are given the following weightings:

Criteria	Weight	Comments
Effective disclosure of parameters used for assessing cost accounting (e.g., number of subscribers, key for cost allocation between network components, WACC)	0 to 10	+10 if assumptions communicated allow third parties to understand cost model; Intermediate score if limited disclosure of parameters; 0 if third parties unable to use information communicated for purpose of assessing compliance with applicable regulations.
Publication of accounts in accordance with cost accounting separation obligations	0 or 10	+10 if information published; 0 if not published.

4. Procedures satisfying access requests and interconnection in an effective and timely fashion

46. This criterion is verified on the basis of the existence of a defined timeline for negotiating interconnection agreements. An additional factor is based on whether interconnection agreements with the incumbent, or with other SMP operators, provide an effective procedure for negotiating new access services in a timely fashion.

Criteria	Weight	Comments
Defined timeline for negotiation of interconnection	0 to 5	Score is a function of the existence and extent of a defined timeline for negotiation of interconnection.
Existence of effective procedure for negotiation of new access services in a timely fashion	0 to 10	+10 if such procedure exists; 0 if no such procedure exists.

5. Rights of way

47. New entrant operators benefit from entitlements to rights of way (in particular, to free rights of way over public land), as this reduces costs for the roll-out of this network.

Criteria	Weight	Comments
Free rights of way	0 to 10	+10 if free rights of way guaranteed by law ; 0 if no free rights of way or significant uncertainty.

D. Key access products

48. The respective weight given to criteria for key access products is: voice interconnection (20), partial private circuits and leased lines (20), fixed to mobile interconnection services (20), local loop unbundling (20), and access to wholesale DSL services (20). The ability to obtain *ad hoc* access services is an additional important feature that is also taken into account.

1. Voice interconnection

49. Among the access services, NRAs are probably most familiar with voice interconnection. Leaving aside the specificity of each standard interconnection offer, which may vary from country to country (*e.g.*, in relation to forecasts, implementation timeframes, etc.), the key differentiating factors are: (i) the existence of a detailed cost orientation model, (ii) tariffs, and (iii) the power for the NRA to apply a price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power.

Criteria	Weight	Comments
Comparison of level of interconnection tariffs for single transit call termination	0 to 10	Grades applied on the basis of the level of tariffs (on a scale of 0 to 10, 10 being awarded to the lowest and 0 to the highest tariffs). Intermediate grades have been given depending on the level of the tariff in comparison with the lowest and highest tariffs.
Existence of a detailed cost orientation model	0 to 5	+5 if detailed cost orientation model exists and publication of key parameters; Intermediate score depending on level of details of cost orientation model and publication of key parameters; 0 if no detailed cost orientation model.
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	0 to 5	+5 if availability and effectiveness of margin squeeze test and of power to review discriminatory access; 0 if none of the above.

2. Leased lines and partial private circuit (data tails / wholesale leased lines) offers

50. Wholesale partial private circuit ("ppc") offers from the SMP-operator are still not available in all countries, despite the mandate under the EC regulatory framework. Also, even where such offers do exist, restrictions on their use render them impractical and/or discriminatory. It is therefore an important distinguishing factor between different countries. Leased lines and partial private circuits are key factors for connecting predominantly commercial customers to new entrants' networks. Where publicly available, tariffs for such products have also been taken into account. Other elements, such as the existence and effectiveness of a price squeeze test and of the power to review discriminatory access to wholesale services, are also relevant.

Criteria	Weight	Comments
Existence of effective wholesale partial private circuits ("ppcs") offers taking into account flexibility in bandwidth availability	0 to 4	+4 if ppcs available 0 if not.

Comparison of tariffs for wholesale leased line offers for 2 Mbits/s on average distance of 2 km	0 to 4	Grades applied on the basis of the level of tariffs (on a scale of 0 to 4, 4 being awarded to the lowest and 0 to the highest tariff). Intermediate grades have been given depending on the level of the tariff in comparison with the lowest and highest tariffs.
Existence of a cost model	0 to 4	+4 if detailed cost orientation model exists and publication of key parameters; Intermediate score depending on level of details of cost orientation model and publication of key parameters; 0 if no detailed cost orientation.
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	0 to 4	+4 if availability and effectiveness of margin squeeze test and of power to review discriminatory access; 0 if none of the above.
Effective measures to prevent discrimination in provisioning leased lines	0 to 4	+4 if effective measures to prevent discrimination; 0 if not.

3. Fixed to mobile

51. Interconnection charges for termination on mobile networks are an increasingly important cost component for all players, and particularly new entrants or fixed operators. In addition, as mobile telephony services are gradually becoming effective substitutes for fixed telephony service, fixed and mobile operators are increasingly competing with each other. This issue typically does not constitute a problem for incumbent operators, most of which also have a mobile business which, in most instances, has the highest market share¹⁴. The key factors for new fixed operators are: (i) the existence of a cost detailed model, (ii) tariffs and, (iii) the power to conduct a price squeeze test effectively and to review discriminatory access.

Criteria	Weight	Comments
Existence of detailed cost orientation model	0 to 5	+5 if detailed cost orientation model exists and publication of key parameters; Intermediate score depending on level of details of cost orientation model and publication of key parameters; 0 if no detailed cost orientation model.
Comparison of termination tariff	0 to 10	Grades applied on the basis of the level of tariffs (on a scale of 0 to 10, 10 being awarded to the lowest and 0 to the highest tariff). Intermediate grades have been given depending on the level of the tariff in comparison with the lowest and highest tariffs.
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	0 to 5	+5 if availability and effectiveness of margin squeeze test and of power to review discriminatory access; 0 if none of the above.

4. Local loop unbundling

52. The effectiveness of local loop unbundling ("LLU") as an access product can be measured on the basis of the number of unbundled lines, as compared with the total number of lines.

¹⁴ Ireland and the UK are exceptions to this rule.

The cost oriented character of LLU services is also of importance for market entry. Other criteria for assessment could have included the mean time for connecting new local exchanges and limitations on the technology which can be connected to the copper pairs. However, these issues were critical when local loop unbundling was first implemented, but NRAs in a number of countries have already largely addressed these "operational issues". Therefore, they would not properly reflect the core differences in implementation of national legislation.

53. The key criteria for evaluating the effectiveness of a local loop unbundling offer that have been included are therefore: (i) the existence of a detailed cost model, (ii) tariffs, (iii) the number of unbundled lines in comparison with total lines, and (iv) the power to apply a price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power.

Criteria	Weight	Comments
Existence of detailed cost orientation model	0 to 5	+5 if detailed cost orientation model exists and publication of key parameters; Intermediate score depending on level of details of cost orientation model and publication of key parameters; 0 if no detailed cost orientation model.
Comparison LLU tariffs	0 to 5	Grades applied on the basis of the level of tariffs: (on a scale of 0 to 5, 5 being awarded to the lowest and 0 to the highest tariff). Intermediate grades have been given depending on the level of the tariff in comparison with the lowest and highest tariffs.
Number of unbundled lines as a percentage of total lines	0 to 5	Score proportionate to number of unbundled lines (see above).
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	0 to 5	+5 if availability and effectiveness of margin squeeze test and of power to review discriminatory access; 0 if none of the above.

5. Wholesale DSL products

54. Digital Subscriber Lines (DSL) is an access technology which allows various speeds of access across existing copper infrastructure. It is most common in its aDSL form, which is generally best-suited to consumer or SME use. Other forms of DSL, such as sDSL or hDSL are more suited to commercial requirements. The means of scoring, however, does not require a breakdown by type. The scoring mechanism seeks to ascertain the extent to which a wholesale equivalent to an incumbent internal or retail offer is available on the market and the ability of third parties to use such a wholesale offering. Future versions of this report are expected to take into account the extent of the roll out of the different technologies among the countries assessed.

Criteria	Weight	Comments
Existence of detailed cost orientation model	0 to 5	+5 if detailed cost orientation model exists and publication of key parameters; Intermediate score depending on level of details of cost orientation model and publication of key parameters; 0 if no detailed cost orientation model.
Is wholesale offer launched to	0 to 2.5	+2.5 if wholesale offer is published to enable launch

enable launch at same time as incumbent retail offer		at same time as incumbent retail offer; 0 if no publication.
Demonstrably equivalent terms to incumbent retail arm	0 to 2.5	+2.5 only if product offerings are demonstrably equivalent for incumbent and new entrant operations; 0 if no equivalent terms.
No restrictive volume order requirements per site	0 to 2.5	+2.5 if no volume order requirement per site; 0 if such requirement
Access option at nearest ATM node <i>i.e.</i> , no compulsory ATM backhaul	0 to 2.5	+2.5 if access option at the nearest ATM node; 0 if no such access.
Application of price squeeze test and review of discriminatory access to wholesale services	0 to 5	+5 if application of margin squeeze test and review of discriminatory access; 0 if no such application exists.

E. Implementation of the new regulatory framework

This section examines (i) the timely transposition of the new regulatory framework, and (ii) the completion of the market analysis by the regulators.

1. Transposition of the new regulatory framework

55. The new regulatory framework was to be transposed by all Member States on 25 July 2003. However, only a limited number of Member States met the deadline. Such late implementation is a source of legal uncertainty and thereby disturbs an effective application of the regulatory framework.

Criteria	Weight	Comments
Timely transposition of the EC Directives of the new regulatory framework	0 to 25	+25 if transposition has occurred by 25 July 2003; 0 if no transposition on 31 December 2003.

2. Implementation of the market analysis

56. The new regulatory framework also provides that Member States should conduct a market analysis to identify the markets that can be subject to *ex ante* regulation and the operators that should be subject to remedies. Here as well, however, it appears that there are significant delays in the process, which prevents the effective application of the new regulatory framework and also increases uncertainty.

Criteria	Weight	Comments
Completion of market analysis	0 to 25	Scores have been given on a scale of 0 to 25, depending on the number of draft measures notified under Article 7 of the Framework Directive.

IV. In-country analysis

A. Regulator - General functions

1. Speed of process											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Average timeframe for obtaining reservation of numbers	5	5	1	4	5	4	2	1	0	1	2
Average timeframe for reviewing standard interconnection offers, assessed over the past three years	5	2	2	0	4	5	0	2	4	4	2
Average timeframe for negotiation of new interconnection services by new entrants	10	4	0	4	6	0	8	6	6	0	10
TOTAL COUNTRY	20	11	3	8	15	9	10	9	10	5	14

A. Regulator - General functions

2. Transparency											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Recourse to public consultation	5	2.5	5	2.5	2.5	5	5	2.5	2.5	2.5	5
Transparency of decision-making process leading to the adoption of the decision	5	2.5	0	0	0	2.5	5	0	5	0	5
Explanation of details underlying decisions and effectiveness of appeal in event of failure to provide detailed explanation	5	5	5	5	5	5	5	5	5	4	5
General obligation to publish all decisions	5	2.5	5	5	5	5	5	5	5	5	5
Existence of management plan	5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5	0	5
TOTAL COUNTRY	25	15	17.5	15	12.5	20	22.5	15	20	11.5	25

A. Regulator - General functions

3. Effectiveness of sanctions and scale of resources											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Effectiveness of sanction powers	5	5	5	5	0	2.5	2.5	2.5	5	5	5
Powers of regulator defined by law	2.5	1	2.5	2.5	2.5	2.5	2.5	1	2.5	2.5	2.5
Total number of employees used for general regulatory issues (excluding frequency and numbering management)	5	3	3	5	5	3	5	3	5	5	5
Existence of procedures for selecting employees	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Salaries and benefits able to attract key staff	2.5	1	0	1	1	2.5	2.5	2.5	2.5	2.5	2.5
Access to outside expertise	2.5	1	1	2.5	2.5	2.5	2.5	2.5	2.5	1	2.5
TOTAL COUNTRY	20	13.5	14	18.5	13.5	15.5	17.5	14	20	18.5	20

A. Regulator - General functions

4. Effectiveness of appeal procedure											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Automatic suspensive effect of appeal	5	5	5	5	5	5	5	5	5	5	5
Standard for suspension and application in practice	5	5	5	5	2.5	5	5	5	5	5	5
Percentage of decisions appealed	5	2	3	5	0	5	0	1	0	0	5
Timeframe for an appeal procedure	5	3	3	4	0	5	2	3	2	4	4
TOTAL COUNTRY	20	15	16	19	7.5	20	12	14	12	14	19

A. Regulator - General functions

5. Independence											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Absence of intervention from political authority other than through removal	5	5	5	2.5	2.5	2.5	5	5	2.5	5	5
Duration of office of NRA management	3	3	3	3	3	1	3	1	3	2	1
Grounds for removal of NRA management	4	0	4	4	4	4	4	4	4	4	4
Eligibility requirements for NRA management	4	4	4	4	3	4	4	4	4	4	4
Objectives given to NRA	4	2	4	4	4	4	4	4	4	4	4
Absence of state ownership/control	5	0	5	0	2	5	4	4	4	0	5
TOTAL COUNTRY	25	14	25	17.5	18.5	20.5	24	22	21.5	19	23

B. Regulator - Dispute settlement

1. Speed of process											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Average timeframe for obtaining a decision	15	4	4	4	10	2	12	2	15	15	0
Possibility to impose effective interim measures	10	0	10	5	5	5	10	10	10	0	5
TOTAL COUNTRY	25	4	14	9	15	7	22	12	25	15	5

2 Due process											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Right to respond/access to documents	10	10	10	10	10	10	10	10	10	10	10
Availability of appeal procedures	20	10	20	20	20	20	20	20	20	20	20
TOTAL COUNTRY	30	20	30	30	30	30	30	30	30	30	30

3 Effectiveness of sanctions											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Effectiveness of sanction powers	10	5	10	10	5	10	10	5	5	10	10
Power to enforce decision	10	5	5	10	5	5	5	10	5	10	5
TOTAL COUNTRY	20	10	15	20	10	15	15	15	10	20	15

B. Regulator - Dispute settlement

4. Effectiveness of appeal procedure											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Automatic suspensive effect of appeal	5	5	5	5	5	5	5	5	5	5	5
Standard for suspension and application in practice	5	5	5	5	0	5	5	5	5	5	5
Percentage of decisions appealed	5	5	3	4	2	4	0	1	0	3	5
Timeframe for an appeal procedure	5	3	3	5	1	5	2	3	2	4	4
TOTAL COUNTRY	20	18	16	19	8	19	12	14	12	17	19

C. Application of access regulation

1. Cost orientation											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Existence of detailed cost model for SMP operators	10	5	10	10	5	10	5	10	5	10	10
Specified cost accounting methodology	10	5	10	10	10	10	5	10	5	5	10
Power of regulator to seek cost orientation of retail tariffs for SMP operators	10	10	10	0	5	10	10	10	0	10	10
TOTAL COUNTRY	30	20	30	20	20	30	20	30	10	25	30

C. Application of access regulation

2. Cost accounting separation											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Effective enforcement of cost accounting obligations by regulator	15	5	15	5	5	15	5	5	10	10	15

3. Availability of information											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Effective disclosure of parameters used for assessing cost accounting (e.g. number of subscribers, key for cost allocation between network components, WACC)	10	5	10	0	0	10	5	7.5	10	10	10
Publication of accounts in accordance with cost accounting separation obligations	10	0	10	0	0	10	5	0	0	5	10
TOTAL COUNTRY	20	5	20	0	0	20	10	7.5	10	15	20

C. Application of access regulation

4. Procedures satisfying access requests and interconnection in an effective and timely fashion											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Defined timeline for negotiation of interconnection	5	2.5	0	0	5	5	2.5	2.5	2.5	0	5
Existence of effective procedure for negotiation of new access services in a timely fashion	10	10	0	5	0	5	0	0	10	5	10
TOTAL COUNTRY	15	12.5	0	5	5	10	2.5	2.5	12.5	5	15
5. Rights of way											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Free rights of way over public land	10	5	5	5	10	0	0	10	5	0	10

D. Key access products

1. Voice interconnection											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Comparison of level of interconnection tariffs for single transit call termination	10	0	10	3	1	5	5	5	2	5	10
Existence of a detailed cost orientation model	5	2.5	5	5	2.5	5	5	5	5	5	5
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	5	2.5	0	2.5	2.5	2.5	5	5	2.5	0	5
TOTAL COUNTRY	20	5	15	10.5	6	12.5	15	15	9.5	10	20

D. Key access products

2 Partial private circuits offers and leased lines											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Existence of effective wholesale partial private circuit (ppc) offers	4	4	2	4	0	4	4	4	4	0	4
Comparison of tariffs for wholesale leased lines offers for 2 Mbits/s on average distance of 2 km	4	2	4	2	4	3	0	0	0	4	3
Existence of cost model	4	2	4	4	0	4	4	4	0	4	4
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	4	2	0	2	0	2	4	2	4	0	4
Effective measures to prevent discrimination in provisioning	4	2	4	2	0	4	4	0	0	4	4
TOTAL COUNTRY	20	12	14	14	4	17	16	10	8	12	19

D. Key access products

3. Fixed to mobile											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Existence of detailed cost orientation model	5	2.5	2.5	5	0	0	2.5	0	5	0	5
Comparison of termination tariff	10	3	6	6	7	9	4	10	3	6	0
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	5	0	0	2.5	0	0	5	0	0	0	5
TOTAL COUNTRY	20	5.5	8.5	13.5	7	9	11.5	10	8	6	10

D. Key access products

4. Local loop unbundling (ULL)											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Existence of detailed cost orientation model	5	0	5	5	5	2.5	5	5	5	5	5
Comparison ULL tariffs	5	3.3	4.7	3.1	3.3	0.0	5.0	4.5	4.1	0.5	0.4
Number of unbundled lines as a percentage of total lines	5	0.1	3.7	0.0	5.0	0.0	3.6	4.8	0.6	0.2	0.0
Power to apply price squeeze test and review discriminatory access to wholesale services and the way in which the regulator has effectively applied this power	5	5	0	2.5	0	2.5	5	5	5	0	5
TOTAL COUNTRY	20	8.4	13.4	10.6	13.3	5.0	18.6	19.3	14.7	5.7	10.4

D. Key access products

5. Wholesale DSL products											
Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Existence of detailed cost orientation model	5	2.5	5	5	0	0	0	0	0	5	0
Is wholesale offer launched to enable launch at same time as the SMP Operator retail offer	2.5	2.5	2.5	2.5	0	2.5	0	0	0	2.5	2.5
Demonstrably equivalent terms to SMP Operator retail arm	2.5	0	0	2.5	0	2.5	2.5	1	2.5	0	2.5
No restrictive volume order requirements per site	2.5	2.5	2.5	0	0	2.5	0	2.5	2.5	2.5	2.5
Access option at nearest ATM node <i>i.e.</i> , no compulsory ATM backhaul	2.5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5
Power to apply price squeeze test and review discriminatory access to SMP wholesale services	5	5	0	2.5	2.5	2.5	2.5	5	1	0	5
TOTAL COUNTRY	20	15	12.5	15	2.5	12.5	7.5	11	8.5	12.5	15

E. Transposition of the NRF

Criteria	Weight	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom
Transposition of the NRF by 25/7/03	25	0	25	0	0	25	20	0	0	25	25
Completion of Market Reviews	25	0	0	0	0	5	0	5	0	0	20
TOTAL COUNTRY	50	0	25	0	0	30	20	5	0	25	45

V. The economic impact of effective regulation

57. Under the NRF, NRAs have an obligation to promote efficient investment and innovation. This is best achieved by establishing a regulatory framework that encourages market entry which requires entrants to have, *ex ante*, an expectation of a reasonable return on their investments. Much of the analysis in the Scorecard Report has been examining how well the various regulatory regimes have been established to meet this requirement.

58. There have been many studies discussing the importance of regulation to promoting innovation and investment both generally and specifically within the telecommunications sector.

59. Across the economy in general, the OECD has found that maintenance of an anti-competitive regulatory environment and delays in implementing pro-market reforms are associated with relatively poor productivity performance. Within specific network industries, such as telecommunications, the OECD found that countries where public ownership in the sector is limited and barriers to entry are low have enjoyed more success in improving productivity than countries in which regulation curbs competition and public enterprises are widespread¹⁵.

60. Within telecommunications markets, Bourreau and Dogan summarise regulation as affecting innovation in two ways. First, price regulations alter industry profits, and therefore incentives to innovate. Secondly, both price and entry regulation change the terms of entry and therefore decisions regarding new entry¹⁶. Regulatory certainty also affects investment decisions. Investors will take account not only of regulation at the time of entry but also expected future regulatory policy until their investments become obsolete¹⁷.

61. In this section of the report we examine the relationship between regulation and investment. We find that, across different measures of investment intensity in electronic communications, there is a strong and positive correlation with good regulation, as measured in the Scorecard Report.

62. Investment levels across the ten countries in the regulatory scorecard vary significantly. Table 1 shows four different measures of investment with data taken from the OECD Communications Outlook 2003.

63. The latest available data for investment levels is for 2001 whilst the Regulatory Scorecard assesses the position in 2003. It may therefore be argued that we are comparing regulation in one period with investment in another. Whilst this is true, we find that investment in 2001 reflects the average of investment over the previous five years. Whilst the actual amount invested will change from year to year, the relative

¹⁵ Regulation, productivity and growth: OECD evidence Giuseppe Nicoletti and Stefano Scarpetta, OECD Economics Department Working Papers No 347 January 2003

¹⁶ Regulation and innovation in the telecommunications industry Marc Bourreau and Pinar Dogan Telecommunications Policy 25 (2001) pp167 - 184

¹⁷ Regulation and entry into telecommunications markets Paul de Bijl and Martin Peitz Cambridge University Press 2003

positions and ranking remains fairly constant. The correlation between the average values for 1997 – 2001 and for 2001 is generally high at around 90 – 95%. We have therefore made the assumption that investment in 2001 may be taken as a proxy for investment in 2003.

Table 1: Measures of Investment in Eelectronic Communications 2001

Country	Investment as percentage of GDP 2001	Investment per capita 2001 (\$)	Investment as percentage of GFCF ¹⁸	Telecoms GFCF per capita (€)
Belgium	0.26%	58	1.24	45
Denmark	0.79%	239	3.77	186
France	0.49%	108	2.43	85
Germany	0.38%	86	1.90	67
Ireland	0.43%	115	2.03	90
Italy	0.49%	92	2.46	72
Netherlands	0.70%	167	3.20	130
Spain	0.53%	76	2.11	59
Sweden	0.56%	133	3.22	104
UK	0.99%	236	5.82	184

64. On all measures, the UK and Denmark rank first or second, with Sweden and the Netherlands sharing third and fourth places. At the other end of the scale, Belgium is consistently tenth and Germany either eighth or ninth. This ranking has remained consistent over the five years up to and including 2001.

65. Our purpose here is to examine whether there is any statistically valid relationship between these measures of investment and regulatory effectiveness as measured on the scorecard. To test this we have use three different, though related, statistical techniques: rank (or Spearman’s) correlation, single regression and multiple regression.

66. A rank correlation tests the relationship between two sets of ordinal data, *i.e.*, the ranking of two sets of data. In this case we can rank each country on the scorecard and on each of the measures of investment. In all cases we find that the correlation coefficient (R)¹⁹ is medium to strong, as shown in Table 2.

Table 2: Correlation Coefficients for Rank Correlation

Rank Correlation Result between Scorecard and:	Correlation Coefficient
Investment as percentage of GDP	0.63
Investment per capita (USD)	0.72
Investment as percentage of GFCF	0.69
Telecoms GFCF per capita (EUR)	0.72

67. The weakest, though still reasonably strong, correlation is between the scorecard ranking and investment as a percentage of GDP. The strongest is between scorecard

¹⁸ Gross Fixed Capital Formation

¹⁹ R falls between –1 and 1. The further away from 0 in either direction, the stronger the result.

ranking and investment per capita and between scorecard and telecoms GFCF per capita.

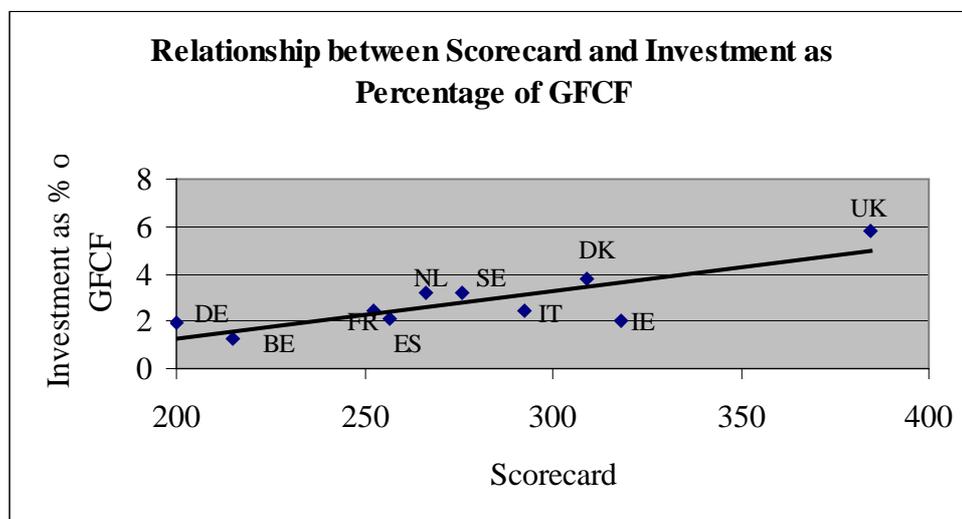
68. In the second set of analysis we have produced a number of simple regression models (correlations) using two-variable (bi-variate) regressions with each of the measures of investment and the scorecard. Again we find a strong relationship in all models as shown in Table 3. The strong t-stat (>1.96) indicates a high level of statistical significance, *i.e.*, $>95\%$.

Table 3: Bi-variate Regression Results

Regression Results with Scorecard as explanatory variable and the following as dependent variable	Coefficient	t-stat
Investment as percentage of GDP	0.75	3.58
Investment per capita (USD)	0.68	3.17
Investment as percentage of GFCF	0.79	3.99
Telecoms GFCF per capita (EUR)	0.68	3.18

69. The strongest of these correlations (investment as a percentage of GFCF) is shown graphically in Figure 1. Ireland has an investment level significantly below the trend line, *i.e.*, investment is significantly lower than would be expected given its performance in the Scorecard Report.

Figure 1: Scorecard vs. Investment as Percentage of GFCF



70. In our final set of models, we have looked to strengthen the model by adding additional economic variables that might also explain the variation in investment figures between countries. As we are working with a relatively small sample of countries, just 10, it is only valid to add one further variable. After testing several, we have found that inflation²⁰ has the strongest influence. Investors make their decisions on future expectations, so rather than using a measure of inflation prior to the investment period, we have used inflation after the period as a proxy for expected inflation rate.

²⁰ As measured by Eurostat using the Harmonised Consumer Prices Index (HCPI)

71. We find that in three of the four cases, bringing in inflation further strengthens the model, resulting in a better fit (Table 4).

Table 4: Multi-variate Regression Results

Multiple Regression Result between Scorecard and Inflation and:	Coefficient of Determination	t-stat Scorecard	t-stat Inflation
Investment as percentage of GDP	0.73	4.95	-2.36
Investment per capita (USD)	0.73	4.80	-2.68
Investment as percentage of GFCF	0.90	8.36	-4.64
Telecoms GFCF per capita (EUR)	0.73	4.80	-2.68

72. The Coefficient of Determination is an indication of the percentage of the variation in investment which be explained by the other variables in the model: scorecard result and inflation. So, our models explain 73% of the variation in investment per capita, up to 90% of variation in investment as a percentage of GFCF.

73. The relationship between investment and inflation was found to be negative, i.e. the higher the level of inflation the lower the level of investment. This finding is in line with a study conducted by the National Bureau for Economic Research in 1995 which found a strong a negative relationship between inflation and investment. Countries with a higher level of inflation tended to have lower levels of investment²¹.

74. Taking the strongest of these model (Investment as a percentage of GFCF as the dependent variable) we estimate the following equation as describing the relationship between investment, regulation and inflation.

$$I = 0.02S - 0.86i - 1.81$$

(8.36) (-4.64)

Where I = Investment, S = Scorecard and i = inflation. t-statistics are in parentheses below the coefficients

In all models the coefficients on Scorecard are statistically significant at the 95% level.

75. The analysis conducted here supports the empirical and theoretical work cited in the early part of this section. There is a strong a positive relationship between effective regulation and a range of different measures of investment across using different statistical models.

²¹ *Inflation and Economic Growth* Robert Barro, National Bureau for Economic Research Working Paper w5326, October 1995