

Final Report for the European Commission

Regulatory Framework
and Market Developments
Concerning Directory
Services in EU and EEA
Member States

Analysys

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Regulatory Framework and Market Developments Concerning Directory Services in EU and EEA Member States

Final Report

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Definitions of terms and glossary

CEPT	European Conference of Postal and Telecommunications Administrations
Directory enquiry services	Directory information services provided via telephone
Directory services	Directory information services provided via print, CD-ROM or Internet
EADP	European Association of Directory and Database Publishers
ECTRA	European Committee for Telecommunications Regulatory Affairs
EIDQ	Association for the European Interworking of Directory Enquiry Services
EEA countries	Iceland, Liechtenstein, Norway
EU countries	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, UK
National directory database	A comprehensive database (usually the incumbent's) containing information on most subscribers of all operators in a country
Opt-in policy	Subscribers will not be listed in the universal directory database unless they explicitly request to be included
Opt-out policy	Subscribers will automatically be listed in the universal directory database unless they indicate otherwise
Unified directory database	The single comprehensive database in a country (usually run by the incumbent), to which all operators are obliged by law to provide their subscriber data
USO	Universal Service Obligation
USO operator	(also Universal Service Provider) – the operator which has been designated as having the universal service obligation

0 Executive summary

This is the final report for the study *Regulatory Framework and Market Developments Concerning Directory Services in EU and EEA Member States*, which the European Commission commissioned from Analysys Consulting Ltd. The study looks at the directory services market in 18 EU and EEA countries, and in particular the competitiveness of these national markets, considering this in the context of Article 6 of the EC Voice Telephony Directive 98/10/EC.

This work was undertaken by Analysys Consulting over a four-month period (April–July 2002) and consisted of desk-based research into all the 18 EU and EEA Member States, supplemented by an interview programme covering eight Member States (Belgium, Finland, France, Germany, Ireland, Italy, Netherlands and Spain). These selected countries form a representative group, based on size, regulatory conditions and local disputes on access to directory information. 38 interviews were held with stakeholders in the directory services market, including regulators, incumbent operators, alternative operators, alternative directory service providers, international directory organisations and consumer interest groups. The findings of the study and Analysys's recommendations are summarised below.

0.1 Market background and objectives of Article 6

The directory services market in Europe has now reached a critical period:

- *fragmented subscriber data* – the liberalisation of telecoms market means that subscriber data is fragmented between the incumbent, alternative fixed operators and mobile operators

- *struggling competition* – directory service providers are entering the recently liberalised markets, trying to provide directory services that include data from all listed subscribers
- *a variety of regulatory approaches* – regulators are giving increasing attention to this market and its problems, with a range of different solutions and approaches
- *new directory services* – new services are being launched, offering enhanced information and services to customers
- *new formats and media* – there is competition between directory services in an increasing number of formats, for example online directories compete with enquiry services.

As the telecoms market has been liberalised, the directory services market is also becoming competitive. Competition is beneficial to the directory services market, as markets with high levels of competition are more likely to see a tangible improvement in quality in services offered to consumers, in terms of price competition and service innovation. The European Commission has recognised the importance of a competitive market through a series of Directives, most significantly Article 6 of the EC Voice Telephony Directive 98/10/EC, as well as the importance of ensuring directory services include *all* listed subscribers, and their availability to *all* consumers. This was created in 1998 with the objectives of increasing competition in the directory services market, ensuring that telephone subscribers who wish to can be listed in a subscriber directory, and making directory information available to all users (giving directory services the character of a universal service). Article 6 specifies that:

- all subscribers (to mobile and fixed services) should have the right to be included in a public directory
- these directories should be available to all users in printed or electronic format
- at least one telephone directory enquiry service covering all listed subscribers must be available to all users
- directory information must be made available (e.g. to competing directory service providers) in an agreed format on terms that are fair, cost-oriented and non-discriminatory.

This study examines three areas that are crucial for the development of competition in the directory services market:

- the extent to which Article 6 has been implemented in regulation and in practice, and what may be hindering this implementation
- the main barriers that hinder competition from developing, categorised into:
 - regulatory barriers
 - commercial barriers
 - technical barriers
 - content-related barriers
- the feasibility of a pan-European directory database.

0.2 Implementation of Article 6

In 2002, four years after this Article was issued, almost all Member States have implemented Article 6 to some extent in their legislation (the exceptions being Liechtenstein, Luxembourg and Greece). In practice, however, there is limited compliance with its provisions: in most countries, telephone directories and directory enquiry services do not include *all* listed subscribers from all telecoms operators. Also, there are many ongoing disputes between operators and directory service providers centred on the access conditions to directory data – more specifically, on the cost basis of the access charge. These disagreements hamper the collection of directory data from various operators, making it difficult for alternative providers to offer a comprehensive directory service (i.e. one including subscribers from all operators). As a result, there is still restricted competition in the directory services market in many Member States, and directory services often do not include *all* subscriber information.

0.3 Barriers to competition

The factors that are hindering competition can be grouped into four categories:

- *regulatory barriers* – Article 6 is not adequately implemented in national law, resulting in issues regarding ease of access to directory data. Numbering parity and other legal frameworks can also form a barrier to competition
- *commercial barriers* – obstacles to the achievement of economies of scale limit the attainable level of competition, especially in smaller countries
- *technical barriers* – these are not a significant issue
- *content-related barriers* – arising from the quality of the data content and restrictions on the use of that content.

Regulatory barriers to competition

A suitable regulatory environment is a pre-condition for the existence of competition in the market. Legislation that enhances ease of access to directory data, by determining a *cost-oriented access charge* and creating a single *universal database*, creates a favourable situation for alternative directory service providers to compete in. The introduction of *numbering parity* also improves the competitive position of alternative directory enquiry service providers, by introducing a single numbering system for directory enquiries that puts the incumbent and new entrants on an equal footing. Other legal frameworks, such as data protection and privacy laws, may be used by operators – justifiably or not – to restrict access to directory data for alternative service providers, and these thus form regulatory barriers.

With the exception of Greece and Luxembourg, all Member States have legislated cost-oriented charges for access to directory data. However, most national laws do not specify the exact *basis* for calculating these cost-based charges, and this basis is subject to varying interpretations in different Member States. Additional difficulty in calculating charges is created through the inflation of the cost-base of directory services with costs from other USO services, such as emergency services. As a result, in most countries there are disputes between operators and service providers concerning the calculation of these charges.

Consequently, despite regulatory frameworks requiring cost-based access charges to directory data, it is questionable whether this is implemented in practice. National laws in most Member States do not require the existence of a universal national database as such. In general, as part of its universal service obligation, the incumbent operator is required to provide a directory service including all listed subscribers. In addition, alternative operators are obliged to supply their directory data to providers of universal directory services – including the incumbent. It should therefore follow logically that the incumbent, in order to oblige to its universal service obligation, holds a universal directory database. However, in most cases, the directory database held by the incumbent is not considered to be universal (in the sense that it is not complete). Only Ireland requires the universal database to be managed independently from the incumbent operator; no disputes on access conditions are currently reported in this country. Spain is expected to make the national regulator the independent manager of a universal directory database, in order to solve disputes on access conditions. These moves should significantly enhance the completeness of the ‘universal’ database.

Numbering parity concerns the telephone numbers that are assigned to directory enquiry services. Historically, the incumbent provided such services through one or more short codes, while alternative providers had to use longer dial-up numbers. This gave a competitive advantage to the incumbent, since users are more inclined to dial the familiar short code. In order to establish numbering parity for providers of directory enquiry services, a new numbering range 118XY (or some equivalent numbering scheme) has been chosen for such services in EU and EEA Member States. Three levels of implementation exist in these States:

- 118XY has been introduced and the original short code is no longer in use
- 118XY has been introduced but the incumbent still retains the short code
- 118XY has not been introduced.

The existence of numbering parity influences the level of competition. When there is no numbering parity, the level of competition is medium to low, mainly made up of mobile operators that are legally obliged to offer an enquiry service to just their own subscribers. In contrast, markets that have introduced numbering parity have a medium to high level of competition, with an average of two to three large independent enquiry service providers in the market. It can be concluded that the introduction of numbering parity and the

elimination of the preferential short code for the incumbent, attracts new entrants into the directory enquiry market.

Other legal frameworks that affect access to directory data for alternative service providers are data protection and privacy legislation, and contractual issues. These frameworks may be used by operators – justifiably or not – to restrict or altogether refuse new entrants’ access to directory data, thus forming a serious barrier to competition.

Commercial barriers to competition

The main commercial barriers that surfaced in this study are *obstacles to the achievement of economies of scale*. Declining demand for directory enquiry services, combined with a small market and high existing levels of competition, lead to significant barriers to the achievement of sufficient economies of scale to cover initial and ongoing costs. There is a strong correlation between the number of active directory service providers and the size of the country (in terms of population): smaller countries such as Iceland and Luxembourg have a lower viable level of competition. In countries like Denmark, Finland and Norway, which already have a high level of competition, it is even harder for new competitors to enter the market.

In the market for telephone directories, the commercial barriers to competition mean that competition in white pages will remain limited, though some competition is possible in CD-ROM-based white pages and online services. More competition can be expected in the provision of yellow pages, although the willingness of businesses (as advertisers) to pay for listings in multiple directories is likely to be limited. The emergence of value-added services does, however, bring additional revenue potential and may increase the room for competition in this market.

Incumbent operators have a number of competitive advantages over new entrants, including the strength and familiarity of their brand, their ability to exploit existing distribution channels, and significant economies of scale. New entrants, on the other hand, are able to establish a more flexible cost structure by, for example, relying on outsourced call centres and adopting new technology.

Technical barriers to competition

There are no significant technical barriers to competition. The introduction of a flexible and open protocol and the adoption of TCP/IP for data transfer will further reduce any existing competitive disadvantages experienced by new entrants due to the use of non-standard technical interfaces by the incumbents to provide access to directory data.

Content-related barriers to competition

Other barriers to competition are related to the content of the directory data – both in terms of the quality of the available directory data (accuracy, completeness, richness) and legal restrictions on its use (prohibiting reverse searches, protecting privacy of data and limiting the use of data for direct marketing). A growing concern for the directory services industry as a whole lies in the decreasing completeness of directory data, as many mobile subscribers are not listed. In a recently drafted Directive¹, subscribers must be informed about the purposes of a printed or electronic directory and be given the opportunity to determine whether their personal data are included (opt-in regime). Additional consent is required if the use of the directory data are for any other purpose than the search of contact details. Although protection of the privacy of consumers and their directory data is critical, this directive may over time reduce the completeness of subscriber directories due to inertia to opt-in among subscribers and hence possibly reduce innovation in service provision as attraction of directory services declines – unless directory service providers are able to convince consumers of the value of their services and of the need to opt-in. Details of the relevant article in this Directive are available in Annex 6.

0.4 Feasibility of a pan-European database

In the short to medium term, a pan-European database is not feasible due to legislative differences between countries (for example data protection laws, conditions of access to directory data and restrictions on the use of directory data) and the fact that national

¹ 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 (Directive on privacy and electronic communications).

universal databases have not yet been accomplished in most countries. The key obstructing factor in the creation of both national universal databases and a pan-European database is the existence of disagreements between operators and directory service providers concerning access conditions to the directory data.

There are two alternative ways to create a pan-European database: either establish an organisation as an independent database manager, or leave the development of a database to the market (through enforcement of Article 6).

0.5 Recommendations

Based on the findings from this study, and to further encourage competition in, and consumer benefits from, directory services, Analysys recommends that the European Commission should:

- urge national regulatory authorities to improve the enforcement of the provisions of Article 6, in particular the provision which states that ‘all organisations which assign telephone numbers to subscribers meet all reasonable requests to make available the relevant information in an agreed format on terms which are fair, cost oriented and non-discriminatory.’
- support studies by the regulators to define more precisely the basis to be used for calculating cost-oriented access charges, including definitions of cost elements and methodologies
- encourage the existence of national universal subscriber databases
- allow the market freedom to establish the most efficient management structure for such universal databases, leading to the best access conditions in terms of format, fairness, cost and non-discrimination
- encourage regulatory authorities to fully adopt numbering parity and abolish any short codes favouring the incumbent
- actively encourage the use of standard data formats based on an open standard protocol.

1 Introduction

1.1 Context of the study

The directory services market in Europe has now reached a critical period:

- *Fragmented subscriber data* – liberalisation of telecoms market means subscriber data is fragmented between the incumbent, alternative fixed operators and mobile operators.
- *Struggling competition* – directory service providers are entering the recently liberalised markets, trying to provide directory services including data from all subscribers.
- *Varying regulatory approaches* – regulators are giving increasing attention to this market and its problems, with a range of different solutions and approaches.
- *New directory services* – new services are being launched, offering enhanced information and services to customers, such as SMS messaging services and location-based enquiry services.
- *New formats and media* – there is competition between directory services in an increasing number of formats, for example online directories compete with as well as enquiry services.

The European Commission has recognised the importance of a competitive market for directory services through a series of directives, most significantly Article 6 of the EC Voice Telephony Directive 98/10/EC. Competition is beneficial to the market because, as EIDQ mentions, markets with high levels of competition see a tangible improvement in

quality in services offered to consumers in terms of price competition and service innovation.

The full text of Article 6 is provided in Annex 5, but in summary the Article stipulates that:

- all subscribers (to mobile and fixed services) have the right to be included in a public directory
- these directories should be available to all users in printed or electronic format
- at least one telephone directory enquiry service covering all listed subscribers must be available to all users
- directory information must be made available (e.g. to competing directory service providers) in an agreed format on terms that are fair, cost-oriented and non-discriminatory.

The objectives of this Article can summarised as follows:

- to ensure that telecoms subscribers who wish to can be listed in a subscriber directory, and that directory information on all listed subscribers is available for all users
- to promote competition in the provision of directory services by requiring subscriber data to be made available on fair, cost-based and non-discriminatory terms to all directory service providers.

However, in June 2002, four years after this Article was implemented, most directory services do not contain *all* listed subscribers and competition in the directory services market is still limited. Even though most Member States have implemented Article 6 to some extent, in practice there is limited compliance with its provisions. The root of the problem lies with disagreements between parties on access conditions to directory data, resulting in the non-existence of a universal directory database for the publication of a universal telephone guide or directory enquiry service. This situation has implications for the level of competition in the directory services market.

1.2 Objectives of the study

In order to assess how best to stimulate the sector, the EC commissioned Analysys to undertake this study to provide an up-to-date picture of the market, a rigorous analysis of the major issues, and recommendations on how best to achieve the Commission's objectives. A key issue addressed in this report is the extent to which the provisions of Article 6 have been implemented both in regulation and in practice in the EU and the EEA, and what may be hindering this implementation. An objective of the study is to identify any areas, where, in the light of market developments to date, further action might be needed concerning the regulation of directory services.

This study then goes on to analyse the main barriers that hinder competition from developing. Regulatory barriers are specifically taken into account, and the study looks into the competitive positions of alternative service providers in terms of their ease of access to directory data and the existence of numbering parity. However, there are also other barriers to be taken into account, such as commercial, technical and content-related barriers.

Finally, this study takes a more international perspective by examining the feasibility and desirability of a pan-European directory database.

1.3 Overview of the directory services market

The overall directory services market (both on a national and international level) can be divided into four sub-markets:

	<i>White pages</i>	<i>Yellow pages</i>
Directory enquiries	Telephone-based service for access to residential and business subscriber information	Telephone-based service for access to business information
Telephone directories	Printed, CD-ROM or Internet-based information on residential and business subscribers	Printed, CD-ROM or Internet-based information on businesses

Exhibit 1.1: *Sub-markets in the directory services market [Source: Analysys, 2002]*

Each of these sub-markets has a different dynamic, as underlying business models (e.g. enquiry services obtain revenues from call costs, while telephone directories make revenue from advertisements) and regulatory environments vary significantly. Article 6, as well as the national USO regulations on directory services in the different Member States, focus on regulating the white page sub-markets. Overall, the yellow page market is much less regulated, has a higher level of competition, and access to directory information held by other operators is less relevant as providers build up their own databases.

This report takes into account all four sub-markets. However, when analysing the regulatory environment, and defining key regulatory barriers to competition, the main focus is on the white pages market.

1.3.1 Dynamics of the directory services market

To provide a background to the complex dynamics in the directory services market, and to clarify terminology used in this report, this section gives a brief overview of the main issues involved. The issues discussed in this section are:

- history and legislation
- access to a comprehensive directory database
- the media used to deliver directory services
- legislation on numbering parity.

History and legislation

Complexity entered the directory services market when the telecoms industry was liberalised. Instead of one incumbent owning all the subscriber information and providing directory services to all subscribers, a fragmentation set in. As more alternative fixed and mobile operators entered the market, information on subscribers became more dispersed (although currently the incumbents still hold the majority of fixed subscribers).

Legislation was implemented to ensure that end-users can still access directory services which hold information on *all* listed subscribers, and not just the subscribers of a specific

operator. Also, legislation was introduced to open the market to alternative directory service providers and enable them to access directory data on reasonable wholesale conditions. Most countries have the following provisions in their law:

- The universal service provider (mostly the incumbent) has to provide directory services (paper-based telephone guide and enquiry services) which include all listed subscribers.
- Every operator has to provide access to its subscribers' information (directory data) to all universal directory service providers (including the incumbent and any other organisation wishing to provide universal directory services).

Access to a comprehensive directory database

When looking at the flows of directory data between the incumbent, alternative operators and directory service providers, there are broadly two different situations possible in a national market – one in which there is no comprehensive national directory database from which directory service providers can obtain data on all listed subscribers, and one in which there is. These situations are represented below in Exhibit 1.2 and Exhibit 1.3 respectively.

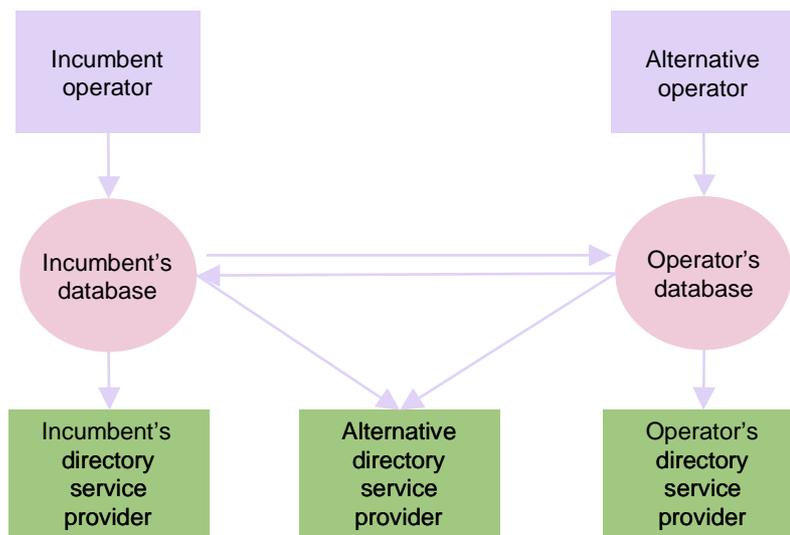


Exhibit 1.2: *Directory data flows without a universal directory database [Source: Analysys, 2002]*

Exhibit 1.2 shows a situation where there are different operators in the market, each with its own directory database. For a directory service provider to provide a universal service, it has to obtain directory data from each of the operators. As the number of operators in the market increases, so does the number of directory databases a service provider needs to purchase directory data from. In most countries the incumbent is obligated through its universal service obligation (USO) to provide a universal directory service and thus has the right to obtain directory data from each operator in the market. Alternative directory service providers may find it more difficult to gain access to this directory data – although in most countries they also have the right by law to access directory data from each operator. Access charges for this directory data are usually required to be cost-oriented, fair and non-discriminatory.

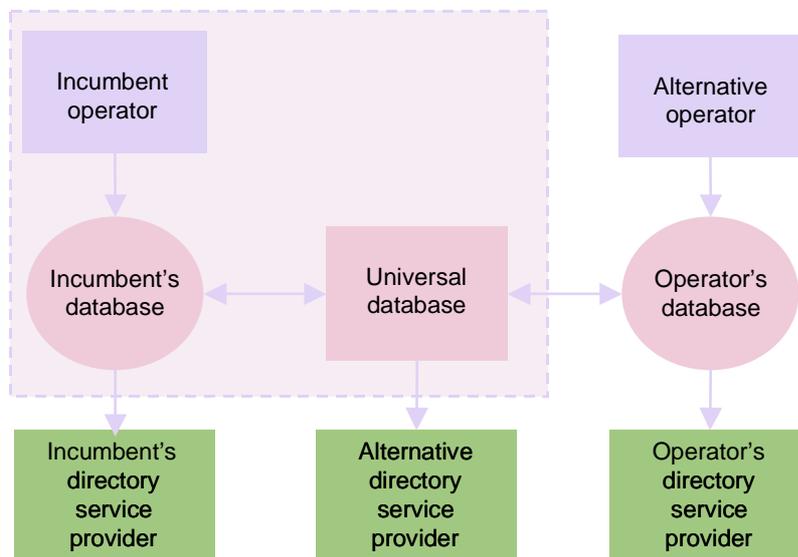


Exhibit 1.3: *Directory data flows with a universal directory database [Source: Analysys, 2002]*

Exhibit 1.3 shows a situation where a *universal directory database* has been created. All operators in the market are required to feed their directory data into this database, and in return are paid a cost-oriented charge. Directory service providers can access this database and obtain directory data on all listed subscribers at a cost-oriented rate. It does not affect service providers if there are a large number of operators in the market, as they only need to purchase directory data from a single database. In most countries, the universal database

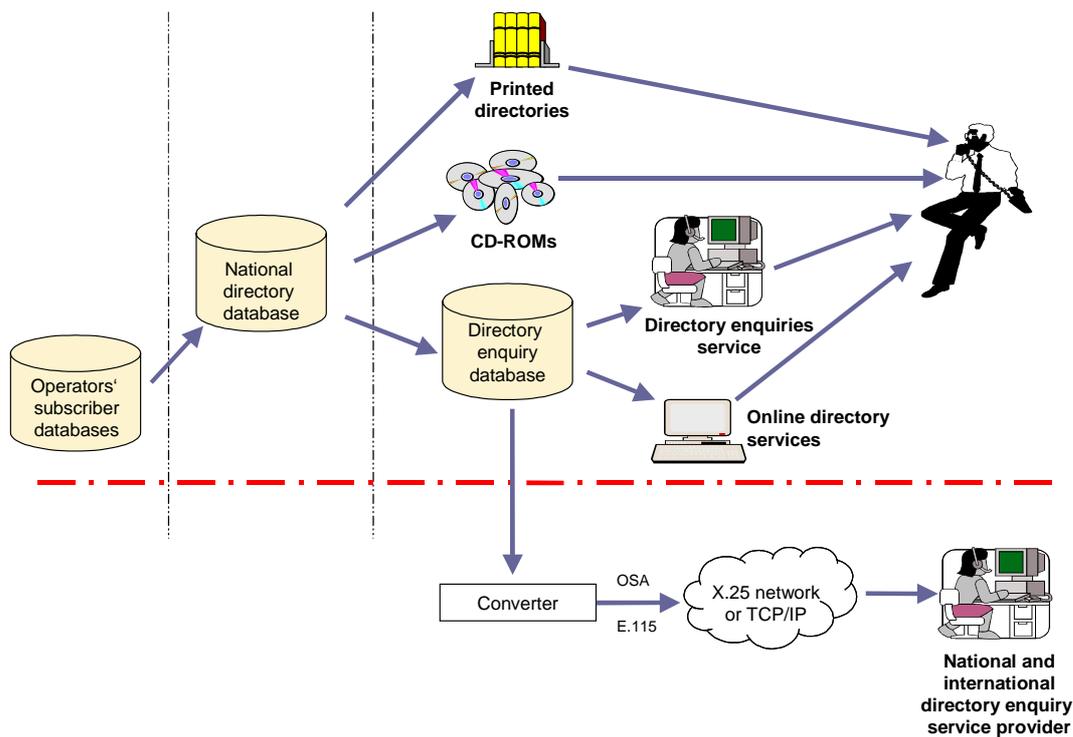


Exhibit 1.4: Media for provision of directory services [Source: EIDQ]

When customers sign up with an operator, their information is recorded in the operator's directory database. This directory data is then collected in a national directory database (which may equal to the incumbent's universal database) and from this database, directory services can be offered in four media:

- *Printed telephone directories* – the information included is generally a copy of the data in the directory database
- *CD-ROM based directories* – the information included is generally a copy of the data in the directory database
- *Directory enquiries* – powered by a specifically created directory enquiry database which allows searches in the data by call centre staff
- *Online directory services* – powered by a specifically created database which allows online searches by end-users.

International directory enquiry services are also possible, whereby the directory enquiry database is linked to similar databases of operators in other countries through either an X.25 network, or over an IP network.

Legislation on numbering parity

Many countries have introduced legislation to enable alternative service providers to enter the directory enquiry market on a level playing field. In these countries, the preferential short codes held by incumbents have been replaced with a new numbering range, which introduces numbering parity. Numbering parity means that all players in the market – incumbent operators, alternative operators and non-telecoms directory enquiry service providers – have similar directory enquiry numbers, with an equal number of digits. The CEPT and ECTA² have recommended the use of the 118XY numbering range throughout Europe, where 118 is the common prefix and XY the specific numbers assigned to particular service providers (for example, 11800 for one service provider, 11801 for the next, and so on). In some countries a different numbering series has been reserved for directory enquiry services (for example, France uses 32XY).

²

Recommendations of 4 December 1997 on Numbering Access to Voice Directory Enquiry Services, ECTRA/ REC (97)01.

2 Methodology

Analysys's approach to this study can be summarised as in Exhibit 2.1

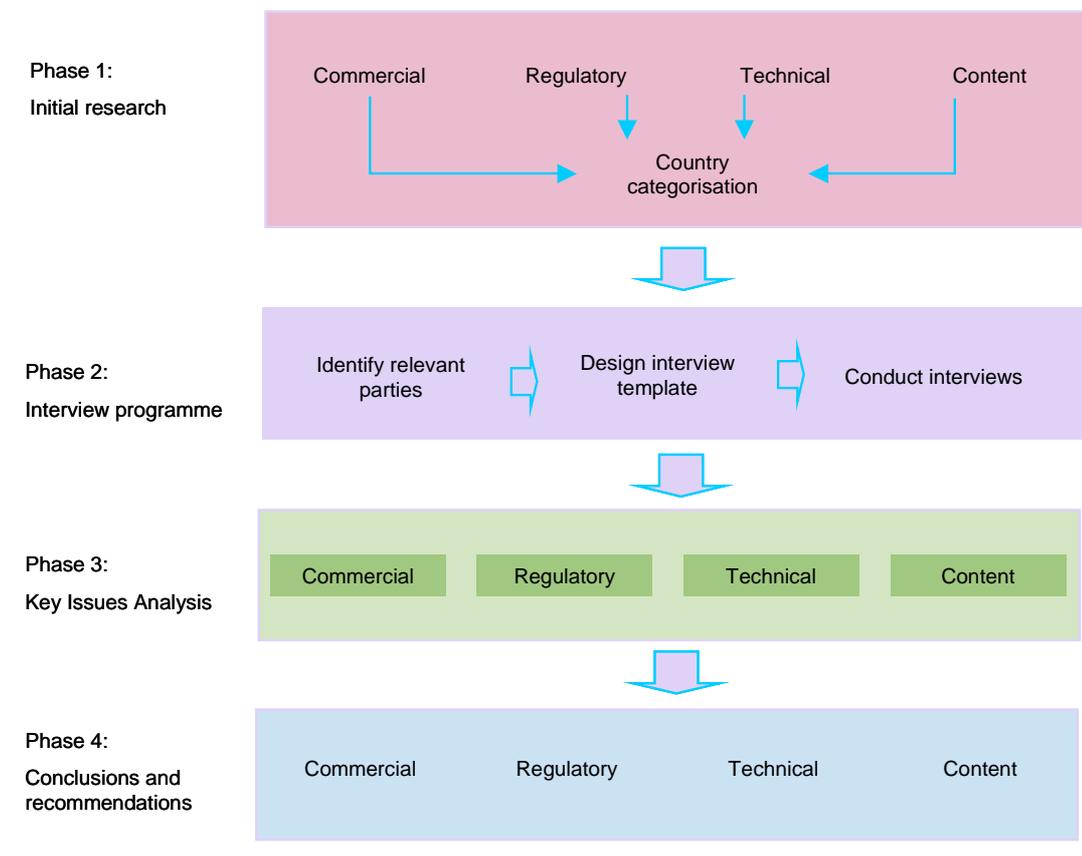


Exhibit 2.1: Methodology [Source: Analysys, 2002]

First of all, desk research was conducted in all 18 EU and EEA countries. The countries were then categorised and eight countries were selected for a detailed interview programme. From this body of research, key issues were analysed and conclusions and

recommendations drawn. This methodology is described in more detail in the remainder of this chapter.

2.1 Phase 1: Initial research

Data gathering

In order to gain insight into the current situation of the directory services market, all 18 EU and EEA countries were examined through desk-based research, accompanied by additional interviews where necessary. The information was collected on the basis of a detailed template (provided in Annex 3) and can be divided into four main areas: commercial, regulatory, technical and content-related. Exhibit 2.2 provides a summary of the topics covered in the template.

<i>Commercial</i>	<i>Regulatory</i>	<i>Technical</i>	<i>Content-related</i>
Players and product offerings	Current and planned regulation	Unified directory database	Data protection issues
Access and pricing structures to directory data for users	Licensing arrangements	Standardisation issues (data format and protocols)	Comprehensiveness of databases (opt-in/opt-out)
Access and pricing structures to directory data for service providers	Regulation of wholesale and retail tariffs	New technologies	Limitations on data and restrictions on its use
Usage trends	Introduction of numbering parity		
Commercial barriers to competition	Regulatory barriers to competition	Technical barriers to competition	Content-related barriers to competition

Exhibit 2.2: *Framework for research in Phase 1 [Source: Analysys, 2002]*

Country categorisation

After a broad picture was developed of the directory services market in each EU and EEA country, a number of countries were selected for more detailed interview-based research. In order to be able to make a representative selection, a framework was developed to

categorise the countries studied. On the basis of this, eight countries were chosen for in-depth study. (Note that the framework was used only to help select countries for further study and was not used for any other analytical purpose). Two dimensions were used to categorise the countries, as shown in Exhibit 2.3. The *horizontal axis* represents the ease with which alternative directory service providers have access to directory information for a country (including directory data of incumbent and mobile operators). Countries are divided between those countries where many disputes have been recorded on access conditions to directory data during our research, and those countries with fewer or no disputes. The *vertical axis* represents the degree to which the country has implemented regulation to enable competition in the directory enquiry market – in particular, whether or not numbering parity has been implemented. Both dimensions focus on the extent to which circumstances are created that enable competition in the market. These axes do not cover all the provisions of Article 6, but merely form a basic framework that creates insight into the conditions for competition in the market.

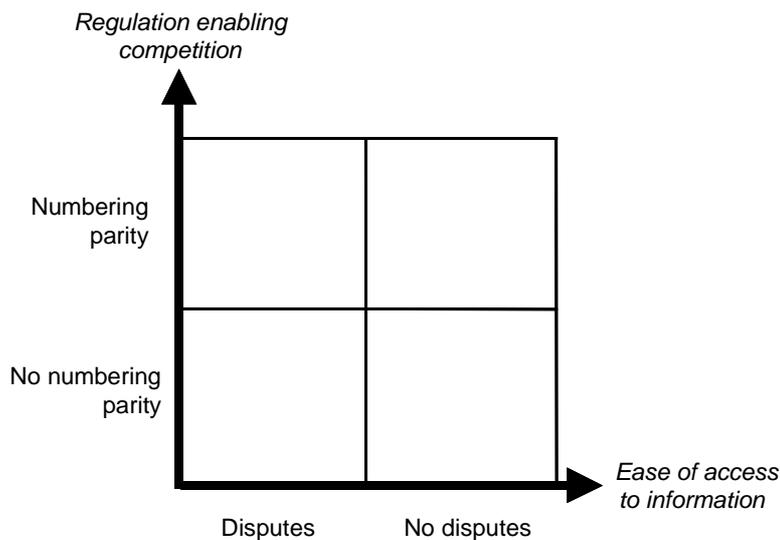
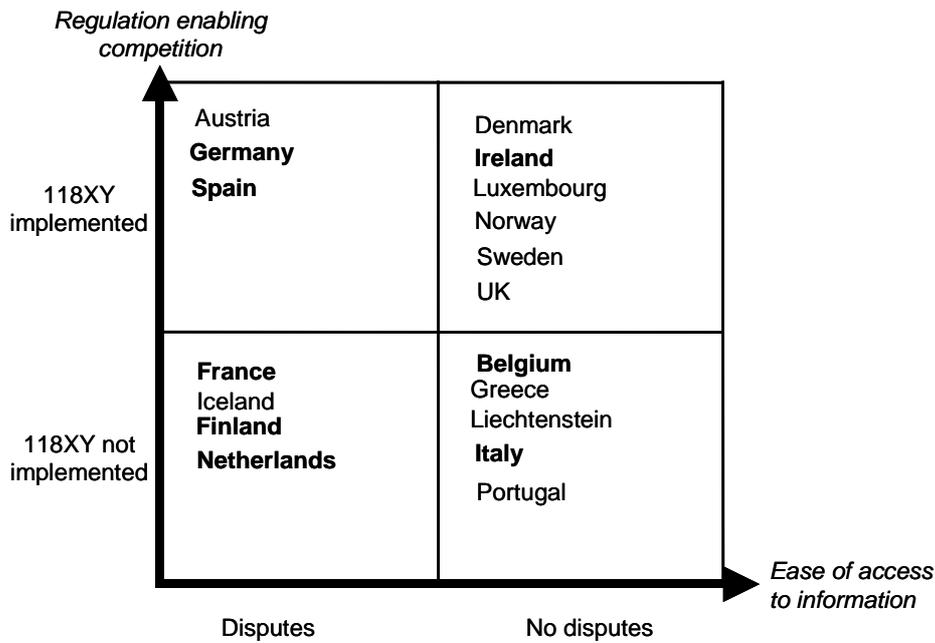


Exhibit 2.3: Dimensions used to categorise the countries in the study [Source: Analysys 2002]

Applying this framework to the 18 countries, they can be divided into four categories as illustrated in Exhibit 2.4 below. Countries positioned in the top right quarter have the most advantageous conditions for competition – with both numbering parity and few reported disputes on access conditions. Countries in the bottom left corner have the worst conditions

for competition, with no numbering parity and many disagreements on access conditions. About half of the countries have introduced number parity, while the remaining countries have experienced serious problems with access to directory data. The eight countries selected for more detailed study are shown in bold type.



Belgium	France	Ireland	Netherlands
Finland	Germany	Italy	Spain

Exhibit 2.4: *Categorisation of the 18 Member States and list of countries taken forward for further interview-based research [Source: Analysys, 2002].*

Studying these eight countries in depth provided detailed insight into the dynamics of these markets. This group of countries is broad enough to give an accurate picture of the market, and is at the same time representative as it covers all four categories in the framework. Furthermore, these countries were chosen on the basis of other representative characteristics, such as the implementation of an independent database manager (Ireland, Finland), recent legislative changes with regards to directory services (France, Spain, Italy), or publicly reported disputes on access to directory data (the Netherlands, Germany). Also, a balance was sought between larger countries (France, Germany and Spain) and smaller countries (Belgium, Finland, Ireland).

2.2 Phase 2: interview programme

The next phase of the research consisted of an extensive interview programme in the eight selected countries. For this interview programme, a total of 38 interviews were conducted. Details of the organisations interviewed are provided in Annex 1. The interviews fall into two broad groups: 27 country-based interviews, and 11 interviews with international organisations.

For each of the eight selected countries, an average of three interviews per country were conducted. Interviewees were selected, based on knowledge gained through the desk research, from the following:

- national regulator
- incumbent operator
- alternative operators holding directory information
- directory service providers (both new entrants and established service providers).

Exhibit 2.5 shows which types of organisation were interviewed in each country.

Country	Regulator	Incumbent	Alternative operator	Alternative service provider
Belgium	✓	✓	✓	
Finland	✓	✓		✓
France	✓	✓	✓	
Germany	✓			✓✓
Ireland	✓	✓		✓
Italy	✓		✓	✓
Netherlands	✓	✓		✓
Spain	✓	✓		

Exhibit 2.5: Organisations interviewed by country [Source: Analysys, 2002]

In addition to these country-based interviews, interviews were conducted with international organisations, including:

- international service providers
- industry organisations (EIDQ and EADP)
- consumer interest groups
- telecoms user associations.

The interview script used for this programme is provided in Annex 2. In particular interviews, focus was given to different areas, depending on the type of organisation interviewed. The five overall topics were:

- *Directory information database* – assessment of the practical implementation of Article 6, existence of a universal database, access conditions to this database for both operators and directory service providers, availability of directory service to users, opt-in or opt-out policies.
- *Regulatory issues* – Implementation of Article 6 in national law, any regulatory disputes that arose, provisions for the new EC Directives.
- *Competitive situation* – Competitive situation, underlying dynamics in terms of barriers to competition and viability of competition.
- *International directory services* – Current provision of international directory services, feasibility and desirability of a pan-European database.
- *Technical issues* – Technical barriers to competition, data format, protocols, data protection issues.

2.3 Phases 3 and 4: Analysis, conclusions and recommendations

In phase 3, key issues that emerged from the desk research (phase 1) and interviews (phase 2) are analysed. This analysis is focussed around the three objectives of this study: a) the extent to which Article 6 is implemented, b) the barriers to competition in the directory services market, and c) the feasibility of a pan-European database.

The barriers to competition are divided in four topical areas: regulatory, commercial, technical and content-related. Together, these four topic areas cover all issues that may

hinder competition in the directory services market. In order to support the analysis of these four types of barrier, the research in phases 1 and 2 also follows this topic structure.

Finally, in phase 4, conclusions are drawn on the basis of the analysis of the key issues. From these conclusions, recommendations are made for both the European Commission and the national regulators on actions that can be taken to improve the dynamics of, and competitive situation in, the directory services markets throughout Europe.

3 Main findings

This chapter presents the main results of Phase 1 of the study – desk research on all EU and EEA countries – as well as Phase 2 – the interview programme covering eight countries. This chapter remains descriptive, presenting the findings according to the topic areas researched, as well as on a country-by-country basis. Detailed findings for all 18 countries are presented Annexes A-R. Analysis of these findings will be given in Chapter 4.

3.1 Research findings by topic area

This section presents our main findings, split by the following topic areas: regulatory situation, commercial situation, technical issues and content-related issues.

3.1.1 Regulatory situation

The regulatory situation in each country is summarised in Exhibit 3.1 below. The key aspects highlighted in the table form part of the analysis of the extent to which Article 6 has been implemented in national law for each country. The table describes the current USO regulation with regards to directory services, licence conditions on operators and directory service providers, regulation on wholesale and retail tariffs, and the implementation of numbering parity.

<i>Country</i>	<i>USO</i>	<i>Licence conditions</i>	<i>Access charge</i>	<i>Retail tariff</i>	<i>Numbering parity</i>
Austria	Incumbent has USO to provide paper-based or web-based directory services and directory enquiry service. Incumbent must provide access to its own numbers and those of other operators in the database.	Operators must offer enquiry service to their own subscribers. Operators must exchange information on request with other operators and directory service providers. Directory service providers need no licence. Directory enquiry service providers need to register with the regulator.	Regulator requires free access to all directory data; reasonable and cost-oriented price for other providers (tariff is not public).	Retail tariffs required to lie within regulated price bands.	Implemented
Belgium	Incumbent has USO to provide directory enquiry service and to publish a universal telephone guide in areas where no other guides are available.	All operators are required to provide fixed and mobile subscriber information to the incumbent. No licence is required for provision of directory services.	Access charges has to be cost-oriented, non-discriminatory, reasonable and approved by regulator. Regulator is undertaking a study to estimate real marginal cost.	Retail tariffs are regulated and incumbent's tariff needs approval from regulator.	Not a priority area
Denmark	Incumbent is designated to have USO for the purpose of directory enquiry services. It needs to have a universal and unified database of all subscribers - including those of other telecoms operators.	Operators have to supply subscriber information to the incumbent as part of their licence obligations, as well as to other directory service providers	Access to operators' directory data is free for the incumbent. Access for other service providers is based on marginal costs.	Retail prices are not regulated.	118XY numbers have been allocated but 118 short code is still in operation.
Finland	Regulator has approved an independent provider of subscriber information (Suomen Numeropalvelu) as fulfilling USO requirements by Sonera and Finnet to provide directory services.	Telecoms operators are required to provide subscriber information as part of licence conditions; this information is submitted to Suomen Numeropalvelu.	Regulated to be under equal and reasonable terms, and on a cost-oriented basis.	Retail prices are not regulated.	118XY is not yet implemented. 118 is the default number (translating into a network specific directory enquiry service).

<i>Country</i>	<i>USO</i>	<i>Licence conditions</i>	<i>Access charge</i>	<i>Retail tariff</i>	<i>Numbering parity</i>
France	Incumbent has USO to provide an enquiry service and a telephone directory in both printed and electronic form. New legislation (July 2001) to implement a unified national database is being drafted.	Operators are obliged to provide information required for the universal directory. Directory service providers need no licence.	Access charges are set by incumbent and have to be cost-related. New legislation will more strongly define cost-oriented basis for tariffs.	Retail tariffs are not regulated.	32XY implemented, incumbent still has short code.
Germany	A telephone directory and enquiry service need to be available, but incumbent is not mandated to provide this.	No licence is needed to provide directory services. All operators are required to provide an enquiry service for their subscribers and allow access to their directory data.	Access charges must be cost-oriented and non-discriminatory.	Retail prices are not regulated but recommended to be cost-oriented.	Implemented since 1999.
Greece	USO regulation is currently being drafted and scheduled for publication between June and September 2002.	Directory services or provision of subscriber information for directory services is not covered by licence conditions.	Access charges are not regulated.	Retail prices are not regulated.	Not implemented.
Iceland	The incumbent has a USO to provide directory services.	Operators must meet reasonable requests for directory data. Operators have to provide an enquiry service to their customers. Directory service providers need a licence.	Access charges are required to be fair and cost-oriented.	Incumbent's retail prices are regulated and should be cost-oriented.	Not implemented.
Italy	Incumbent has USO to provide directory services. New legislation regarding a universal database, applies to fixed operators from July 2002 and mobile operators from December 2002.	Directory enquiry service providers need a licence. All operators need to provide a directory enquiry service to their subscribers. Only the incumbent is required to provide access to directory data.	Access conditions regulated to be equal, reasonable and non-discriminatory. Currently, wholesale access to national subscriber database is free for non-commercial use, due to a merger.	Retail prices are regulated and set at EUR0.52 per minute for directory enquiry services.	New numbering system announced in July 2002.

<i>Country</i>	<i>USO</i>	<i>Licence conditions</i>	<i>Access charge</i>	<i>Retail tariff</i>	<i>Numbering parity</i>
Ireland	Incumbent has USO to provide directory services. The unified database is handled by a separate company which is at arm's length from the incumbent.	As part of licence conditions, operators are required to supply subscriber information to the unified database.	Access to all information on non-discriminatory and cost-based terms.	Retail prices are not regulated.	Implemented in 2000 and old short code withdrawn.
Liechtenstein	No USO regulation.	Directory service providers need a licence. The incumbent is obliged to provide directory data to other service providers upon request. However, alternative operators are not obliged to provide directory data to the incumbent.	Tariffs required to be cost-oriented, set by individual agreements between operators.	Retail tariffs should be cost-oriented.	Not implemented.
Luxembourg	No active USO regulation (although there is non-active USO legislation).	Directory service providers need a licence.	Access charges are not regulated.	Retail prices are not regulated.	Implemented since 1998.
Netherlands	Incumbent has USO to provide telephone directory (printed or electronic) and directory enquiry service.	Operators are obliged to supply directory data to universal directory service providers.	Access charge should be cost-oriented and non-discriminatory. For the incumbent, tariff is capped at EUR0.0025 (marginal cost).	Retail prices are not regulated but are required to be "affordable".	Under consideration.
Norway	Incumbent has USO to provide directory services for all subscribers.	Operators are obliged to provide access to basic directory data to any directory service provider as part of their licence obligation.	Access charges should be based on cost of actual transmission of data, and should not include operator's cost of handling the data.	Retail prices are not regulated.	New access numbers (1850 - 1899) for directory enquiry awarded in Feb 2002.

<i>Country</i>	<i>USO</i>	<i>Licence conditions</i>	<i>Access charge</i>	<i>Retail tariff</i>	<i>Numbering parity</i>
Portugal	The incumbent has a USO to provide directory services (telephone directory and enquiry service) and maintain a unified database for this purpose.	Operators have to provide directory data to the incumbent. Directory service providers do not need a licence.	Tariffs are required to be cost-oriented, fair and non-discriminatory. The incumbent can charge operators 65% of its retail price.	Regulator is investigating costs of providing directory services.	Not implemented; only telecoms operators can get a directory enquiry number.
Spain	Incumbent has USO to provide directory services and to keep a complete subscriber database. From Autumn 2002 the regulator will manage access to directory data.	Operators are obliged to give directory data to the regulator. Licence A (telecoms) operators have free access to directory database. Directory enquiry service providers need licence D, publishers need no licence.	Access charges are cost-oriented tariffs. With the new legislation, access to data will be free and information will be provided at costs when regulator takes over.	Retail prices are regulated.	Implemented March 2002, currently in transition period.
Sweden	n/a	Operators are required to provide subscriber information to other operators and service providers and to provide directory services to subscribers. Telecoms operators are required to maintain a subscriber register.	Access charges are regulated to be fair, cost-based and non-discriminatory.	Retail rates are not regulated	118XYZ introduced in 1999; no default number (e.g. 118) implemented.
United Kingdom	Incumbents have a USO to provide directory services.	Licence conditions require operators to satisfy all reasonable demands for directory enquiry services.	Wholesale access terms have to be fair, cost-oriented and non-discriminatory.	Retail rates are not regulated.	OFTEL awarded 118XY numbers in May 2002. Old short codes will remain until August 2003

Exhibit 3.1: Overview of regulatory situation regarding directory and directory enquiry services [Source: Analysys, 2002]

Exhibit 3.1 above shows that most countries have assigned a **Universal Service Obligation** to the incumbent for the provision of directory services, including both telephone directory (mostly paper-based) and directory enquiry services. In some countries, such as Ireland, Portugal and Spain, the unified database needed to provide universal directory services is also regulated. Liechtenstein, Luxembourg and Greece have not (yet) assigned any operator with a USO to provide directory services.

Licence conditions of operators in most countries state that the operator has to provide access to its subscriber information to the incumbent, and often also to alternative universal directory service providers. Operator licences also require operators to offer a directory enquiry service for their own subscribers. Whether directory service providers need a licence varies from country to country, also depending on the kind of directory services (publishing or enquiry services) which are offered.

Access charges in most countries are regulated to be fair, non-discriminatory and cost-oriented. The actual tariffs are generally left to agreements between market players. Only in some countries, such as Italy and the Netherlands, has the regulator defined a price cap due to specific market conditions (i.e. a merger and a dispute respectively).

Retail tariffs in most countries are not regulated – yet the regulator would need to approve any price change in the incumbent’s tariffs. There are some exceptions, such as Austria and Italy, where the regulator has specified either a price cap or price band for retail tariffs.

The EU and EEA Member States are in varying states of implementing **numbering parity**. Whereas some countries (Germany, Austria, Ireland and Luxembourg) have implemented this for some time, some countries (Spain, UK) have only recently started the process of implementing number parity, and others (the Netherlands) have been considering it for a while. There is still a large number of countries that are not considering implementing numbering parity in the near future.

3.1.2 Commercial situation

This section gives a description of the current situation in the directory services market in terms of competitiveness, commercial issues related to the universal database, disputes and complaints, usage trends and new directory services.

Competitiveness

Exhibit 3.2 below provides a summary of the degree of competition in each Member State. The market is split into four sub-markets, as described in Section 1.3 above: white pages directories, yellow pages directories, white pages enquiries and yellow pages enquiries. In each country, the relative competitiveness of the directory services market is measured by the number of players active in each sub-market. This is a very simple measure of competitiveness, but is sufficient in this context to give an overall picture of the market.

The table shows that the yellow page market is consistently more competitive than the white page market. The paper-based format has the least number of players, whereas online directories are more commonly offered. Competition in the CD-ROM market varies significantly, depending on the level of acceptance of this medium in each particular country. For directory enquiry providers, the table indicates the number of operators providing their own directory enquiry service (as opposed to outsourcing it to the incumbent operator), either under their own number or under the same short code as the incumbent. In countries where numbering parity has not been introduced, mobile operators tend to use the (incumbent's) standard short code to provide directory enquiry services to their own customers. Obviously, in these countries actual competition is limited as enquiry service providers cannot differentiate themselves, and only provide services to their own subscribers.

Country	White pages directories (paper / CD-Rom / Internet)	Yellow pages directories (paper / CD-Rom / Internet)	White pages enquiries	Yellow pages enquiries
Austria	L / L / M	L / M / H	Medium	Medium
Belgium	L / M / M	L / M / M	Medium	Medium
Denmark	M / L / H	M / L / M	Medium	Medium
Finland	L / 0 / L	M / 0 / H	Medium	High
France	L / M / M	H / H / H	Medium	High
Germany	M / M / L	M / M / L	High	High
Greece	L / L / L	M / M / M	High	High
Iceland	L / 0 / L	M / 0 / M	Low	Medium
Ireland	L / L / L	L / L / L	Medium	Medium
Italy	L / 0 / H	L / L / H	Medium	Medium
Liechtenstein	M / L / L	M / L / L	Low	Low
Luxembourg	L / M / M	L / M / M	Low	Low
Netherlands	L / M / M	M / M / H	Medium	Medium
Norway	L / 0 / H	L / M / H	High	Medium
Portugal	L / L / L	M / M / M	Low	Medium
Spain	M / L / M	M / M / M	Medium	Medium
Sweden	M / 0 / L	L / L / M	Low	Medium
UK	L / L / H	M / L / H	High	Medium

0 = no providers

L = low competition (one provider)

M = medium competition (2 – 3 providers)

H = high competition (more than 3 providers)

Exhibit 3.2: *Level of competition in white and yellow directory and enquiry services [Source: Analysys, 2002]*

Issues related to the universal directory database

This section describes the directory databases that exist in the different country markets – in terms of how many ‘universal’ directory databases have been created, the comprehensiveness of these databases in terms of the amount of listed subscribers that are included from different operators, and the access conditions to these databases – particularly relating to pricing conditions. The existence of multiple comprehensive

databases and good access conditions to these databases are important indicators of the current and potential level of competition in the market.

Exhibit 3.3 below summarises the situation with regard to universal databases in EU and EEA Member States. Note that, as more detailed information was collected for the eight countries that were included in the interview programme, these countries consequently also have more complete information in this and in subsequent tables.

<i>Country</i>	<i>No.</i>	<i>Comprehensiveness</i>	<i>Access conditions</i>	<i>Pricing conditions</i>
Austria	1	Incumbent claims the database is comprehensive	Access to database for information on all subscribers	In dispute
Belgium	2	Two mobile operator lacking from incumbent's database, alternative database not universal	Service providers have only access to operator's own subscriber information	Tariff of EUR0.15 approved by regulator – in dispute
Denmark	4	Incumbent's database includes all mobile and fixed subscribers from all operators. Alternative databases cover 95% - 98% of all fixed subscribers	Service providers only have access to operator's own subscriber information	Free provision of directory data to incumbent in dispute
Finland	1	Universal database covers 95% of mobile users and close to 100% of fixed line subscribers	Access provided to all service providers on a non-discriminatory basis	Tariffs of EUR0.80 (to operators) in dispute and may be lowered
France	2	Comprehensive database for fixed subscribers. Only 0.5% subscribers come from alternative operators	Regulator unhappy with current access conditions	In dispute
Germany	2	Both database claim to be comprehensive	Access to incumbent's database for information on all subscribers	Tariff of EUR0.14 and non-discriminatory basis of tariff in dispute
Greece	1	Database includes incumbent's fixed and mobile subscribers and subscribers from other mobile operators through opt-in	Alternative providers have access only to fixed subscriber information	Commercial agreements
Iceland	1	Includes fixed and mobile subscribers opting to be in database	Access to incumbent's database for information on all subscribers	In dispute

<i>Country</i>	<i>No.</i>	<i>Comprehensiveness</i>	<i>Access conditions</i>	<i>Pricing conditions</i>
Italy	2	Separate databases for fixed and mobile subscribers under construction	Access to one universal database not available	Free access to database, but tariffs may increase
Ireland	1	Reasonably comprehensive database which includes mobile subscribers. Concerns about frequency of updates and consistency have been raised	Access provided to all service providers on a non-discriminatory basis	No dispute on access tariff of EUR0.01
Liechtenstein	1	Maintained by parent company of incumbent (Swisscom)	Access to directory data via Swisscom	No disputes reported
Luxembourg	2	Universal database provided by incumbent, one near-complete alternative database exists	No information available	No disputes reported
Netherlands	4	None of the databases is complete. Incumbent fined for not complying with USO, though database now is near-complete	Service providers have only access to operator's own subscriber information	Price-cap of EUR0.25 cents defined by regular in dispute by incumbent
Norway	3	Incumbent's database is reported to be comprehensive	Access to subscriber information of other operators has to be agreed between the operators involved	No disputes reported
Portugal	1	Incumbent claims database is comprehensive	No organisation has requested access so far	Incumbent has not provided regulator with data to calculate cost-oriented tariff
Spain	1	Recently comprehensive as mobile subscribers are now included	Ongoing disputes on access to database due to data protection law	In dispute
Sweden	2	Includes mobile and fixed numbers and is fairly comprehensive.	Possibility to buy comprehensive listings from independent companies	Previous disputes on access on a bulk basis
United Kingdom	1	Unified directory database (OSIS) contains all available data on fixed and mobile subscribers. Two companies have created their own enhanced database from this.	Access to database for information on all subscribers	Access tariffs are published

Exhibit 3.3: Existence of and access conditions to universal databases [Source: Analysys, 2002]

There is a wide variation between countries in the **number of near-comprehensive databases** that have been created, and also in the **completeness of these databases**. Most larger countries have more than one universal database, whereas smaller countries such as Iceland, Greece and Portugal only have one. In countries where a unified database has been created (Finland, Ireland and UK) no duplicates of this database are necessary. In most markets however, directory service providers are still trying to build up a fully comprehensive database, including all listed subscribers. Only a limited number of service providers (mainly incumbents) claim to have accomplished this.

Access to these databases varies; in some countries (Austria, Germany) a service provider can obtain data on all subscribers from one database, whereas in other countries (Belgium, Denmark, the Netherlands) a directory service provider would need to contact each operator individually to obtain a complete database with directory data – even though a universal database already exists (generally maintained by the incumbent).

It is of interest to note the number of disputes recorded in the various markets relating to **pricing conditions** (access charges). The next section provides a comprehensive list of the disputes and complaints that this research encountered.

Disputes and complaints

Exhibit 3.4 below gives an indication of the common disputes and complaints that have been recorded throughout the EU and EEA Member States over the last couple of years. These disputes give an insight into the main problem areas in the directory services market – and thereby highlight areas where improvements in regulation on directory services may be needed.

<i>Nature of complaint</i>	<i>Resolution</i>	<i>Countries</i>
Alternative operators object to incumbent's charges for the inclusion of their subscriber data into the universal database and its publication	Most regulators decide that the incumbent cannot charge alternative operator for the publication of their subscriber data. In some country this is still pending (Austria)	Austria, Belgium, Germany, Netherlands
Alternative operators object to tariff set by incumbent for the provision of their subscriber data as being below cost – or incumbent refuses outright to pay for this data	Either resolved through private solutions, or regulator intervenes to approve tariff. Many regulators are conducting studies into cost-base of this tariff	Belgium, Luxembourg, Spain
Directory service providers complain about the access charge from incumbent for directory data as being too high and not cost-oriented	Many regulators are conducting studies into cost-base of this tariff, resulting in approval or the setting of a price cap	Belgium, France, Finland, Germany, Iceland, Netherlands, Spain
Directory service providers complain about discriminatory behaviour of the incumbent to its own subsidiaries	Complaints in Germany still under investigation, other regulators ruled that discriminatory behaviour is not allowed	Ireland, Germany
Directory service providers want more content included in basic directory data, or better quality of this data in the universal database	Regulator rules additional data fields should be available in basic directory data. No rulings on quality of database	Ireland, Netherlands, UK, Greece, Italy
Service providers complain about access to billing service from incumbent, or high charges for this billing service	Regulator obliges incumbent to provide billing service at cost-oriented charges	Germany, Spain

Exhibit 3.4: *Disputes and complaints in the directory services market [Source: Analysys, 2002]*

It emerges from the table that the major problems lie in the following areas:

- *Access charges between incumbent and alternative operators* – there are disagreements between the incumbent (as USO provider) and alternative operators on the tariff at which directory data should be provided. In some countries (France, UK) operators have refused to provide directory data to the incumbent, whereas in others (Spain) the incumbent has refused to include subscribers from some operators.
- *Access charges between incumbent (as operator) and alternative directory service providers* – most disputes concern the tariffs directory service providers have to pay

for directory data, and any unfair advantages the incumbent may give to its own subsidiary. In some instances the incumbent has other reasons for not providing access to its data, such as conformity with a strict data protection law (Spain), or the service provider holding the wrong licence (Iceland). Not providing access to additional information, such as listings of subscribers that cannot be approached by direct marketing firms, has also resulted in disputes (France).

- *Additional issues* between the incumbent and alternative directory service providers include disputes on the quality and content of the directory data that can be obtained, or problems with related services such as billing, which the incumbent has to provide to service providers in order for them to be able to offer a directory enquiry service.

Some of these disputes have already been resolved and complaints withdrawn. The main area of confusion and disagreement at the moment revolves around what should be included in calculating the cost-level of the access charge. Most regulators (as in Italy, Spain and the Netherlands) consider that operators should only charge the marginal cost of providing data access (which is close to zero per data record). In contrast, most incumbents consider that they should charge for a variety of additional cost elements such as maintenance of the database and any investments required to provide access. Overall, there seems to be a trend in the market towards decreasing access charges, as national regulators conduct studies into the 'real' marginal cost of providing data access and capping the access charge at this rate.

Usage trends

Usage trends have been studied in order to give an indication of the popularity of directory services in different formats and media. The main trends are:

<i>Increase in mobile calls to directory enquiry services</i>	The percentage of calls to a directory enquiry number coming from mobile phones is increasing. The current percentage varies per country, with Belgium recording 15%, Ireland 33% and Finland 55%. Scoot, a pan-European yellow page directory enquiry provider, claims that as much as 75% of its calls come from mobile phones. The UK only records 10% of enquiry calls originating from a mobile network, but it has been estimated that this percentage will increase by 10% per year. Ireland records a growth in usage of its directory enquiry
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services of 5%–6% per year, which is attributed wholly to the growth in mobile calls.

Decrease in fixed and overall calls to directory enquiry services

Calls from fixed lines to directory enquiry numbers are decreasing in all countries. Overall, this means that the total volume of calls to directory enquiry services is also falling – with the notable exceptions of Ireland and Belgium. In Germany, one of the largest and most competitive markets, call volume is shrinking by 10% per year. Reasons that are given for this decrease are recent price increases for directory enquiry calls to better reflect costs, and the emergence of online directories.

Usage of online directories is increasing

Usage of online telephone directories is increasing in every EU and EEA country. France reports that hits on Internet directory sites are up 50% year on year, while Iceland reports an increase of 325% in 2000 and 130% in 2001. This increased usage of online services is the main reason why overall call volume to directory enquiry services is decreasing. These trends are particularly clearly demonstrated by usage figures for the Netherlands, shown in Exhibit 3.5.

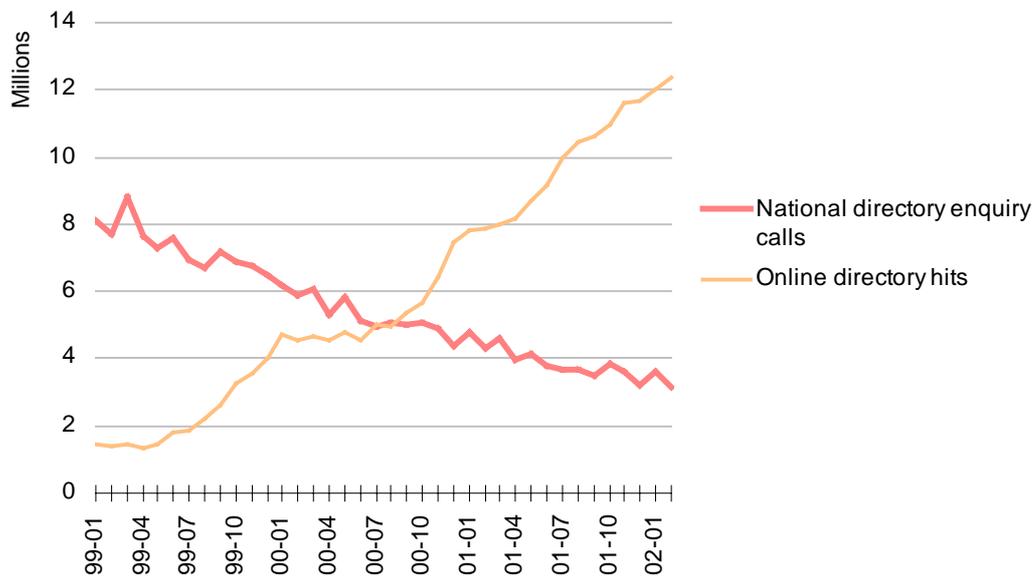


Exhibit 3.5: Usage of online and telephone-based services in the Netherlands [Source: KPN, 2002]

International directory enquiry call volume is small Of all directory enquiry calls, only a small percentage are made to an international directory enquiry service – typically well under 5%. In Finland only 1.5% of all calls are for international enquiries, while in the Netherlands and the UK, 3.5% of all calls are for international directory enquiries.

Telephone directories remain popular Overall usage of telephone directories in all three formats remains popular. A recent study in Germany (commissioned by VDAV in December 2001) found that 82% of the population makes regular use of telephone directories – a percentage that is in line with the rest of Europe. In total 80% of private users and 76% of business users turn to printed directories in Germany. CD-ROMs are less popular and mainly used by business users – with 6% by private users and 26% by business users.

New directory services

Exhibit 3.6 lists the main new services that have emerged in the directory enquiry services market, with an indication of some of the markets in which they are available. Call completion, whereby a caller can be directly connected to the requested number, is now available in most EU and EEA Member States.

<i>New service</i>	<i>Available in</i>
SMS service	Austria, Belgium, Denmark, Finland, Germany, Italy, Netherlands, Norway
WAP service	Finland, France, Netherlands, Sweden, UK
Email service	Austria, Greece, Italy, Sweden
Location-based service	Austria, Belgium, Italy
Various languages	Austria, Belgium, Germany

Exhibit 3.6: *New directory services and their availability [Source: Analysys, 2002]*

Many enquiry service providers are now also offering additional information services, such as traffic, financial and weather news, school holidays, ferry connections and highway

tolls. Location-based services are being introduced in some countries and are expected to be very popular. An example is finding local cinemas (Italy) or local doctors on call (Belgium).

3.1.3 Technical issues

Technical problems or disagreements on data formats and protocols can potentially form barriers to the creation of a universal database (as prescribed by Article 6) and to the introduction of competition. Exhibit 3.7 summarises technical issues related to the management and maintenance of a universal directory database. It describes any disagreements there are in the market as to the format in which data must be supplied to service providers, any regulation or studies on the structure of the universal database (which can be either physically or logically unified) and any significant issues relating to protocols. Only those countries where issues have surfaced during this research are included in the table.

<i>Country</i>	<i>Data format</i>	<i>Physically or logically unified</i>	<i>Protocol used</i>
Austria	Directory data is mandated to be available electronically	The regulator has the right to request all operators' subscriber data in order to operate a common wholesale database (this has not been done until now)	
Belgium	Legislation for telephone guides explicitly recognises problem in obtaining data from varying sources, and states it does not stand in the way of standardising databases	Regulator favours physically unified database, as logically unified database poses practical problems in terms of input format, filters, time to access remote data	Legislation prescribes that providers-to-be should provide regulator with an agreement on which protocol to use
France	Data format should be negotiated between operators. Operators complain that the incumbent imposes its format, which is not standardised	Legislation has been drafted for setting up unified database but does not specify whether the database has to be logically or physically unified	
Germany	No data format is specified through legislation, except that it needs to be appropriate. Incumbent uses its own proprietary file format when feeding the unified database	Incumbent's database is physically unified	Access to database is via OSA gateway (Varetis solution) or E.115
Greece		No unified database exists	
Iceland	Legislation states that format must be agreed but does not specify what it should be	No unified database exists	
Italy		New universal database is likely to be logically unified due to lower cost of implementation – although regulator would prefer a physically unified database	
Ireland			Work underway to change data exchange protocol to IP; E115 will still be used for international access

<i>Country</i>	<i>Data format</i>	<i>Physically or logically unified</i>	<i>Protocol used</i>
Netherlands	Incumbent determines data format for universal database; regulator encourages the use of a standard format	Physically unified, but this is not regulated.	
Portugal	Legislation requires format to be agreed between operators	The incumbent's universal database is required to be physically unified – due to lower cost	
Spain	Regulator due to define specific data format – which is expected to be very strict	Regulator will keep directory data in a physically unified database	

Exhibit 3.7: *Technical issues with subscriber databases [Source: Analysys, 2002]*

National legislation requires database owners to come to an agreement on **data format**. However, it is left for market players to develop a particular specification of this format. Often, the incumbent has its own proprietary data format and requires all operators that deliver directory data to its database to comply with this. This has led to complaints from alternative operators in various countries, such as France and the Netherlands. Overall, few countries reported any concerns that technical issues prevented the establishment of, or access to, a universal subscriber database.

In most countries, the structure of the **unified database** (if such a database exists) is not prescribed by regulation. In most cases the database is *physically* unified (consisting of a single database on one site), as opposed to *logically* unified (consisting of a number of physically separate databases made to function as a single entity by means of software). Discussions with regulators reveal that they prefer a physically unified database as this approach makes it easier to control and safeguard subscriber information. Italy is an exception, where, despite the regulator's preference for a physically unified database, market players are likely to set up a logically unified database due to the lower cost of implementation.

No significant problems with **protocols** have been reported. All operators seem to use the E115 protocol over X.25 to access international directory databases. Work on a new protocol is ongoing (for more details, see Section 4.4.2 below). Other technical issues in the directory market are restricted to problems with integrating data from different databases – often due to poor quality data, as is the case in Belgium. The Italian regulator considers that some significant outstanding technical issues need to be solved before operators can integrate their databases.

3.1.4 Content-related issues

This section reviews the nature of the subscriber information that is available to service providers, and what uses they are allowed to put this information. These issues have a potential impact on the size of the directory services market: if directory services are comprehensive (covering all listed subscribers), and additional functionalities and uses of this subscriber data are allowed, then the offerings of directory services providers will be

increasingly attractive to end-users. This can increase the size of the market, as well as the viability of competition.

Exhibit 3.8 below summarises the situation regarding these content-related issues. The issues described in the table are the existence of opt-in versus opt-out regimes; whether prepaid subscribers are included in directory databases; any issues with the data protection law in terms of treatment of directory data; and whether or not reverse searches (being able to find a subscriber's name or address based on their telephone number) are permitted.

<i>Country</i>	<i>Opt-in or opt-out for subscribers</i>	<i>Inclusion of prepaid mobile subscribers</i>	<i>Data protection law</i>	<i>Reverse searches allowed</i>
Austria	Opt-out for fixed and mobile subscribers		Directory data is only allowed to be used for the purpose of providing directory services	Allowed
Belgium	Opt-out for fixed and mobile subscribers (in practice, opt-in for mobile subscribers)	Prepaid mobile users are not included in directory database (80% of new mobile users are prepaid)	Directory data obtained by publishers cannot be used for any other purpose than telephone guides	Allowed
Denmark	Opt-out for fixed and mobile subscribers	Prepaid mobile users and subscribers with corporate phones are not included in directory databases		
Finland	Opt-out for fixed and mobile subscribers	Prepaid is not included in the subscriber database (but constitutes a low share of mobile subscribers)	Only data strictly essential to the provision of directory services can be stored in the directory database.	
France	Opt-out for fixed subscribers and opt-in for mobile subscribers. New legislation will require opt-out for all subscribers		Problems with incumbent distributing the directory database to marketing companies, but without the associated list of subscribers who wish not to receive direct marketing calls	Allowed, although ongoing discussion on whether this is an information service or directory service. This will impact cost of access to database
Germany	Not legislated although in practice opt-out for fixed subscribers and opt-in for mobile subscribers	Prepaid subscribers are not included in database		Not allowed

<i>Country</i>	<i>Opt-in or opt-out for subscribers</i>	<i>Inclusion of prepaid mobile subscribers</i>	<i>Data protection law</i>	<i>Reverse searches allowed</i>
Greece	Opt-out for incumbent fixed and mobile subscribers and opt-in for other mobile operators (although mobile subscribers are always included in the operator's own directory enquiry service)			Allowed
Iceland	Opt-in for both fixed and mobile subscribers		Directory specifies whether subscriber accepts contact for marketing purposes	
Italy	Opt-out for fixed subscribers and new opt-out legislation for mobile operators to be implemented by December 2002	Prepaid subscribers are not included in database	Privacy issues to be resolved with new opt-out rule for mobile operators	
Ireland	Opt-in for mobile and fixed operators with three options: Listed (included in directory and enquiry services), unlisted (only available on enquiry services), and ex-directory	Prepaid subscribers have no automatic opt-in facility at time of subscription to service – close to 0% are actually included	Operators are required to ensure that the information is complete, accurate and current. This is enforced by the regulator	
Liechtenstein	Default opt-in for both mobile and fixed subscribers		Data protection law will be established in second half of 2002. Directory data should be used solely for the provision of directory services and, if agreed by the customer, for marketing purposes.	
Luxembourg	Opt-out for fixed line subscribers, opt-in for mobile subscribers			

<i>Country</i>	<i>Opt-in or opt-out for subscribers</i>	<i>Inclusion of prepaid mobile subscribers</i>	<i>Data protection law</i>	<i>Reverse searches allowed</i>
Netherlands	Opt-out for fixed and mobile.	Regulator accepts opt-in for prepaid, but prepaid customers are not included as mobile operators refuse to provide information to incumbent	Directory information cannot be altered or distributed to others, or used for commercial purposes	Not allowed by incumbent
Norway	Opt-out for fixed line subscribers, opt-in for mobile subscribers	Prepaid customers are not automatically entered, but can input their own data on incumbent's website for directory enquiries	Data protection law covers the use of online directories: users of online directory services need to register before they can get access	Not allowed
Portugal	Opt-out for fixed and mobile subscribers		Only data strictly needed to the provision of directory services should be collected	
Spain	Opt-out for fixed line subscribers, opt-in for mobile subscribers	Opt-in for prepaid mobile users	Fears of violation of the data protection law kept incumbent from providing directory data to alternative service providers	Allowed
Sweden	Opt-in as default from 1 June 2002			
UK			Companies requesting subscriber info must comply with data protection laws	Not allowed

Exhibit 3.8: *Issues surrounding the inclusion and use of subscriber information in directory databases [Source: Analysys, 2002]*

It emerges from this table that most countries have an **opt-out** policy for fixed subscribers – meaning that subscribers will automatically be included in the universal directory services unless they indicate otherwise. Mobile subscribers on the other hand are more likely to have to opt-in – though very few do so. Germany reports less than 8% of its mobile subscribers opt-in, whereas in Ireland this number is 25%. In countries where an opt-out policy has been implemented, in practice mobile subscribers still have to explicitly indicate they want to be included in directory services. For example, in the Netherlands less than 8% of mobile subscribers are included in the directory services – although this country should have implemented an opt-out policy. The regulator is currently looking into this issue. In some countries, opt-out is working well for mobile subscribers – Finland, for example, claims 95% of its mobile subscribers are included in the directory database.

Overall, **prepaid mobile subscribers** are not included in directory services. Although some countries have defined an opt-in regime for these subscribers, in most cases no prepaid numbers can be obtained through directory services as the mobile operators often know very little about them – not even their names and addresses. This reduces the completeness of the directory database and, depending on the penetration of prepaid customers, can have a significant impact on the completeness of the subscriber database (prepaid penetration ranges from only 2% in Finland, to almost 90% in Italy).

The **data protection law** restricts the use that can be made of directory data. Every country has implemented a data protection law, except for Liechtenstein. The table above samples the main provisions in the respective data protection laws, which focus on the data that can be collected for directory services, and the use that can be made of this data. France and Spain are countries where problems related to a relatively strict data protection legislation have inhibited alternative directory service providers from obtaining or using directory data.

The EU and EEA Member States also differ on whether **reverse searches** can be done on directory data, revealing a subscriber's name or address from their telephone number. Whereas most countries allow this functionality, Germany, the Netherlands, Norway and the UK do not.

3.2 Country summaries

Whereas the previous section summarised the results from the research on a topical basis, this section gives a brief overview of the directory services market on a country-by-country basis. Material for these country summaries comes from the initial desk research on all 18 countries (phase 1) and the interview programme (phase 2).

3.2.1 Austria

- The incumbent dominates the directory enquiry service market, though it has two main competitors. There is little competition in the printed directories sector (dominated by a partner of the incumbent), though there are a number of companies providing Internet-based and CD-ROM offerings.
- Neither retail tariffs nor access charges for directory enquiry services are regulated. The incumbent maintains the unified directory database and operators are obliged to exchange directory information at cost-oriented prices.
- The regulator has detected a problem with payment workflows between operators.

Commercial information

The incumbent, Telekom Austria, is the dominant player in the directory enquiry market, and is considered to offer the best services. Other important players are CLC and Conduit, which buy data from Telekom Austria's universal database. Mobile operators such as max.mobil also offer directory enquiry services and Web-based directory services, though these often provide information only on their own subscribers.

White page directories are published on paper, CD-ROM and the Internet via Telekom Austria's partner, Herold Business Data AG. Herold also publishes yellow pages on the same media, and owns its own yellow pages database. It sells data to other players such as CLC.

Regulatory information

The Austrian regulatory authority for telecoms and broadcasting is the Rundfunk und Telekom Regulierungs GmbH (RTR). The directory enquiry services market has been opened to competition; there is numbering parity (using the 118XYZ number series).

As part of the USO, Telekom Austria is obliged to offer directory services, to maintain the universal database and to exchange data with other market players at cost-oriented prices. Other operators are also obliged to provide subscriber information for their own customers. Access charges are not regulated but they should be cost oriented.

Retail prices for directory enquiry services are not regulated. Customers can opt not to be included in the databases at no charge and the information should be used only for the purpose of providing directory services.

The regulator has detected a problem with payment workflows between operators: alternative operators have to pay Telekom Austria a charge in order for their customer numbers to be included in Telekom Austria's database, and then Telekom Austria sells this information to other service providers.

3.2.2 Belgium

- There is no numbering parity and only one mobile operator provides its own directory enquiry service in competition with the incumbent.
- The telephone directory market is reasonably competitive, with one major competitor building up its own database for offering directory services on CD-ROM as well as the Internet.
- Access charges are regulated to be cost-oriented, and the regulator is conducting a study on this tariff as the current charge of EURO.15 is disputed.

Commercial information

Belgacom, the incumbent, offers national and international directory enquiry services (white page and yellow page information), an SMS service, a direct connect facility, and reverse searches. As of March 2002, all mobile and fixed operators interconnect with Belgacom for the provision of its universal enquiry services. One of the mobile operators (Mobistar) has its own enquiry service, offered under its own number.

The market for directories is reasonably competitive, with two main players. Both publishers, Kapitool (Infobel) and Promedia (Gouden Gids), offer a range of directory information (including white and yellow pages) in a range of formats (paper, CD-ROM, Internet and WAP). All regions in Belgium are covered by at least one telephone directory publisher.

Regulatory information

Belgacom is obligated as part of its USO to maintain a universal database of subscribers from all operators (fixed and mobile), and to make this information available for the directory enquiry service and the directories. All operators are obliged to provide subscriber data to publishers of telephone directories and to Belgacom under reasonable and non-discriminatory conditions approved by the regulator, BIPT. The price of the data has to be cost-oriented. There have been disputes over the rates at which Belgacom can obtain this information from alternative operators. The rate was set at EUR0.15 in 1999, but BIPT is currently reviewing the level of these tariffs.

With a framework in place that enables alternative service providers to access operators' directory databases at a cost-based price, regulatory conditions in Belgium encourage competition. So far, one alternative service provider has built up its own competing directory database. The absence of numbering parity, however, is a barrier to competition in the directory enquiry services market.

Telephone directories are regulated through a Royal Decree (September 1999), which implements an opt-out regime for both fixed and mobile subscribers. There is a USO on the

publishing of a universal (paper-based) telephone guide in those regions where no other publisher offers such a service; BIPT can appoint a publisher to fulfil this duty.

3.2.3 Denmark

- The 118 default code has not yet been withdrawn, but alternative service providers can use their own four digit numbers (18XY). So far there are four major directory enquiry service providers in the country.
- Retail prices are set by the service providers. Providers' access to subscriber information is regulated and is available on a marginal cost basis.
- Several comprehensive directory databases for both fixed and mobile subscribers exist in the country.

Commercial information

TDC is the dominant player for directory enquiry services (using the code 118) and is also a market leader in the yellow pages (through its subsidiary TDC Forlag A/S). Ahhaaa AB also provides a white page directory enquiry service. Eniro's directory enquiry service is restricted to business information only. The other major service providers in Denmark are Eniro (paper and Internet) and KRAK (Internet).

Prices of directory enquiry services are not regulated; Ahhaaa's prices are 10% lower than TDC's. Access to operators' subscriber information is available at marginal cost, but currently Tele Denmark obtains this data free.

Directory enquiries from fixed-line subscribers are falling marginally whereas those from mobile users are slightly increasing.

Regulatory information

Telestyrelsen is the national telecoms regulatory authority, responsible for directory enquiry services. The directory enquiry service market has not been fully opened to

competition: the short code 118 has not yet been withdrawn. TDC is obligated as part of its USO to provide directory enquiry services, and to maintain a universal database of subscribers from all operators (fixed and mobile). Pre-paid mobile subscribers are not included in this database; nor are corporate subscribers (employees with mobile phone provided by their company). All operators are obliged to provide directory enquiry services to their customers, and to provide their subscribers' information to Tele Denmark. There is an opt-out default option for both fixed and mobile subscribers.

Alternative providers can use a four-digit access code (18XY), and Eniro, KRAK, and Ahhaaa each have their own nationwide directory database

3.2.4 Finland

- The directory service market is quite competitive, with three main players.
- The incumbent operator has already divested its directory enquiry service operations and there is an independent national directory database.
- Retail prices are not regulated and are currently set by the service providers. Access to the common database is regulated and non-discriminatory.

Commercial information

Fonecta (formerly Sonera Info Communications Ltd) and Eniro are the largest players. Both provide white and yellow page services. The third largest player, Inoa, provides a yellow pages service. A directory enquiry service is provided by both Fonecta and Eniro through a three digit access code (118). Although a 118XY numbering system has not been implemented, service providers can offer directory enquiry services through their own independent access codes in addition to 118, which is available to all providers.

Service providers set the price for directory enquiry services. Billing (handled by the telecoms operators) is regulated and is currently set at 5% of the price paid by the subscriber.

A universal directory database is owned by Suomen Numeropalvelu Oy, which acts as a common clearing house. Charges for access to the database are regulated and are currently set at approximately 10 euro cents per call. The database is very comprehensive, including an unusually high proportion (95%) of mobile subscribers. This is primarily because of the existence of “opt-out” system coupled with a very low proportion of prepaid mobile subscribers.

Regulatory information

The Finnish Communications Regulatory Authority (FICORA) is the national telecoms regulator. There has not been major intervention in the directory services market by the regulatory authority. Any competition related issues are dealt with by the Finnish Competition Authority. The three digit access code 118 has not yet been withdrawn from service. Operators are obliged to provide their subscribers’ information to the universal database on reasonable terms. The information included is restricted by the Act on the Protection of Privacy and Data Security in Telecommunications. Retail tariffs are not regulated and service providers set the retail tariffs for directory enquiry services.

The mobile operators made an early decision that the default option for their subscriber listings should be opt-out; as a result most mobile subscribers are included in the national directory database.

3.2.5 France

- The incumbent operator, France Telecom, is at an advantage in the provision of directory enquiry services, having a preferential short code as well as controlling the price for access to the largest subscriber database.
- In July 2001 telecoms regulation was changed so that a single organisation will be made responsible for a unified national directory database. Regulation opening up the directory services market is expected at the end of 2002.
- There are significant data-protection worries, as marketing companies at present have access to the restricted “orange list” of people that have specifically requested that their personal data not be used for marketing.

Commercial information

The dominant player is Pages Jaunes, a subsidiary of Wanadoo (which itself is a subsidiary of France Telecom). In 1999 it had 75% of the directories business in France. Pages Jaunes offers white and yellow pages via telephone directory enquiries, on paper, on the Internet and on CD-ROM. It offers further business-to-business information through its subsidiary Kompass. Pages Jaunes also has significant international operations

There is significant competition from Annu and Scoot France. Annu offers white and yellow pages via directory enquiries, Internet, WAP and Minitel services. Scoot offers yellow pages via directory enquiries and online. Both these companies use four-number short codes. There are several other online competitors.

There is competition for local directories from Findexa (previously Telenor Media). Findexa owns three yellow pages companies that produce 38 directories and a total of 6.5 million copies per year. Infobel provides CD-ROMs for the business and residential markets.

Regulatory information

In July 2001 the French regulator ART modified telecoms regulation so that a single organisation will be made responsible for maintaining a unified national directory database. It is likely that this will be France Telecom, though the regulation has yet to be finalised. ART stated that if France Telecom is chosen for this role, it will have the obligation to make directory information available on a non-discriminatory basis to any company requesting it for the purpose of directories. All other operators will be obliged to provide subscriber information to France Telecom on a cost-orientated basis.

The government launched a consultation on directory services in May 2001. Guidelines on directory services are expected by the end of 2002, but at present France Telecom has an advantage in the provision of directory services: it has a preferential short code for directory enquiries and also controls the price of access to the largest subscriber database. The tariffs for both wholesale access to and interconnection to France Telecom's database are decided by France Telecom. There is an ongoing dispute between France Telecom and

the other directory service providers; according to ART, the tariffs are high compared to other European countries.

There are significant data protection worries, as marketing companies at present have access to the restricted “orange list” of people that have specifically requested that their personal data not be used for marketing.

3.2.6 Germany

- The directory services market is highly competitive, with 40 companies registered to provide directory enquiry services using 118 numbers, and over 100 publishers of directories. However, the market is still dominated by the incumbent and its publishing subsidiary, with which the majority of players are in partnership.
- Retail prices for directory enquiry services are not regulated and vary by up to 30%. Wholesale prices for subscriber data have to be cost-oriented and non-discriminatory.
- The incumbent maintains a physically unified directory database which includes all fixed numbers and, to a certain degree, mobile numbers.

Commercial information

There are currently 40 companies offering national services via 118 numbers, and 11 offering international services. The biggest player is the incumbent, Deutsche Telekom, which claims to have a market share of around 80%. Telegate claims to be the world's largest independent directory services firm and to have a market share in Germany of over 20%. Retail prices for directory enquiry services vary by up to 30% between providers.

The non-telephone sector of the directory services market is highly competitive. DeTeMedien is a 100% subsidiary of Deutsche Telekom, which provides database information to all directory publishers in Germany. At present, there are about one hundred so-called ‘co-operative-partners’ each of which has contracts with DeTeMedien covering the production and distribution of local directories. The large telecoms companies produce a white and yellow pages and there are many independent local directories that provides localised businesses and residential information: every household receives three to five directories per year. There are approximately ten large directory publishers, the

largest being DeTeMedien, a subsidiary of Deutsche Telekom, which offers a wide range of products on paper, CD-ROM and the Internet. DeTeMedien partners with the majority of the other directory providers. The other main players are Windhager Mediengruppe and Wer liefert was? (WLW), which were acquired by the Swedish company Eniro in December 2000.

There is only one provider of online directory services (the subsidiary of Deutsche Telekom) and there are two major CD-ROM providers each with 40% market share (one of which is a subsidiary of Deutsche Telekom).

Regulatory information

The directory enquiry services market was fully liberalised in 1999. Services use five or six-digit numbers in the series 118XY(Z). Following an investigation, Deutsche Telekom was forced to grant its competitors access to its national directory database, and to considerably reduce its prices for this information. The new regulatory structure requires Deutsche Telekom (and all other operators) to provide subscriber data to directory enquiry providers at cost price and on a non-discriminatory basis. Retail tariffs are not regulated.

As part of its USO, the incumbent (via DeTeMedien) must publish directories in areas where there is no other provider – currently Berlin, Hamburg and Munich.

Deutsche Telekom has a physically unified directory database in Germany that includes all fixed numbers and, to a certain degree, mobile numbers. Data has to be provided to directory service providers on a cost-oriented basis. The major directory enquiry service providers have also been able to set up their own databases.

3.2.7 Greece

- The Greek regulator is in the process of drafting a regulatory framework for the provision of directory services.
- In the absence of a regulatory framework, the individual mobile operators have made agreements with the incumbent regarding the sharing of directory information.

- There is very limited competition in the directory services market, and the regulator doubts the economic viability of competition; the main alternative provider of yellow pages is facing significant financial problems.

Commercial information

The leading directory service provider in Greece is InfOTE, a subsidiary of the incumbent OTE that was created only last April. InfOTE is responsible for maintaining the national directory database, and provides a wide range of directory services. Included in its portfolio is a directory enquiry service (using the number 131), as well as telephone directories with white page, yellow page and blue page (tourism) information. These telephone directories are available on paper, CD-ROM and the Internet.

All three mobile operators provide their own directory enquiry services, providing information on their own and OTE's fixed-line subscribers. They have individual bilateral agreements with the incumbent regarding the sharing of directory information. These agreements are not subject to regulation and no prices are publicly available.

There is little competition in the directory market. InfOTE is the only publisher of white page directories, while two other companies publish yellow page and other business directories. Bell Atlantic and ICAP, both separately and in cooperation, publish a number of yellow page telephone directories and provide an enquiry service for business information. Bell Atlantic's future, however, is uncertain at the moment.

Regulatory information

The national regulatory authority in Greece is EETT. It is in the process of setting up a regulatory framework for the provision of directory services. In this framework, the EETT has included the provision of phone directories services in the Universal Service regulation. A consultation period has taken place which focussed on issues such as: inclusion of fixed numbers, mobile numbers and email addresses in the directory service provision (telephone directories as well as enquiry services), as well as the cost of the provision of directory enquiry services.

The current absence of a regulatory framework results in a lack of competition, particularly in the white page market. The increase in subscribers using alternative telecoms operators (mobile phone users) increases the need for legislation that allows for a universal directory database to which multiple operators and directory service providers have access.

3.2.8 Iceland

- The incumbent operator maintains the only national database and provides directory enquiry services for the other operators. There is no discount on the retail rate, which means these operators charge more.
- A mobile operator attempted to run an independent directory enquiries business but this was not viable and was passed over to the incumbent.
- As yet there is no regulatory structure for pricing and access to the national subscriber database; companies have to negotiate commercial agreements.

Commercial information

Siminn (Iceland Telecom) is the incumbent operator and maintains the only national subscriber database. It offers national and international directory enquiry services (using the numbers 118 and 114), as well as white and yellow pages (both printed and online). Siminn provides the only national directory enquiry service in Iceland, which it sells to the other operators – TAL and Islandssimi. There is no discount on the retail rate for other providers since Siminn says that it is not making any profit on this service. The alternative providers therefore have to charge its customers more than the Siminn retail rate. TAL started a directory enquiries business using the number 1818 but this was not economically viable and was passed over to Telecom Iceland last year.

Competition in yellow pages is provided through Midlun, which maintains its own independent business database. It publishes 90 000 copies of its directory in Reykjavik, and also offers yellow pages online. It provides the only telephone-based yellow page enquiries service (“talking pages”). The service is mostly paid for by the companies that advertise in the directory, although there is a fixed fee of IKR70 (EUR0.82) for the talking pages service.

Data from Siminn shows that there has been a notable increase in the use of directory enquiry and online services in Iceland in the past few years.

Regulatory information

The Post and Telecom Administration is in charge of regulating directories. At present there is no universal directory database. Siminn has a directory that includes most fixed numbers but it does not have most mobile numbers and it does not contain information on the subscribers of other operators that wish to be ex-directory. Subscribers have the right to be listed in publicly available directories and to request correction or removal of an entry if necessary. New entrant operators are obliged to provide this information on terms that are fair and cost-orientated.

As yet there is no regulatory structure for pricing and access to Siminn's national directory database and companies have to negotiate commercial agreements. The lack of a clear regulatory framework on the provision of directory services both at the wholesale level and at the retail level may be a deterrent to competition. Indeed, there is a non-telecoms organisation that wants to provide directory services that has a dispute with the incumbent about access to its database. Under present legislation, Siminn does not have to provide this information to a company that does not hold a telecoms licence. The regulator is reviewing the situation.

The Post and Telecom Administration can set a cap to price schedules for the directory information service if it is out of line with the neighbouring countries.

3.2.9 Ireland

- Although the directory services market was opened up in May 2000, the competition is restricted to only two facility-based players (with call centres).
- Retail prices are regulated by the telecoms regulator. Access to information from the national directory database is possible at a cost and non-discriminatory basis.
- There is a unified national directory database, managed by the incumbent. A forum has been set up to examine the effective operation of the database.

Commercial information

In Ireland, the directory enquiry services market was opened to competition by the introduction of a 118XY numbering system in May 2000. So far only two companies – eircom (the incumbent) and Conduit – are providing national directory enquiry services through their own call centres.

Eircom bears the USO for provision of directory information services, and provides national white page and (on behalf of Golden Pages) yellow page information via 118 11 and on the Internet. It also publishes printed white pages. Conduit, which has a market share of 35%–45%, provides a national directory enquiry service (via 118 50), offering both white page and yellow page information. Both eircom and Conduit offer international directory enquiry services.

Golden Pages (once part of eircom) is the market leader in the yellow pages segment, with a business directory enquiry service (via eircom's enquiry number, 118 11), and yellow pages on paper, CD-ROM and online. The company also offers white page information on its Web site.

Retail prices are not regulated, although the regulator examines any complaints related to tariff issues. Following an allegation by Conduit that eircom was cross subsidising its directory enquiry services, the regulator required eircom to increase the retail prices for both national and international directory enquiry services in 2000.

Regulatory information

ODTR is the telecoms regulatory authority in Ireland. Eircom as part of its USO is obliged to provide national directory enquiry services and to publish white pages. Telecoms operators are obliged to provide their subscribers with access to directory enquiry services, and also to make their subscriber information available on request to providers of directory information services.

There is a unified national directory database, maintained by eircom. Access to the directory database must be available on a fair, cost-oriented and non-discriminatory basis,

which is currently set at approximately 1 euro cent per search. Wholesale charges for eircom's directory enquiry and operator assistance service form part of its reference interconnect offer. These represent approximately 90% of the retail tariffs. ODTR has set up a Directory Information Services Forum to examine the effectiveness of the national directory database.

Currently there is an opt-in system for inclusion in the national directory database, with three options available to subscribers (listed, unlisted and ex-directory). Many operators have procedures in place to safeguard their customers from unwanted direct marketing calls.

3.2.10 Italy

- The incumbent is the biggest player in all areas of the directory services market and has made strategic acquisitions to reinforce this position.
- Since March 2002, fixed and mobile operators are obliged to provide subscriber information and a universal database is being set up. If managed by one operator, data should be available on a fair, cost-orientated and non-discriminatory basis)
- Subscribers must be given the option to opt-out of the directory database and operators have to change their service contracts so that subscribers explicitly agree to put their names in the register.

Commercial information

Seat Pagine Gialle, a subsidiary of the incumbent Telecom Italia, is the dominant player. It is one of the major companies in the European directory services industry. Seat has consolidated its dominance in Italy by the acquisitions of Telegate and Consodata, both of which have Italian operations. Besides basic directory enquiries to fixed subscribers, Seat's portfolio includes "talking pages" company Pronto Pagine Gialle, and Telegate (which provides Telecom Italia Mobile's services). Seat has yellow pages and white pages directories, online white and yellow page directories. It owns Kompass, which provides Italian business information on CD-ROM and in printed form.

Seat faces significant competition with online directories (of which there are many) and with local printed directories in some areas of the country. Mobile operators offer their own directory service numbers but these are significantly more expensive than the fixed line service.

Regulation

The Italian regulator, AGCOM, published a Deliberation in March 2002 that details the regulation for directory services and changes needed in the USO regulations. All fixed and mobile operators have the obligation to provide information on their subscribers, and a universal database is to be set up. If this is managed by a single operator, directory information should be made available on fair, cost-orientated and non-discriminatory terms to all providers of directory information. It is also possible that the database could be managed jointly by the operators themselves, or run by a third party.

Providers of directory information through phone books or directory enquiries services must treat all operators that have numbers in the directory on fair and non-discriminatory terms. Directory enquiry services are to be open for competition and the provider may be chosen by auction or some other selective procedure (this is to be decided by AGCOM by 30 July 2002).

Subscribers must be given the option to opt-out of the directory database and operators have to change their service contracts so that subscribers explicitly agree to put their names in the register. Operators must adhere to data protection laws.

Currently AGCOM is finalising, in collaboration with the Italian Privacy Commission, an integration of the 36/02 deliberation, which will regulate the pending issues regarding data protection measures and responsibilities in the management of the unified database. In particular, in the new deliberation there will be included AGCOM's decisions on whether and how secondary data (email addresses, fax numbers, etc.) should be included in the database.

Fixed operators are working at the moment on the definition of their unified database, with due date 30 June, while mobile operators have time until the end of the year to finalise their

database. However, all operators intend to ask AGCOM for a new deadline (between June and December) in order to present a single fixed-mobile database to avoid potential integration problems that could arise if two separated databases will be developed

3.2.11 Liechtenstein

- There is no competition to the incumbent operator in the telephone directory enquiry, CD-ROM and Internet markets; there is very little competition in the paper-based market.
- There is no regulation in place for directory services apart from the recommendation that prices should be cost oriented.

Commercial information

Telecom FL, the incumbent, is the only operator that offers directory services in Liechtenstein apart from two regional providers of paper-based services. The services are operated directly by Swisscom, which owns 100% of Telecom FL. Swisscom is also the owner of the telephone database, which sells subscriber data also to the regional service providers.

In addition to a comprehensive directory enquiry service that also covers the neighbouring countries, national directory services are offered by Telecom FL in different formats: paper, CD-ROM and Internet.

Regulatory information

As part of its licence conditions, Telecom FL is obliged to provide a national directory enquiry service to its customers and those of other operators (e.g. mobile operators). Otherwise there is no regulation in place concerning directory services apart from the recommendation that prices should be cost oriented. Customers are voluntarily included in the databases and data must be used only for information purposes and, if the customer agrees, for marketing purposes. A data protection law is to be issued in the second half of 2002.

3.2.12 Luxembourg

- Although USO legislation covering directory services exists, it is currently not active because there is no appointed USO operator. This situation is likely to change.
- There is little competition, and even though the 118XY range has been introduced, only the incumbent operator offers directory enquiry services.
- Discussions between the incumbent and alternative operators have only started recently, and difficulties have arisen in including their subscribers in the incumbent's database.

Commercial information

Entreprise P&TLuxembourg (EPT) is the incumbent operator. Its subsidiary Editus is the main provider of directory services in Luxembourg. Although the incumbent does not have a USO to provide directory services, Editus provides a range of services under a variety of brands. National and international directory enquiry services are available under 118XY numbers, which were introduced in 1998. Yellow pages and white pages are available on paper, CD-ROM and the Internet. Inter-regional and international directories are also available, as well as a business and online directories. Most directories are free of charge.

Competition to Editus is very limited. Kapitool, with its Infobel brand, is the only alternative directory service provider, with Internet- and CD-ROM-based directories. Infobel provides white pages and yellow pages as well as an extensive international Internet-based directory.

The majority of telephony subscribers belong to the incumbent, and are thus in Editus' database. Alternative mobile and fixed operators have only started discussions with Editus last year, to get their subscriber's included in the directory database. Without a regulatory framework, discussions are difficult. At the moment, an agreement has been reached to include subscribers of alternative operators, for which the operators get advertising space in return. However, as very few mobile subscribers wish to be included in the database (there is still an opt-in regime) the number of telephone numbers included is not significant.

As the number of subscribers with alternative operators is set to rise, the situation described above will not be sustainable. The regulator, the Institut Luxembourgeois de Régulation (ILR), recognises this but does not want to speculate on a possible solution.

Regulatory information

Currently, the only active legislation regarding directory services determines that telephone directories should be free of charge. Since May 1998 extensive legislation has existed which deals with directory services as part of the USO, but this legislation is currently inactive, as no USO provider has been nominated. The ILR therefore has the option of further regulating the market by designating the incumbent as having the USO.

Retail tariffs and access charges are not regulated. Should a USO provider be designated, conditions for telephone-directory related activities will be determined by the regulator, and conditions for access to directory data will have to be equitable, reasonable and non-discriminatory.

With limited regulation in place to provide alternative telecoms operators and directory service providers with a framework to obtain access to Editus' directory information, significant regulatory barriers exist that hamper further competition in this market.

3.2.13 Netherlands

- There is a reasonable level of competition in the provision of directory services via CD-ROM and the Internet, though not in the paper-based white pages market, nor the directory enquiry market.
- The regulator has defined a price-cap on the tariffs for access to the incumbent's database by alternative directory service providers, reducing the original tariff significantly.
- The incumbent was fined for not complying with the USO, as mobile subscribers were not included in its database.

Commercial information

KPN, the incumbent, provides directory services under its USO. KPN as well as two mobile operators offer a residential directory enquiry service. However, both mobile operators use KPN's database. Scoot provides a competing enquiry service for business information, but is currently in financial difficulties.

Directory services are offered by KPN in different formats: paper, CD-ROM and Internet. There are a number of alternative directory service providers. In the paper-based market, only the yellow page sub-market is competitive with several publishers bringing yellow pages into the market. In the CD-ROM market Denda Multinational and the National Telephone Guide offer both yellow and white page information. Several providers offer Internet-based services: Gouden Gids (yellow pages), National Telephone Guide (white and yellow pages) and Scoot (yellow pages). Some providers have started offering their services via WAP (Gouden Gids, the National Telephone Guide).

Regulatory information

Disputes in 1998 between the incumbent and an alternative directory service provider (Denda) caused the regulator to study the directory services market in terms of its competitiveness. OPTA concluded that KPN had a monopoly on the directory services database, and required the incumbent to supply its customer information to third parties on cost-oriented and non-discriminatory conditions according to the Telecommunications Law. OPTA also defined a price-cap on the tariffs KPN can charge universal directory service providers for its directory data, reducing the tariffs from 38 to 0.25 euro cents. KPN is not satisfied with this tariff, and is still fighting this decision in court.

Under the USO, KPN has to include directory information from all other fixed and mobile telecoms operators in its universal directory services – unless the customer has requested to be ex-directory. Operators are required to provide this data to KPN and other universal directory services providers on cost-orientated and non-discriminatory conditions. However, in a study in 2000, OPTA discovered that KPN's service was not universal as a number of operators refused to provide their subscriber data to KPN. OPTA concluded that this violation of the USO was KPN's fault, as the incumbent was trying to charge

illegitimate tariffs, to which the alternative operators objected. Currently, all mobile operators have provided their subscriber data to KPN, and only subscribers of two small alternative operators are lacking from the database.

Although KPN's database is nearly universal, the incumbent does not provide directory service providers with the directory data from other operators. This forces alternative providers to enter into agreements with a large number of telecoms operators and in this way create their own universal database. Consequently, there are four near-universal databases in the Netherlands.

3.2.14 Norway

- The two main players are the incumbent operator and a former subsidiary. Four additional providers of directory enquiry services entered the market recently. There are a number of small players providing Internet and CD-ROM offerings.
- The pricing of directory enquiry services is not regulated, but the access of providers to the operators' subscriber information is regulated and cost based.
- There is no universal directory database and providers have to form individual agreements with operators.

Commercial information

The dominant players are the incumbent Telenor and Findexa (part of Telenor until September 2001). Telenor provides directory enquiry services via 1881 including white pages, yellow pages and international information. Findexa publishes white pages and yellow pages and has a 90% share of the printed directories market. It also offers yellow pages and other business information on CD-ROM and the Internet.

Since the market was opened to competition in February 2002, four additional players have entered the market to provide directory enquiry services: EasyConnect, Current, SOL and Phonec. Each has been assigned a four-digit number in the series 18XY. There is no universal directory database and providers have to form individual agreements with operators. The market is thought to be worth EUR52–65 million per year.

There are a number of other small players which provide Internet and CD-ROM offerings, especially for the business segment.

Regulatory information

The Norwegian Post and Telecommunications Authority is the regulator in Norway, also overlooking the directory market. Telenor provides directory enquiry services and (through Findexa) printed directories as part of its USO. All operators must make subscriber information available to Telenor (and other directory service providers) on a cost-oriented basis. Retail pricing of directory enquiry services is not regulated.

Directory service providers must conform to the data-protection legislation. On the issue of inclusion in directory databases, in general fixed subscribers are offered an opt-out option while for mobile subscribers the default is opt-in. There is no regulation determining this.

There is no universal directory database and no initiative to legislate for this. The absence of such a universal database is an obstacle to competition.

3.2.15 Portugal

- There is little competition in the Portuguese market, especially in the white pages sector. In the yellow pages sector there is some competition, though the incumbent's main competitor was only founded in 2000.
- Universal service provider, presently PT Comunicações (PTC), is charge with maintaining a physically unified database with other services providers mandated to give PTC information on their subscriber base.
- PTC presently has a preferential short code for the provision of directory enquiries services.

Commercial information

The incumbent operator, Portugal Telecom Comunicações, is the main provider of directory enquiry services. Under the terms of its USO it maintains the national directory

database, which is being developed into a comprehensive universal database. It offers white page, yellow page and international directory information. Other operators can use the incumbent's directory enquiry service, being charged 65% of the retail price. Alternatively, they can obtain data from the national database on a cost-orientated basis.

Portugal Telecom also dominates the directory market, through its subsidiary Páginas amarelas, publishing a number of yellow page, white page and other business directories. There is competition from Kompass in the business-to-business market and from Telelista in the yellow pages market. Telelista has an Internet site, a printed directory and a directory enquiries service.

Regulatory information

The directory enquiry services market has not been fully opened up to competition. Although other operators have been assigned numbers for their services, Portugal Telecom has a preferential short code (118). This is an issue that has yet to be resolved by the regulator. Under the terms of its USO, Portugal Telecom maintains the national directory database, provides directory enquiry services and publishes directories. The costs of these activities are met from the USO fund. All operators have an obligation to provide their subscriber information, and the right to obtain data from the universal database on cost-oriented terms. As the regulator does not have enough information to calculate what the costs of keeping the database are, there is some doubt as to the prices that will be charged for access to the data.

All subscribers have the right to be part of the universal directory database and to appear in directories (printed and electronic). They can request to be ex-directory, or that their details not be used for direct marketing.

3.2.16 Spain

- Although there is substantial competition for white pages and yellow pages, the incumbent dominates the directory enquiry services market, having a preferential short code and the only comprehensive directory database.

- In March 2002, legislation was passed allowing non-telecoms providers of directory services access to directory information and introducing 118XY numbering.
- The regulator has been given the responsibility of creating and managing a unified directory database.

Commercial information

Telefónica, the incumbent, has the only comprehensive national directory database. Under the terms of its USO, it provides national directory enquiry services as well as publishing printed white pages and yellow pages (through its subsidiary Telefónica Publicidad e Información). Information is available on paper, CD-ROM, the Internet, WAP and SMS, as well as via directory enquiries.

Competition for directory enquiries is recent and there have been problems with access to Telefónica's subscriber database. Telegate claims to be the only competitor to Telefónica in directory enquiry services but was initially refused use of Telefónica's billing service and was unable to use the short code allotted to it 1616 in January 2001.

There is significant competition in local white and yellow pages directories from Índice Multimedia and Findexa. Infobel provides white pages via Internet and CD-ROM whilst Kompass provides competition in the business-to-business sector.

There have been a number of disputes over access to the information from Telegate, Sonera and Índice Multimedia. The regulator, CMT, indicated that there was no reason for Telefónica not to provide the information on its subscriber database to in the same way that it provides information to its subsidiary TPI.

Regulatory information

Retail tariffs are not regulated. Telefónica is obliged to make its directory database available to all telecoms operators with a type A licence under cost-oriented and non-discriminatory conditions.

At present, Telefónica has a preferential short code. In March 2002 the Ministry of Science and Technology decided that directory enquiries number will be replaced by 118XY numbers within a year. It also decreed that all fixed and mobile operators must provide their subscriber database to the regulator, CMT, which will create and maintain a universal directory database and supply data to all providers of directory services, for whom a new Type D licence will be created. Telefónica will have to make its billing services available to directory service providers.

The new regulation, and the creation of a readily accessible unified database, have removed the major barriers to competition. Nonetheless, there are no plans to move to a 118XY system and the fact that only telecoms operators are allowed to request a short code hampers competition in the market.

3.2.17 Sweden

- The market for directory enquiry services was opened up in 1999 and a 118XYZ numbering system introduced. There are two main providers of white page enquiries services, with another company specialising in business directory enquiries. Directories are available on paper, CD-ROM and the Internet.
- Retail prices for directory enquiry services are not regulated. Access to operators' subscriber data is regulated and cost-based.
- There is no universal directory database, though several companies have comprehensive databases. Sweden has recently (May 2002) withdrawn the default system of "opt-out" in favour of "opt-in", to be implemented from 1 June 2002.

Commercial information

The directory enquiry service market was opened to competition in 1999 with the introduction of a 118XYZ numbering system. The three main companies providing an operator assisted directory enquiry service are: Respons AB (via 118 118), Eniro (via 118 767 – yellow pages only) and Ahhaaa AB (via 118 100). Eniro is the market leader in the printed yellow pages directory segment with about 75% market share. Respons publishes the printed white pages. Both Eniro and Respons were subsidiaries of the

incumbent, Telia. However, in November 2001, Telia divested its remaining stake of 25.5% in Eniro, and it now holds only a 49% stake in Respons.

Total revenues from directory enquiry services approximately EUR68 million in 2000 and EUR32 million in the first half of 2001. The usage of directory enquiry services over the fixed line network is fairly constant.

Regulatory information

The Swedish regulator is Post- och Telestyrelsen (PTS). It does not regulate the retail pricing for directory enquiry services. Operators must provide access to their subscriber data on terms what are subscriber information shall be released by operators on terms that are fair, cost-based and non-discriminatory; wholesale prices depend on individual commercial agreements between the operators and service providers. There are currently no disputes within the industry with respect to accessing subscriber information.

Telecoms operators are obliged to provide their own subscribers with national directory enquiry services which cover all fixed and mobile operators. There is no universal directory database, though a number of companies have quite comprehensive national databases. Teleadress Information AB (once part of Telia) does not itself provide a directory enquiry service but sells subscriber information to other providers, having developed an independent national directory database.

In May 2002, the government legislated to change the system for inclusion of subscribers' information in the various directory databases to an "opt-in" option; this is scheduled to be effective from 1 June 2002.

3.2.18 UK

- The market is dominated by two players – the incumbent (white pages services) and a former subsidiary (yellow pages) – but was opened to competition in March 2002. A 118XYZ numbering system is now operating.

- Retail prices are not regulated. Access to the universal database is available at a wholesale rate.
- There is a universal directory database, maintained by the incumbent, but not all the mobile operators pass on their subscriber details.

Commercial information

BT (the incumbent operator) is the dominant player in the white pages market, providing national directory enquiry services (via 192), international enquiries (via 153) and printed white pages. It sells on its directory enquiry services to many of the operators and also manages the unified directory database (through BT DirectorySolutions). Conduit has emerged as the largest alternative directory enquiry service providers, with a market share of approximately 8%. At present alternative service providers use the default 192 code through their own call centres. With the opening up of the market, approximately 80 companies have requested independent 118XY numbers. This is likely to lead to more competition in the future.

The yellow pages directory service market is dominated by Yell.com (divested from BT in May 2001). It offers a free directory enquiry service, publishes paper directories and has an online directory service.

There are a number of smaller providers: some 20 companies have signed agreements to use BT's directory database to provide directory services (primarily through the Internet). The pricing for directory enquiry services is not regulated. Access to the universal directory database is available at a wholesale price on a cost-oriented basis.

The UK is the largest directory services market in Europe, with approximately 700 million calls annually. Demand for national directory enquiry calls is roughly constant, falling slowly for calls from fixed networks but growing at around 10% per annum for mobile networks.

Regulatory information

Under the terms of its USO, BT is obligated to provide directory enquiry services and directory information in the UK. All operators are obliged to provide access to a national directory enquiry service for their subscribers.

On 1 March 2002, OFTEL announced that new six-digit numbers (118XYZ) for directory enquiry services will be allocated by the end of May 2002. The current 192 and 153 numbers will operate in parallel until August 2003 after which they will be withdrawn. Over 80 companies have applied for the new six-digit numbers. The regulator has also set up a number of special Working Groups in order to promote effective competition.

There is a universal directory database (“OSIS”), managed by BT (through its subsidiary BT DirectorySolutions). According to OFTEL, this database is available at wholesale rates and contains all available data on phone numbers. OSIS at present does not have a full complement of mobile numbers, as not all mobile operators pass on their customer details. There does not seem to be any regulation on “opt-in” and “opt-out” with respect to inclusion of subscribers’ information in directory databases.

4 Analysis of key issues

This chapter analyses the major issues affecting the development of directory services markets in the 18 EU and EEA Member States, based on the findings from the research detailed in Chapter 3. This section describes the extent to which Article 6 of the EC Voice Telephony Directive 98/10/EC has been implemented, and analyses the causes of any non-compliance. It describes in turn the various barriers to competition, looking into the four topical areas: regulatory, commercial, technical and content (data) related barriers. Finally, this chapter discusses the feasibility and desirability of a universal pan-European directory database for operators, service providers and consumers.

4.1 Compliance with Article 6

Article 6 of the EC Voice Telephony Directive 98/10/EC of 26 February 1998 (OJ, 1.4.1998, L-101/24) contains provisions intended to open the market for directory services up to competition and sets out the framework under which a level playing field for directory services should be provided. The full text of Article 6 is included as Annex 5. Overall, Article 6 stipulates that:

- all subscribers to mobile and fixed services have the right to be included in a public directory
- any such directory shall be available to all users in printed or electronic format
- at least one telephone directory enquiry service covering all listed subscribers must be available to all users
- directory information must be made available (e.g. to competing directory service providers) in an agreed format on terms which are fair, cost-oriented and non-discriminatory.

Although most of the 18 study countries have implemented these four provisions of Article 6 in their national law (see section 4.2.1), the extent to which the provisions are actually enforced varies from country to country. Exhibit 4.1 below provides a summary of this practical (rather than legislative) situation, with the four provisions of Article 6 making up the four columns.

<i>Country</i>	<i>Right to be included in public directory</i>	<i>Directories available to all in printed/ electronic format</i>	<i>Availability of enquiry service covering all subscribers</i>	<i>Fair, cost-based and non-discriminatory access to directory database with agreed formats</i>
Austria	Yes	Yes	Yes	Yes - although there are disputes on access charges (among the highest in Europe) and dispute on tariffs between alternative operators and the incumbent, as incumbent charges for the publication of the subscriber information of the alternative operators
Belgium	Excluding 1 mobile operator	Excluding 2 mobile operators	Excluding 2 mobile operators	Yes - although disputes on access charge of EUR0.15. Regulator is studying new cost-oriented tariff
Denmark	Yes	Yes	Yes	Yes – dispute on free access for incumbent operator to alternative operator's directory data
Finland	Yes	Yes – though not on CD-ROM	Yes	Yes – dispute on charges (currently EUR0.80) paid to operators for accessing their subscriber data
France	Yes	No – only 0.5% subscribers from alternative operators are included in a printed / electronic directory	No – only 0.5% subscribers from alternative operators are included in an enquiry service	Yes – although regulator is in consultation on access charges
Germany	Yes	Yes	Yes	Yes - although disputes level access charges (EUR0.14) and its non-discriminatory nature. Also problems with merging different subscriber databases
Greece	Yes	Directories exclude mobile subscribers from alternative operators	Yes	No information: private arrangements
Iceland	Yes	Yes	Yes	Yes - disputes on database access charges between incumbent and alternative operator

<i>Country</i>	<i>Right to be included in public directory</i>	<i>Directories available to all in printed/ electronic format</i>	<i>Availability of enquiry service covering all subscribers</i>	<i>Fair, cost-based and non-discriminatory access to directory database with agreed formats</i>
Ireland	Yes	Yes	Yes	Yes – although concerns on efficiency of independent database (frequency of updates and consistency)
Italy	Yes	No - only fixed subscribers	No - only fixed subscribers	Yes - free access for non-commercial use
Liechtenstein	N/a – may not be included as operators are not obliged to provide directory data to incumbent (only service provider)	N/a – may be incomplete as operators are not obliged to provide directory data to incumbent (as only publisher)	N/a – may be incomplete as operators are not obliged to provide directory data to incumbent (only service provider)	Yes – through Swisscom
Luxembourg	Yes	Yes	Yes	Not regulated – disputes on access charges as alternative operators currently get advertising space in return for directory data
Netherlands	Excluding 2 small operators	Excluding 2 small operators	Excluding 2 small operators	Yes - ongoing disputes on access charge which is capped at EUR0.0025
Norway	Yes	Yes	Yes	Yes
Portugal	Yes	Yes	Yes	Unknown – reportedly no request has been made for access to incumbent's database
Spain	Yes	Yes	Yes	Yes - although disputes on level of access charges as well as fair access conditions due to concerns about stringent data protection law
Sweden	Yes	Yes	Yes	Yes – although there were disputes on bulk access
United Kingdom	Yes	Excluding some mobile operators	Excluding some mobile operators	Yes – access charges are published

Exhibit 4.1: Summary of implementation of Article 6 [Source: Analysys, 2002]

One note of caution is appropriate with regard to this table. As the detailed interview programme only covered eight of the 18 study countries, much more detailed information on those eight countries is available. Countries covered only through desk research in phase 1 are assumed to comply with the provisions of Article 6 (indicated by a ‘yes’ in the table) unless proven otherwise.

The degree of compliance of the 18 countries with the four provisions of the Article is described in more detail below.

Right of all subscribers to be included in a public directory

Although the research finds that in all countries subscribers have the right to be included in a directory, this directory does not always include all mobile subscribers (especially prepaid mobile users) or customers of alternative fixed telecoms operators. There are two reasons for this:

Although all EU and EEA Member States have either an opt-in or opt-out policy, giving every fixed or mobile subscriber the right to be included in a subscriber database, prepaid mobile users are mostly not included as mobile operators have very little information about such users. Also, most mobile operators have an opt-in policy for their subscribers, irrespective of the regime in the legislation. As mobile operators regard their subscriber information as sensitive business information, and as the churn rates are high, these operators are reluctant to stimulate their subscribers to want to be listed. This means that, although countries may still be adhering to Article 6 by giving subscriber the right to be included in a public directory, only very few mobile subscribers are actually listed and included in a public directory.

All subscribers of alternative fixed telecoms operators and mobile subscribers that want to be listed are included in their own operators’ subscriber directories. This information may be made public through the operators’ own directory services (such as online directories as in Norway or directory enquiry services as in Greece) or via the incumbent operator’s directory service if the subscriber data is provided to the incumbent. In either case, the information is made publicly available. However, in certain cases (e.g. Belgium) the mobile operators or alternative fixed telecoms providers do not provide their own directory

services, nor do they supply subscriber data to any other directory service provider for inclusion in a public directory. In those cases the Article 6 provision of being included in a public directory is not adhered to.

One of the factors behind the problems in including subscribers in a public directory lies in disagreements on *access conditions* for providing the USO operator with subscriber data for publication.

Availability to all users of a public directory in printed or electronic format

In all 18 countries the incumbent operator (or sometimes another independent assigned publisher) produces a printed directory of its own subscribers and, where an agreement to do so has been made, those of other operators. In a number of cases, the alternative operators (including the mobile operators) provide their own directory enquiry services and do not hand over their subscriber data to the incumbent. No public directory may then be available in printed or electronic format, even though the subscribers of alternative operators may still be included in a public directory enquiries database. An example of such a country is Greece, where alternative mobile operators provide their own directory enquiry service and their subscribers are not included in the printed or electronic directories.

Availability of a directory enquiry service covering all listed subscribers

Although all the countries studied have a national enquiry service available to all end-users, this service often does not necessarily include all listed subscribers. This is due to the fact that in some countries the universal service provider (or the incumbent, if there is no USP), does not have access to all listed subscribers from alternative operators. Although these operators are obliged under the terms of their licences to deliver this data to the universal directory enquiry provider (except in Liechtenstein), disputes on access conditions have often prevented them from doing so. The root of this non-compliance can therefore be traced back once more to disagreements on *access conditions* to directory data, which prevents the universal service provider from building up a universal directory database.

Availability of data in agreed format on fair, cost-oriented and non-discriminatory terms

Although almost all EU and EEA Member States require open access to directory information in national law, there are ongoing disputes between the operators and directory service providers on the *access conditions* to the directory databases:

- **Agreed format** – differences in data formats between the universal service provider and alternative operators result in delays. In Belgium, for example, two mobile operators have problems integrating their directory data into the incumbent's database due to data format and other technical problems.
- **Fair terms** – disagreements exist between operators and directory service providers on whether access terms are fair. In Spain, for example, the incumbent has refused access to its database, claiming it fears that the data protection law will be breached – despite service provider's willingness to comply with this law. Such a refusal of access may be called unfair.
- **Cost-oriented terms** – most disagreements concern what should be included in the calculation of a cost-oriented tariff. Solutions vary widely, from zero (Italy) or close to zero (Netherlands), to a tariff of around EUR0.15 per data record (Belgium, Germany) and higher.
- **Non-discriminatory terms** – there are also claims that the incumbent is giving its own subsidiaries better access terms than alternative service providers. In Germany, for instance, Deutsche Telekom is accused of providing its subsidiary DeTeMedien better terms than it offers to other directory service providers.

Although this provision is included in law in most Member States, there are significant disputes regarding access to subscriber directories. These disputes result in difficulties for any directory service provider, including the incumbent, to build up a universal database for the provision of universal directory services.

Summary of extent of compliance with Article 6

Although the provisions of Article 6 are implemented in law in most EU and EEA Member States, in practice there is often little compliance with the first, third and fourth provision (and, in consequence, provision two is not always implemented).

Our interviews with consumer organisations have revealed that there are no significant complaints about the availability of directory services for end-users and that no concerns have been voiced by consumers about the completeness or accessibility of directory services. It therefore seems that the first objective of Article 6 – ensuring the right of end-users to be listed and the availability of this information (see Section 1.1 above) – is satisfied.

However the second objective of Article 6 – to promote competition in the provision of directory services – has not been satisfied. The main reason for this stems from disagreements on access conditions to directory data – with the result that in reality, directory service providers experience problems in their efforts to build up a universal directory database. Without a universal database, no directory service provider is able to provide a universal enquiry service, including all listed subscribers from all operators (provision three), or to publish a universal telephone guide (USO and provisions one and two).

Non-compliance to these three provisions forms a major regulatory barrier to competition in this market. Not only do incumbents (which have the backing of USO regulation) have problems collecting directory data from other operators, alternative service providers (which, not being USO operators, have less legal power) have even more difficulty in building up their own complete database, having to gain access both to the incumbent's directory database and to those of alternative operators.

The breach of Article 6 means an incomplete directory service for users and worse conditions for competition in the directory services market.

4.2 Regulatory barriers to competition

This section looks into three regulatory barriers that hinder competition from developing in the directory services market: ease of access to directory data, numbering parity, and other legal frameworks that may impede access to directory data. Easy access to directory data ensures a level playing field for new-entrant service providers, while numbering parity gives new entrants the same level of recognition through the directory enquiry numbering scheme as the incumbent service provider. Other legal obstacles to access to directory data may be caused by inappropriate use of data protection and privacy laws, and other contractual issues.

4.2.1 Ease of access to directory data

Ease of access to directory data is made up of two components: the degree to which a comprehensive national directory database exists and the conditions of access to that database – in particular whether there is agreement on the access charges. As yellow-page directory service providers tend to build up their own directory databases and are therefore less dependent on operators' databases, ease of access is less important for competition in the yellow pages market. Hence this section focuses on the impact regulatory barriers have on the white page market.

The ease of access to directory data can be looked at from two different perspectives:

- the *regulatory perspective*, considering what is implemented in national law, in particular whether access conditions are regulated and whether or not there is a provision for a universal database
- the *practical perspective*, considering what is actually occurring in the market place – the degree to which these regulations are enforced and the effect on competition.

These two perspectives vary significantly between countries as there is a time lag between the issuing of legislation and its actual implementation in the market. This lag depends strongly on the regulator's approach to enforcement of the legislation – whether it takes a hands-on or hands-off approach. For example, international directory service providers

have referred to the Austrian and German regulator as more hands-off, whereas the Dutch and Spanish regulator are adopting more hands-on approaches.

This analysis requires a more detailed understanding of the legal and commercial situation than is available through desk research, and accordingly only the eight countries that were studied in detail through interviews have been considered.

Ease of access to directory data: regulatory perspective

Exhibit 4.2 illustrates the ease of access to directory data from a regulatory perspective in the eight countries studied in detail. On the horizontal axis is the degree to which the creation of a universal database has been prescribed in law, whereas the vertical axis indicates the regulation on access conditions, in terms of the access charge for directory data.

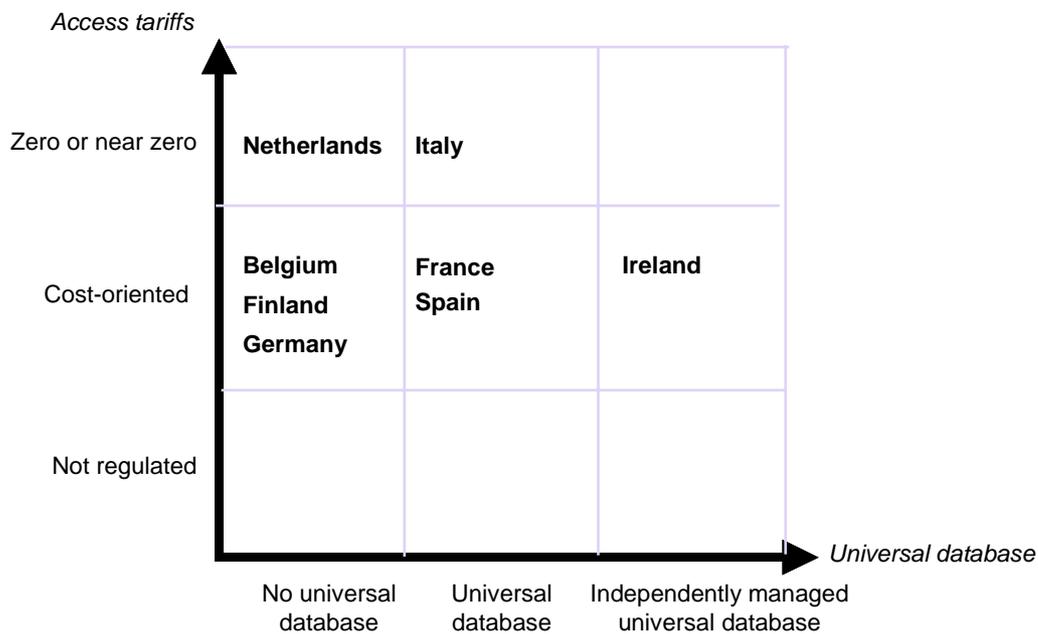


Exhibit 4.2: Regulatory aspects of ease of access to directory data [Source: Analysys, 2002]

All eight countries have legislated cost-oriented charges for access to directory data. However, this legislation does not specify the exact *basis* for calculating these cost-based charges. A recent European Court of Justice ruling has made the calculation of the USO cost-base more transparent, ordering separate accounting for each USO service and between these services and non-USO services.³ This is relevant for directory services, as it is suspected that some incumbents inflate their cost-base for directory services with costs from operator services (e.g. emergency calls), thereby inflating the cost-oriented access charges for directory data. However, as yet there has been no ruling on exactly what costs can be included specifically within the directory USO service.

In Italy and the Netherlands, although national law requires only cost-oriented access charges, the regulators have pro-actively defined a price-cap to these tariffs: zero in Italy, and close to zero in the Netherlands. The reasons for this are a merger between two directory service providers in Italy, and a dispute in the Netherlands on access conditions which triggered intervention by the regulator. In the case of Italy, it is expected that the access charge may rise once an independent manager has taken over the universal directory database. Regulators in Spain and France are expected to decrease their access charge significantly – potentially to as little as zero – after new legislation is implemented.

The existence of a universal database is not always required by law as such. In all eight countries the incumbent operator has a USO to publish a paper-based telephone guide and to provide directory enquiry services covering all listed subscribers. Further, each country obliges all operators to supply their directory data to providers of universal directory services. From this, it is a logical conclusion that in order to comply with this regulation, the creation of a universal database by the USO operator is required. However, the actual existence of such a database is not prescribed in Belgian, Finnish, German and Dutch law.

In Italy, France and Spain, recent legislation has been drafted to more pro-actively stimulate the creation of a universal database. In these three countries therefore, the existence of a universal database is prescribed, although it has not been decided (yet) who

³ A recent CoJ ruling (Commission v. France (C-146/00) 6 December 2001) confirmed that the calculation of the net cost of universal service must take into account all revenues from the services involved, as well as intangible benefits; and forward-looking costs must be used. This implies that there must be a separate accounting trace for each USO service, and between these services and non-USO services. This obligation must be put in place in Member States that have undertaken, or plan to undertake, an analysis of the net cost of USO.

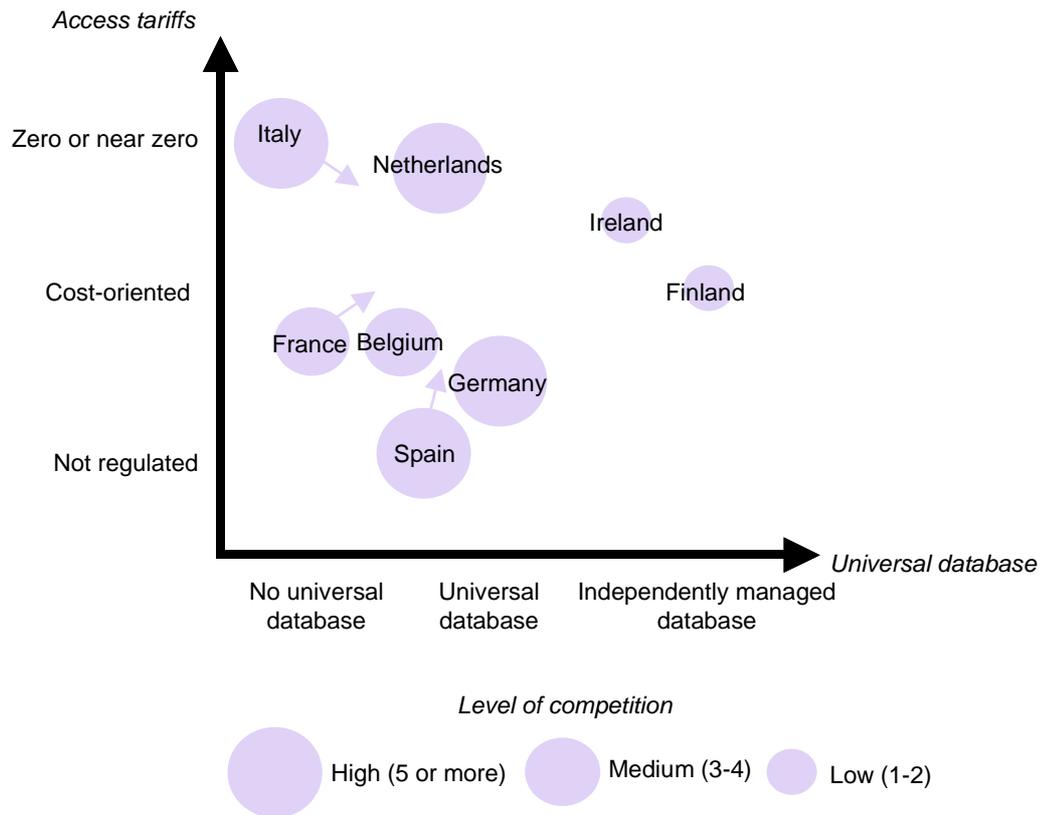
will be the manager of this database – the incumbent operator or an independent database manager.

Ireland is the only country where legislation explicitly requires the implementation of a universal directory database managed by an independent organisation - which is at arm's length of the incumbent. Spain is expected to make the national regulator the independent manager of a universal directory database, and as such will move towards the right of the diagram.

In conclusion, each of the eight countries has implemented cost-oriented access conditions to directory data. However, there are differences with regard to the extent to which a universal database and its management is prescribed.

Ease of access to directory data: practical perspective

Exhibit 4.3 below illustrates the ease of access to directory data in the eight countries from a practical perspective. The two aspects of ease of access – access conditions and the existence of a universal database – make up the two axes, while the level of competition is indicated through the size of the disk representing each country. In this context, level of competition is measured as the overall number of competitors in the white pages directory services market – both in the directory enquiries and the telephone directories sub-markets. Judgements have been made based on interviews with a variety of industry players.



The countries in this diagram are positioned relative to each other. Arrows indicate the effect that recent legislation is likely to have on the positioning of countries within this framework.

Exhibit 4.3: Practical aspects of ease of access to directory data [Source: Analysys, 2002]

From the regulatory perspective, most countries had a similar positioning regarding ease of access to data (see Exhibit 4.2 above). However, looking at the actual market situation (Exhibit 4.3) there is far more diversity – the practical implementation of the regulatory framework differs both in terms of actual access conditions prevailing in the market, and the existence of one or more comprehensive databases.

With regard to conditions of access to data, there are the following groupings:

- *Zero or near zero* – In Italy, there is currently free access to directory data, but this may change when a universal directory database is implemented by an independent third party. In the Netherlands, service providers are paying only EUR0.0025 for each data record, though the incumbent is disputing this tariff.

- *Cost-oriented?* – The access charges for Ireland (EUR0.01), Finland (EUR0.10), Belgium and France (EUR0.15), Germany (EUR0.14 or EUR0.21) and Spain (EUR0.19-0.27) are all very different. An exactly similar tariff would not be expected, as different incumbents have different cost-bases – but these tariffs vary so widely that it is likely that they have been calculated with the inclusion of different cost-elements. In most of these countries, with the exception of Ireland, disagreements on the access charge have been recorded. Regulators in most of these countries are now in the process of more clearly specifying what cost-elements are included in a cost-oriented tariff, as many regulators believe that the current charges are much too high. General expectations are that once these studies are finalised, tariffs will come down significantly. The Spanish as well as the French regulator is considering using marginal-cost, and therefore potentially reducing the tariff significantly.

Overall, there are disputes on access charges in most of the eight countries apart from Italy, Ireland and Finland. This shows how hard it is for providers and buyers of directory data to come to an agreement on the legal term ‘cost-oriented’. Almost all regulators are looking into this issue, trying to decide on an acceptable charge.

With regards to the existence of a comprehensive national directory database, the countries can be grouped as follows:

- *Universal database with an independent manager* – Both Finland and Ireland have a universal database managed by an independent organisation. The database in Finland contains a very large proportion of mobile subscribers (reportedly 95%). The Irish database is less universal, as the mobile subscribers from one operator are still missing.
- *Several comprehensive databases* – In the Netherlands, there are up to four databases in the hands of directory service providers, though only the incumbent’s is complete (except for the subscribers of two very small operators). The German incumbent’s database claims to be universal, and there is one alternative directory service provider with a comprehensive database. Mobile subscribers have recently been included in the Spanish regulator’s database which has therefore become more comprehensive.
- *Several databases* – In Belgium, France and Italy the incumbents’ databases lack directory data from several operators – both fixed and mobile. One pan-European

directory service provider, Kapital, claims to hold copies of each of the four incumbents' databases, and therefore there is more than one (incomplete) database in the market. In Italy, two parallel incomplete databases are being developed – one for fixed subscribers and one for mobile.

Effect on competition

Three groups of countries with differing levels of competition can be identified:

- *Low level of competition:* Finland and Ireland both have two independent directory service providers active in the market. These service providers offer directory services to end-users, as well as wholesale directory services to telecom operators such as mobile operators. Although regulatory conditions for access to directory data are optimal, only two large providers have emerged.
- *Medium level of competition:* Belgium and France have a medium level of competition with four directory service providers. Not all providers compete directly with each other as they offer directory services through different media (paper, CD-ROM, Internet and telephone enquiries).
- *High level of competition:* Netherlands, Italy, Germany and Spain have a high level of competition. This level may be higher than the market can sustain in the long run, and in some countries this is due to particular market conditions, which are likely to change. In the Netherlands, some mobile operators are included which provide directory enquiry services only for their own customers; in Italy, there are a large number of online providers due to low entry costs (free access to directory data); and in Germany, there are a large number of directory enquiry providers (mostly with very small market shares). Overall, in each of these markets there are no more than four directory service providers with a significant market share.

It emerges that all eight countries have a similar level of competition, with between two and four significant directory service providers in the market. Furthermore, Exhibit 4.3 above shows no clear relationship between the level of competition and conditions of access to directory databases.

A regulatory framework creating a level playing field for new entrants is clearly a precondition for competition. However, the analysis above is not able to draw definite conclusions about the direct impact a successful implementation of the regulatory framework (Article 6) would have on competition. Additional factors clearly influence the market, and these are discussed in further detail in the remainder of this chapter.

4.2.2 Numbering parity

In many European countries the incumbent provides directory enquiry services through one or more short numbers, while alternative providers have to use longer dial-up codes. The existence of such short codes, referred to as the lack of numbering parity, gives a competitive advantage to incumbents since users are more inclined to dial the familiar short code. To address this issue, in December 1997 the European Conference of Postal and Telecommunications Administrations (CEPT) and the European Committee for Telecommunications Regulatory Affairs (ECTRA) recommended that a uniform directory enquiry code (starting with 118) should exist throughout Europe, in order to create a level playing field for all directory enquiry service providers.⁴ Numbering parity has subsequently been introduced in a number of countries. Currently there are three levels of implementation:

- 118XY has been introduced and the original short code is no longer in use
- 118XY has been introduced but the incumbent retains the short code
- 118XY has not been introduced (there is no numbering parity).

A few countries have chosen a different number range from 118XY due to existing numbering schemes; France is using 32XY, while Norway recently offered numbers in the range 1850–1899 to all directory enquiry service providers. As this study considers the effect of numbering parity on competition, the particular number ranges chosen are not relevant.⁵ In the following material, references to ‘118XY’ number schemes are intended as

⁴ *Recommendations of 4 December 1997 on Numbering Access to Voice Directory Enquiry Services*, ECTRA/ REC (97)01.

⁵ Nevertheless, a common number across the EU and EEA would have some benefits – for example, telephone users visiting other Member States would immediately know which number to dial for directory enquiry services (similar to 112 being implemented across mobile networks in Europe for emergency help).

a general shorthand for the introduction of numbering parity and include other numbering schemes such as 32XY and 18XY.

Exhibit 4.4 below illustrates the effect that numbering parity has on competition in the directory enquiry services market in all 18 countries studied. On the vertical axis are the three levels of parity mentioned above: 118XY implemented, short code still retained, and 118XY not yet implemented. The horizontal axis indicates the total number of service providers in the market: low (one), medium (two or three) or high (four or more). This number excludes telecoms operators which provide directory enquiry services by subcontracting the service to another directory service provider (such as the incumbent operator).

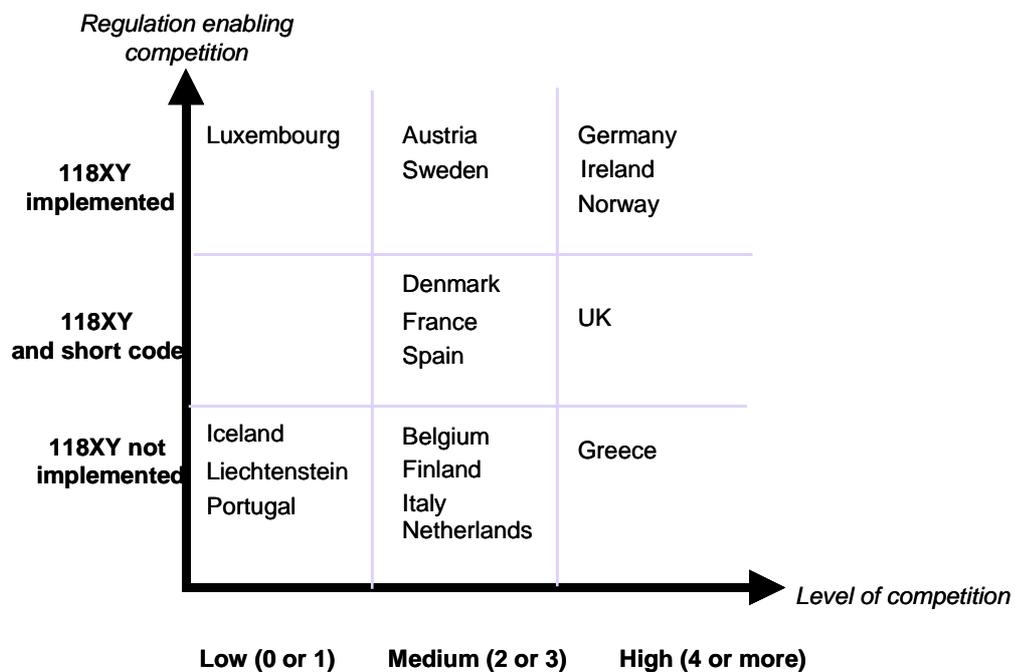


Exhibit 4.4: Indication of competition due to introduction of numbering parity [Source: Analysys, 2002]

Exhibit 4.4 illustrates that, although there are two or three directory enquiry service providers in most markets, the level of competition is influenced by the existence of numbering parity. When there is no numbering parity the level of competition is medium to low, mainly made up of alternative operators which are legally obliged to offer an enquiry

service to their own subscribers. In contrast, markets that have introduced numbering parity have a medium to high level of competition, with an average of two large independent enquiry service providers entering the market.

In the eight countries without numbering parity, competition comes mainly coming from mobile operators that run their own call centre in order to comply with their licence condition to offer a directory enquiry service to their subscribers. As these operators only provide this service for their own subscribers, sometimes using the same short code as the incumbent, this has a limited effect on competition. Greece makes an interesting case: all three mobile operators offer a directory enquiry service through private arrangements with the incumbent for data access, although no legal framework on directory services has yet been established. Finland is an exception, as although there is no numbering parity, a number of independent directory enquiry service providers have entered the market. This higher level of competition is probably due to other factors such as good access conditions to directory data (see Section 3.2.4 and Annex D).

Four countries have introduced a numbering scheme but also kept a preferential short code. Spain and the UK are in a transitional period and will move to a fully implemented 118XY system within a year and in expectation of numbering parity, service providers are entering or planning to enter the market, increasing the level of competition. France and Denmark both allow the incumbent to keep its short code, resulting in a lower level of competition. However, the level of competition in these markets is still higher than in the markets where 118XY has not been introduced

The six countries that have fully implemented 118XY have a higher average level of competition than those that have not implemented numbering parity. Germany was one of the first countries to introduce this numbering scheme, and saw an immediate increase in the number of providers. However, this market has since experienced a period of consolidation and there are currently six providers in the market, and of these, only two have a significant market share.

There are additional factors at play that influence the level of competition in the directory enquiry services market. For example, the size of the market can explain Luxembourg's low level of competition despite its early introduction of numbering parity. Other countries with relatively low levels of competition due to the small size of the market are Austria,

Liechtenstein, Portugal and Iceland. More attention will be paid to these factors in section 4.3 on the commercial barriers to competition.

It can be concluded that the introduction of numbering parity, and thereby elimination of the preferential short code of incumbent, attracts new entrants into the directory enquiry market.

4.2.3 Other legal restrictions

Certain regulations may further affect the availability of directory data for alternative service providers, as some operators use these legal frameworks – justifiably or not – to restrict or obstruct access to their subscriber information. The opinion as to whether or not these frameworks are interpreted appropriately in the specific situation of the directory services market may vary between operators, incumbents and directory service providers. These legal frameworks include data protection legislation, privacy law and contractual issues.

The severity of the data protection law varies in different Member States. Spain, for example, has relatively strict data protection legislation which has led to difficulties in operators supplying directory data to service providers – and has held back the Spanish incumbent from providing access to its subscriber data for years. The effects of this legislation can still be felt: even the regulator, which is in the process of taking on the role of universal database manager, is currently wary of copying the operator's databases and therefore asks them to make the required copies themselves.

In certain countries, operators hold the privacy law responsible for their inability to provide directory data to alternative service providers. For example, the privacy law in Greece requires written consent from each subscriber before their data may be included in databases, and concerns about this have kept operators from providing directory data. According to the Greek regulator, pursuant to L. 2774/1999, Article 4, operators are not permitted to use or remit subscribers' data for any purpose, and particularly for advertising or market analysis purposes, unless the subscribers or users have granted consent for that purpose. In case of remittance of data to third parties, consent must be provided in writing. This forms a serious obstacle to accessing directory data for alternative service providers.

Finally, contractual issues can also be used by operators to restrict the availability of directory data to alternative service providers. When customers sign up with a specific operator, their contract specifies they will be included in directory services, though *only* those of the particular operator. In order to pass on their directory data to alternative service providers, operators would require separate permission from these customers.

4.3 Commercial barriers to competition

This section discusses commercial barriers to competition in the market for telephone directories and for directory enquiry services. The main obstacles to competition identified are *barriers to the achievement of economies of scale*. There are two main types of service provider:

- specialised providers of directory enquiries and telephone directories, for which the provision of these services is their main source of revenue
- telecoms operators (typically both mobile and fixed line) which provide directory enquiries as an element of their telecoms services – these often treat the provision of directory services as a cost centre.

The importance of the commercial barriers to competition are different for these two types of providers: specialised providers are concerned about the access costs and must compete on price with the incumbent operator, whereas telecoms operators, although also concerned about access costs, can pass the costs on to their customers and often have structured directory services as a cost centre or have outsourced the service to reduce costs. This section focuses on the first group, specialised directory service providers.

4.3.1 The main commercial barriers to competition

The main commercial barrier to competition in the directory services market is the obstacle *to the achievement of economies of scale*. Economies of scale are essential to directory service providers as margins are low and, depending on the delivery method, entry costs can be high. These entry costs include marketing costs to create awareness of the brand, access number and the service, the costs of collecting data from various operators and enhancing the data, creating a call centre to handle the enquiries, publishing directories (on paper or CD-ROM), setting up a Web site for online access, and establishing distribution channels. These costs are discussed in more detail in Sections 4.3.2 and 4.3.3 below.

Declining demand for directory enquiry services, combined with a small market and high existing levels of competition, lead to significant barriers to the achievement of sufficient economies of scale to cover initial and ongoing costs. Smaller countries such as Iceland

and Luxembourg will therefore have a lower viable level of competition, while countries like Denmark, Finland and Norway which already have a high level of competition will be harder to enter for new competitors. Exhibit 4.5 shows, for all 18 countries studied, the relationship between the size of the directory services market (for which population has been used as a proxy) and the level of competition (measured as the number of *alternative* white and yellow page directory service providers).

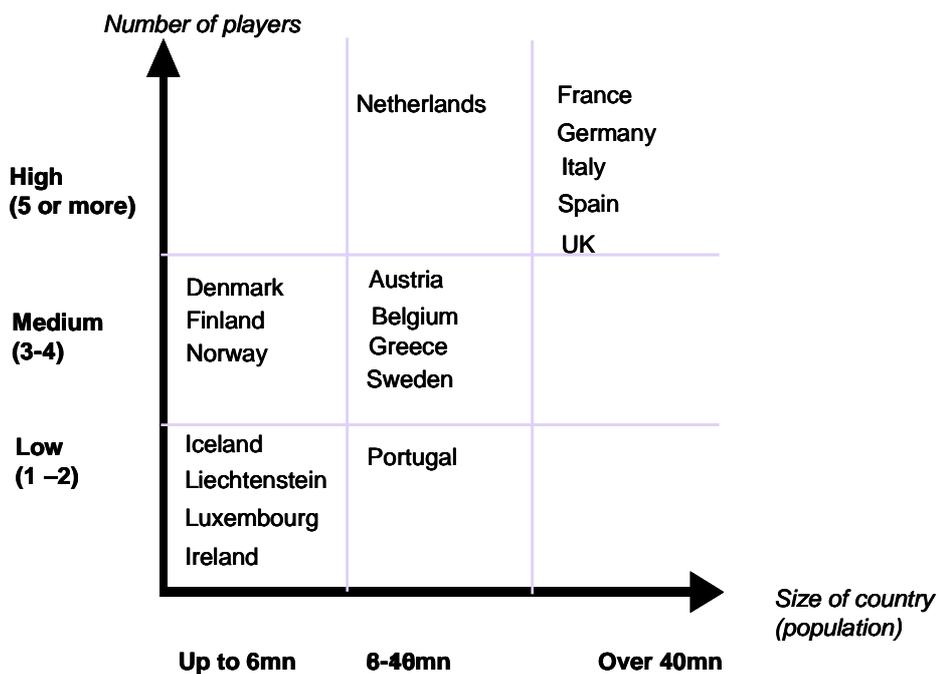


Exhibit 4.5: Influence of size of market on level of competition [Source: Analysys, 2002]

Exhibit 4.5 clearly illustrates a strong link between the level of competition and the size of market. The group of large countries with over 40 million inhabitants all have more than five directory service providers competing with the incumbent. In contrast, countries with less than 6 million inhabitants have a low to medium level of competition, with the smallest having the lowest level of competition. Looking at the medium-sized countries, most have populations of 8–10 million and a medium level of competition (with Portugal as an exception). The Netherlands is slightly larger (at 16 million inhabitants) and accordingly has a higher level of competition.

It can be concluded that the size of a country has a great impact on the ability of service providers to reach economies of scale. The main commercial barrier to competition can therefore be concluded to be the *size of the market*.

The remainder of this section analyses these commercial barriers in more detail for both the telephone directories market and directory enquiries market. Yellow and white directory services are discussed within each of these sub-markets.

4.3.2 Telephone directories

Telephone directories come in three different formats: paper-based directories, CD-ROMs of directory information and online directory services. Each has a different revenue model, cost structure and opportunities for economies of scale.

Paper-based directories

In the field of printed directories, the revenue model for white pages is significantly different from that for yellow pages and has the consequence that competition in white pages is likely to remain limited. The costs involved in providing yellow and white pages are significant and include the purchase (or collection) of subscriber data, marketing and sales, publishing and distribution. While yellow pages generally make a profit, being funded through advertisements and payments for listings, white page revenues are insufficient to cover costs. In recognition of this, incumbent telecoms operators are required to offer white pages as part of their universal service obligations (USO) and the white pages are funded through the USO funds.

Competition in a USO-funded business is undesirable. USO funds are provided to businesses which provide an essential service for which the costs are too high to be passed on to the end user. It would therefore be inefficient to use such funds to support more than one provider. Although some regulators, like the Dutch, would like to see competition in the printed white page market, it is very unlikely that such a business would be viable. The incumbent has a further advantage through the strength and familiarity of its brand, better use of existing distribution channels and additional economies of scale.

In some markets, the incumbent publishes directories which combine white and yellow pages in the same book. This is attractive for the end-users as it reduces the number of sources which need to be consulted when searching for information. However, it raises an additional barrier to new entrants: in order to compete with the incumbent, they would also be required to provide white page information, which is more costly. Nonetheless, the benefits to the user and the opportunity to reduce the USO funding of white pages need to be taken into consideration when judging the desirability of such a combined service.

Barriers to the achievement of economies of scale are derived from two main sources: limits on the demand for directory services and the unwillingness of businesses to advertise in several yellow pages directory. Most users only require one set of yellow and white pages, limiting the potential market for paper-based directories. Further, most companies will only wish to advertise in a limited number of directories as part of their overall marketing and advertising budget. In interviews, most directory services companies stated that they expect their markets will only be able to sustain between one and five yellow pages publishers, depending on the size of the market. Also, a larger number of paper-based directories per user can be sustained in the market through specialising in a specific geographical area (through regional directories) or in a specific sector.

Directories on CD-ROM

A significant difference between CD-ROMs and paper-based directories is that users (especially businesses) are more willing to pay for the convenience and added flexibility of having the information available electronically – data can be searched rapidly and extracted for use in mailing lists or direct marketing campaigns. In addition, production and distribution costs are lower than for printed directories. Providers also have greater opportunities to differentiate their offerings in terms of added functionality such as reverse search facilities, customisable data formats, and even location maps.

For these reasons, white-page CD-ROMs are more economically viable than their paper-based counterparts. This is illustrated by a number of countries (including Belgium, France, Luxembourg and the Netherlands) which have competition in the provision of white pages on CD-ROM but not on paper.

The viability of the yellow pages CD-ROM market is driven by the willingness of businesses to pay to advertise or pay for entries on the CD-ROMs.

Online directory services

Online directory services are offered for free in most countries (except Norway) and are therefore highly dependent on revenues from advertising. However, start-up costs are much lower, and a large number of organisations have entered this market. The Web sites offering directory services can also be differentiated by offering added search facilities and maps, as well as other enhanced services such as weather news, business information, etc. Yet, further consolidation is expected in this market as Internet-only companies are likely to find their advertising revenues insufficient to cover the costs of purchasing data and maintenance of the database and support systems. (Denda, an online directory service provider in Netherlands, was recently subject to this fate).

Summary

The commercial barriers to competition in the market for telephone directories mean that competition in white pages will remain limited, though some competition is possible in CD-ROM white pages and online services. More competition can be expected in the provision of yellow pages, although the willingness of businesses (as advertisers) to pay for listings in multiple directories is likely to be limited.

4.3.3 Directory enquiries

In the directory enquiries market, the main barriers to competition are the high cost of providing such services and declining demand. Incumbent operators also enjoy a number of competitive advantages.

High costs

Directory enquiries revenues are generated through call charges (mostly per-minute, though occasionally per-call), and increasingly through charges for additional services such as call-completion, location-based services and provision of requested information by SMS. Although revenue is expected to benefit from the increase of value-added services (which have high margins), directory enquiry services overall are still loss-making due to the high costs involved. The largest cost component is the cost of running a call centre, followed by high marketing costs to make the service and its number known. Many mobile operators that have tried to set up an enquiry service have withdrawn the service because of the call-centre costs (this has been the case for new entrants in Belgium and Iceland, for instance).

Falling demand

It is also difficult to reach critical call volumes in a shrinking market. In general, enquiry calls from fixed-line phones are decreasing, though calls from mobiles are increasing due to the increase in mobile subscribers. This overall decline is mostly due to the increasing availability of alternative sources of directory information – notably, free-of-charge online directories.

Related to this, in smaller markets the economic viability of a large number of service providers is uncertain. Mobile operators that have set up directory enquiry services in non-liberalised markets have found that the business was not profitable, and some are handing over their directory enquiry service provisioning to the incumbent. In Iceland, for example, the mobile operator TAL launched its own directory enquiry services in 1998, but after its telemarketing company went bankrupt it decided that Iceland was too small a market to offer services on its own and handed the service back to the incumbent operator. In Greece, too, the regulator does not believe the market can sustain an independent alternative directory enquiry service provider and states that no company has expressed interest in providing such services. However, in larger markets that are in the process of liberalising directory enquiry services there are great expectations. At its highest point, between 10 and 15 service providers were active in the liberalised German market, though this number has now dropped to around six, of which only two are large players. The UK regulator has

received over 80 applications for a 118XY number, while in Spain many new entrants believe directory enquiries can be a profitable business.

Competitive advantages of the incumbent

The incumbent has an advantage through the strength and familiarity of its brand, better use of existing distribution channels and additional economies of scale. It also enjoys easier access to directory data and a preferential short code. In addition, there are other factors working in the incumbent's favour:

Billing and collection

Billing for directory enquiry services is in general done either by the incumbent (as in most markets it still owns over 90% of the last mile) or by an alternative operator providing the access line to the customer. In several countries, the regulator has decided to regulate the billing process after disagreements between operators and service providers. In France, Italy, Ireland and Spain the incumbent is obliged to provide billing on a cost-oriented basis, which is set at around 5%–15% of the revenues generated through service provision to end users.

In other countries, such as Germany, directory services providers have complained about the incumbent overcharging for billing. Recently, the German regulator has decided to make directory enquiry providers responsible for two elements of the billing process: reminders and warning letters, and collection of bad debt. This puts directory enquiry companies at a disadvantage: as the amount per invoice for directory enquiries is very small, providers experience difficulties in reaching economies of scale for the collection of debt, or presenting a credible threat to non-paying customers.

Inflating access charges

Some regulators suspect that the incumbent inflates its access charges for directory data by including costs from other services. Specifically, it is reported that operators use the costs of operator services (e.g. emergency calls), which are loss-making and non-competitive services, to inflate the cost-base of their directory services. Regulators overall are reluctant to

intervene in these sensitive emergency services, and incumbents therefore have the opportunity to hide inefficiencies and raise both their wholesale and retail charges for directory data.

Wholesale versus retail cost

There is a general price squeeze in some markets, with incumbent operators charging relatively high charges for data access and low retail prices for directory enquiry services. For example in Iceland, the incumbent has no separate wholesale price, and charges the retail price to mobile operators, which then have to charge higher prices to their subscribers. In other countries, such as Austria and the Netherlands, the regulator has set a retail price for enquiry services which is below cost for the universal service providers. This makes opening up the market through the introduction of competition impossible without raising the retail price to at least cost-plus level.

As an indication of the margins available for alternative operators for offering national directory enquiry services, Exhibit 4.6 illustrates access charges (paid to the directory database holder per enquiry) and retail tariffs (charged to end-users) in five countries. As charging methods for enquiry calls vary, the retail tariff is calculated for a 40-second national directory enquiry call without call completion.

Additional margin can be obtained through direct connect services, SMS and other enhanced services.

(in EUR)	Wholesale	Retail	Margin
Belgium	0.15	1.12	0.97
Finland	0.10	0.70	0.60
Germany	0.14	1.114	0.18
Ireland	0.01	0.32	0.31
Netherlands	0.05	0.90	0.85

Exhibit 4.6:
Margins obtainable for directory service providers [Source: Analysys, 2002]

Cross-marketing of services

By owning the billing relationship with the customer, the incumbent is in a strong position to cross-market additional services – for example, advertising its directory enquiry services on monthly invoices or in white pages directories.

pages directories.

Access to international data An international directory enquiry service is an important element of the portfolio of a directory enquiry service provider in the sense that users will expect it to be available. However, only a very small proportion (typically well below 5%) of enquiries calls are for international numbers.

New entrants are at a disadvantage as incumbents in different countries – with only a few exceptions – still charge each other preferential tariffs for directory information, or have peering agreements in place whereby no charges are incurred. In a few cases new entrants in other countries are charged higher rates for access to a national subscriber database than local providers. As new entrants are unable to get access to foreign subscriber databases on equal terms to the incumbents, they are unable to charge the same retail prices and therefore often suffer from low call volume – preventing them from offering international directory enquiry services.

However, new entrants have a competitive advantage in terms of being able to establish a more flexible cost structure by relying on outsourced call centres and using new technology. The incumbent, on the other hand is much more restricted in its choices and is bound by huge fixed labour costs.

4.4 Technical barriers to competition

This section discusses barriers to competition arising from technical issues. The main technical problems potentially creating barriers to competition are: low quality of data from some operators, delays in adoption of an open standard protocol and delays in adopting TCP/IP for data transfer, which allows for much cheaper data transfer for new entrants. Other potential barriers include: lack of experience in database management, variety of data formats and the structure of the universal database.

4.4.1 Low quality of data

A noteworthy technical barrier is poor quality of subscriber data received from operators – typical problems are incomplete or inconsistent entries. Service providers in some countries (including Belgium, Italy and Greece) report that the quality of the data from alternative operators is so poor that it cannot be inserted into their databases. To solve this problem, the cleaning up and normalisation of the data is increasingly outsourced to an independent database management company, such as Kapitool.

Poor quality data affects new entrants in two ways. First of all, it requires extra effort to make the data fit for use. Secondly, as bad data quality delays the development of a universal database, it forces new entrants to purchase directory data from a number of operators rather than a single universal database.

4.4.2 Delays in adoption of an open standard protocol

At present, operators use the E115 protocol for online database access. Work is in progress to adopt a new protocol called F510/ UD protocol. F510 is a service description that, together with UD specification protocol, can form the equivalent of the next generation to E115. This new protocol is based on an open standard – XML – and it will be able to support many new functionalities. These new functionalities have the potential to allow service providers to offer new services and create opportunities to generate additional revenues from customers.

In addition to creating opportunities for new services and thereby stimulating the directory services market, this new protocol is also likely to lower barriers to competition as it is based on an open and widely adopted standard which is supported by applications already available in the market. This open standard therefore significantly lowers the technical barriers for new-entrant service providers. However, current database owners and software providers, which have already invested significant amounts of money on hardware and software, are generally reluctant to move to a more open and flexible standard that will open up the market to competitors. The decision whether or not this protocol will be adapted seems to depend on mainly political factors, rather than technical.

4.4.3 Delays in adopting TCP/IP for data transfer

Until recently the E115 protocol was used only over X.25 – which has significant costs attached to it. As the large users of E115 traffic in the past also owned X.25 circuits, these costs were internal and not considered important. However, for new-entrant service providers, who have to procure X.25 circuits from the incumbent operators (in general, no alternative operators provide X.25), the costs of data transfer become significant and represent a barrier to entry.

E115 has recently been enhanced to run over TCP/IP – which is significantly cheaper to provide. With this technology, operators can choose to run their traffic either over the public Internet or over a virtual private network. Especially in more liberalised countries, there is significant pressure to move to TCP/IP. Currently, six to seven operators in Europe have already converted to using E115 over TCP/IP, whereas another five or six operators are testing this technology.

Varetis, the largest database software and hardware provider for directory services, has recently moved to TCP/IP, indicating that this standard is gaining widespread acceptance. This development will significantly decrease the technical barrier for new entrants.

4.4.4 Lack of experience in database management

The complexities of managing a large database pose a challenge to new-entrant directory service providers. The quality of a database and the skills with which it is managed allow a service provider to differentiate itself in terms of response time and additional services. Incumbents already have many years of experience of managing their databases and are therefore likely to have a significant advantage in terms of efficient database management.

This technical barrier to competition is, however, not insurmountable. There are many independent companies offering database management services that are able to assist alternative operators and service providers in the management of their databases. Indeed, established operators such as BT no longer consider database software to be a core business, outsourcing this aspect of their database management to companies such as Varetis.

4.4.5 Variety of data formats

Subscriber data in a database is stored in a particular format and in many cases this format varies between the different telecoms operators. In order to integrate data from one database into another, the subscriber data needs to be exchanged in a compatible format. None of the national laws actually prescribe the format in which data must be stored: the overall rule is that it is the task of the service provider purchasing the data to reconcile any differences in data formats. However, in most countries the incumbent operator prescribes its own format to both suppliers of data (alternative operators) and purchasers of data (alternative service providers). This results in a potential competitive disadvantage for new entrants, which unlike the incumbent have to deal with a variety of data formats as they purchase data from all the telecoms operators, each having its own data format.

The resulting added complexity for alternative service providers is, however, only a small technical barrier to competition as there is software on the market that can adequately deal with this problem.

4.4.6 Structure of the unified database

A universal directory database can be either *physically* unified or *logically* unified. A physically unified database collects all the data in a single physical database and can be accessed and searched as a whole. A logically unified database consists of multiple physical databases which are interconnected to make up a single logical database. This structural difference of the database has a number of implications. Interviews with regulators show that they prefer a physically unified database. Typical comments include:

- a physically unified database implies lower maintenance costs and is better able to deal with alterations to the data model caused by events such as mergers or the winding up of providers (*Portugal*)
- a logically unified database poses practical problems in terms of input format, filters and time to access remote data (*Belgium*)
- a physically unified database is simpler to manage and more practical to distribute (*France*)
- a physically unified database is a safer option (*Italy*).

In practice, most incumbents have implemented a physically unified database. In France, although recent legislation leaves the option to be decided by the industry, it is widely expected that a physically unified database will be implemented. However, in Italy it is expected the operators will build a logically unified database as this option has lower implementation costs.

A logically unified database may form a greater barrier to competition, as such a structure may restrict the functionality, limiting it to the functionality of the database that is the ‘lowest common denominator’, and reducing the opportunity for innovation. Also, clashes in data formats and other data problems are more likely to occur in a logically unified database: for example, a single subscriber may have entries in several different databases and these entries could form duplicates within the single logically unified database.

Overall, the structure of the unified database itself has a limited effect on the level of competition that can be reached in a particular market: at the moment, independent directory service providers are more concerned with getting access to the universal database, rather than whether it is logically or physically unified.

4.5 Content-related barriers to competition

To offer a competitive directory enquiry service, service providers require access to high quality content which they can use in as many ways as possible to create value. These requirements may be constrained by the nature of the data and legal restrictions on its use.

The data may be limited in a number of ways:

- *quality* – the accuracy of the subscriber information
- *completeness* – the proportion of total listed subscribers that are included in the database, as well as the completeness of the information held on each subscriber
- *richness* – the range of information (number of data fields) that is available.

Although the data itself may be rich and of high quality, there may be legal restrictions on its use that limits the ways in which the service provider can exploit its business potential:

- restrictions on the use of data imposed by data protection laws
- prohibition of reverse searching (i.e. obtaining a subscriber's address from a phone number)
- limitations on use (or sale) of data for direct marketing purposes.

4.5.1 Data limitations

To be in a position to compete with the incumbent directory providers and to be able to offer a reliable and enhanced service, new entrants need to have access to good quality subscriber data. Limitations in data quality and content put them at a disadvantage relative to the incumbent, which controls the entire subscriber database. In particular, the completeness of the provider's directory data increases the attractiveness of its directory service. Recent changes at the Europe-wide level regarding the inclusion of subscribers in directory databases have made the default opt-in. This significantly reduces the likelihood that directory databases will be complete, especially for mobile users (which often regard their mobile number as essentially private).

Quality of data

Research has revealed that in several countries alternative directory service providers have received data of poor quality from database owners. Problems include inaccurate data, out-of-date information, raw and unformatted data, or data that still has a significant amount of faults. These problems provide an additional challenge to these service providers to compete with the incumbent providers.

Richness of data

Although basic subscriber data is available to all service providers, the incumbent's database usually also holds additional information. In most countries, access to these additional data fields is not regulated, and there is an important issue regarding how much of this supplementary data the incumbent should deliver to service providers, enabling them to develop more enhanced services. For instance, in the Netherlands the regulator has

recently decided that data such as a person's profession, mobile number and fax number should be part of the data that the incumbent delivers to service providers. These additional data fields would enable service providers to, for example, identify a business, and to use this knowledge to provide enhanced services.

Completeness of data (opt-in versus opt-out)

For the directory services industry, it is crucial to have as many subscribers that wish to be listed as possible – thereby increasing the completeness of directory databases and as such the value of the directory service providers' proposition to the market. In all markets, subscribers are either by default included in the directory listings and have to *opt-out* to be excluded, or they are by default not included and have to *opt-in* to be included in the listings. In most cases, fixed subscribers have to opt-out, whereas mobile subscribers have to opt-in to be a part of the subscriber listings. Two steps have been taken to increase the completeness of the directory database: prescribing an opt-out policy for both fixed and mobile subscribers, and introducing a fee for subscribers choosing to be ex-directory.

Over the last few years, most countries have changed their laws to prescribe an opt-out policy for both fixed and mobile subscribers. The situation can be summarised as follows:

- *opt-out regime*: Austria, Belgium, Denmark, Finland, France (new legislation), Italy (new legislation), the Netherlands and Portugal
- *opt-in for mobile subscribers and opt-out for fixed subscribers*: Germany, Greece, Luxembourg, Norway and Spain
- *opt-in for both fixed and mobile subscribers*: Iceland, Ireland and Sweden.

In practice however, for most countries mobile subscribers are still only included in directory services if they explicitly opt-in – and very few do so (see section 4.1 above for more detailed explanation).

In order to increase the number of subscribers willing to be listed, a number of countries are considering introducing a fee for subscribers who wish to be ex-directory. Although this option is free in most countries, Belgium, Iceland and France are considering changing this. For example, Belgian law allows operators to charge subscribers a fee for becoming

ex-directory, as long as this fee is directly related to the costs of maintaining an ex-directory database and it is not a determining factor for the users' decision. However, according to the new EC Directive on privacy and electronic communications⁶, operators are not allowed to charge subscribers for being excluded from the directory. This directive is based on the motivation to protect subscribers from unsolicited communications (especially direct marketing), and to strengthen the privacy and data protection provisions for electronic communications. It requires that subscribers be informed about the purposes of a printed or electronic directory and be given the opportunity to determine whether their personal data are included (opt-in regime). Also, service providers are obliged to communicate any changes in the purpose or functionality of their database to all subscribers.

This directive may over time impact the industry by affecting the completeness of directory services, as well hamper innovation within the service offering. Many players across the countries studied in our research expressed concern that this change to an opt-in regime could lead to a significant proportion of subscribers going ex-directory every year, as they change providers or move. Over time, this may reduce the comprehensiveness of the directory database. A database containing a smaller proportion of subscribers will consequently affect the attractiveness of directory services for end-users, as the chance of finding a subscriber through a directory service decreases. Although this may affect players in the directory services market, directory service providers do have the power to reverse this trend by offering real value in new services to customers. New services including certain search functionalities or delivery methods can convince customers of the value of the service offering and of the necessity to opt-in.

⁶ 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 (Directive on privacy and electronic communications).

4.5.2 Legal restrictions on use of data

Data protection

Privacy and confidentiality issues have prevented a number of data fields from appearing in any directory database. Examples are: references to the first name (may indicate gender), and email address (may cause spamming).

All countries have a data protection law in place that also applies to directory data (except for Liechtenstein, which will implement such a law later in 2002). Companies handling directory data must comply with local data protection legislation. Overall, the data protection law requires operators to ensure that their information is complete, accurate and up to date, and that only information that is strictly essential to the provision of directory services is stored in the database. Furthermore, individual national laws rule on the use of data for commercial purposes, as well as the copying and distribution of directory data.

In some countries, the implementation of data protection legislation has resulted in barriers for competition in the market. For example, in Norway, the data protection law also covers users of online directories, which means that online users need to register before they can get online access to directories.

Reverse searching

Reverse searches enable users of electronic telephone directories and directory enquiry services to search for someone's name or address based on their phone number. Countries where such searches are offered include Austria, Belgium, France, Greece and Spain. However, in Germany, the Netherlands, Norway and the UK such searches are not allowed, in order to protect privacy. This limits some of the enhanced services that providers can offer, and thereby somewhat restricts their revenue potential.

Direct marketing lists

Different countries have different arrangements for listed subscribers that do not want to be approached by direct marketing companies. In Iceland, for example, the national directory database itself indicates whether a subscriber has requested not to be approached for marketing purposes. In the Netherlands, subscribers can call an independent direct marketing association to have their directory data excluded from direct marketing lists. In France, a separate list (*liste orange*) provides information about subscribers that do not want to receive direct marketing calls. This has been a cause for dispute, as the incumbent did not supply this list as part of the data set offered to directory service providers, potentially limiting the use of the subscriber database. This dispute has been resolved by requiring the incumbent provider to supply this *liste orange* at a cost-based charge.

4.6 A pan-European database

One possible solution to the problem of obtaining access to operators' directory data is the creation of a comprehensive pan-European database accessible to all directory service providers. This database would hold directory data from all operators in the EU and EEA, and would provide access to this data to any directory service provider under fair, non-discriminatory and cost-oriented conditions. The objectives of such a pan-European database are twofold:

- to strengthen alternative directory service providers by allowing economies of scale through pan-European operations by getting easy access to subscriber data in all countries
- to allow national alternative directory service providers easier and more cost effective access to international subscriber data, as this is a service which is costly to provide and often loss-making (typically the incumbent operators have a monopoly in providing international directory enquiry services, and have access to the data of foreign incumbents on preferential terms).

A pan-European database could also contribute to the closer integration of EU and EEA through easier access to information, though this benefit is unrelated to the market for directory services and will not be discussed further in this report.

During the research for this report, a wide range of market players were asked their views on such a pan-European directory database. This chapter gives an overview of the findings, focusing on:

- demand for a pan-European database
- barriers to its creation
- methods and other issues relating to its implementation.

4.6.1 Demand for a pan-European database

Players in the directory services market had very differing opinions on the need for a pan-European database. Overall, regulators and international directory service providers were in favour, provided that the access conditions to such a database were cost-oriented and non-discriminatory. Telegate (a Europe-wide provider of directory enquiry services) expects that an international database will allow fairer competition, while Seat (an Italian directory service provider) sees a positive effect on the cooperation between all EU operators which may improve the exchange of subscriber data throughout Europe. The opinion of EIDQ (the association for the European Interworking of Directory Enquiry Services) is that such a database could be very useful from both a technical and functional perspective. A greater degree of standardisation could be reached, enhancing simplicity, and only one interconnection link would be needed. The overall feedback from European directory service providers was that they would benefit from a pan-European database and that it would strengthen their competitive position vis-à-vis the incumbent service providers, as they would get easier access to international subscriber data.

However, there were an equal number of respondents (especially incumbents and other operators) who were less interested in such a database and raised concerns about whether it would add value, due to the low usage of international directory services. One incumbent operator called it “a dream that does not respond to the needs of the market”. As the regulator in Spain noted, a study would first need to prove why such a database is needed. Although both the TUA (Telecoms User Association) and EIDQ report a clear demand for international directory services – especially from corporate users – it needs to be established how a pan-European database would satisfy this demand. Concerns were also

raised as to the usefulness of such a pan-European database within all the different segments of the directory service market based on the existing demand:

- **Directory enquiries** – Many respondents pointed out that demand for international enquiry services is already low and decreasing further as the Internet provides a (free) substitution. International directory enquiries are in most countries unprofitable, which means that the regulators are reluctant to enhance competition in this market. However, international players like Telegate believe they can reverse this trend by offering enhanced international services, for which a pan-European database could be useful.
- **Online directories** – In most markets there are free Internet-based online international directories. Current barriers for their use are the ability of users to find such sites and linguistic problems. The linguistic problems could partly be mitigated if incumbents were required to translate their directory services into a number of languages, rather than build a common database.
- **CD-ROM-based directories** – A CD-ROM product with a large database of international numbers may appeal to corporate users, though usage of CD-ROM-based directories is marginal amongst residential users (maximum of 5% according to the EADP survey, 2000⁷). Many CD-ROMs with international data are already on the market, which focus on regions that tend to have significant inter-business activity (such as Benelux).
- **Printed directories** – These are likely to have limited appeal due to the sheer size of the books required.

In conclusion, the demand for a pan-European database has not yet been proven. Current solutions that are in place may be sufficient to meet demand levels for international directory services – such as Internet-based services and the existing on-line pan-European database created by members of the EIDQ (although not all countries have internationally accessible online databases).

⁷ European Association of Directory and Database Publishers

4.6.2 Barriers to the creation of a pan-European database

This section looks into the barriers that have been identified by the interviewees in establishing a pan-European database, focusing on technical and legal barriers as well as barriers arising from the supply of directory data.

There is general consensus that there are no significant technical barriers. Database software developer Varetis points to the capacity of lines and servers as the only technical limits – which can easily be improved. There may be minor problems with character mapping, category mapping and time-zone problems for enhanced services, but these problems are not insurmountable. Another technical issue mentioned relates to the fact that different countries have different rules with regards to reverse searches – but this can already be solved by the software disallowing reverse searches for particular countries.

A larger barrier lies in the different legal systems amongst the European countries. Seat stated that “before developing a European universal database, all pending issues regarding the normalisation of the different laws and rules in the EU countries should be solved”. The EIDQ reinforces the point that, although most countries have the same regulation on paper, agreement at the pan-European level is needed to reconcile the different systems, prices, methods, rules and laws affecting directory service market in all the EU and EEA Member States. This is likely to be a time-consuming and very difficult political process. The Spanish regulator, especially, is concerned with violations to its strict data protection laws. One possible solution to address this concern would be for the pan-European database to adhere to the most stringent restrictions –which might severely restrict its functionality. Also, contradictory legislation in different countries may provide a significant barrier to the implementation of a pan-European database.

The main barrier that all respondents pointed out is in the supply of directory data. As EIDQ stated “there is real competition for data in the market, and operators do not want to sell the data”. This barrier makes the current implementation of a pan-European database unfeasible. On a national level, there are still significant problems in most countries with the universal database. Adding extra complexity by trying to set up a universal database at an international level when this task has not yet been accomplished on a national scale may simply be too much in the short term.

4.6.3 Implementation issues

Two models for the implementation of a pan-European database emerged through discussions with players in the market:

- The creation of a pan-European database managed by one organisation which collects all market data and allows access to this data. Telegate proposed an auction for the most suitable player, whereas the EIDQ believes a public body would have more acceptance. Several respondents had reservations about creating a bureaucratic institution or state-run database and the EADP recognises practical problems with a centrally managed system.
- Let the market develop naturally toward one or more pan-European databases by making sure (national) access conditions to directory data improve. Already, there are international players in the market, like Kapitool, Telegate and LSSi, who are developing international databases. The EIDQ believes that a universal international database would naturally get set up if access conditions are good, and that the creation of such a database is better left to competition.

With regards to the structure of a pan-European database, it seems a logically unified database is the preferred solution, whereby a pan-European provider has access agreements in place with all national database owners. The creation of a physically unified database would be very difficult, and would bring such a high cost with it that access tariffs could be higher than those on a national level, undermining its usefulness.

A final question is who should pay for such an international database. Although some international players are already developing their own cross-border databases, this business model has not yet been proven. A publisher interviewed in this study noted that since most advertising is a geographically restricted activity, the funding of the pan-European database might be difficult to achieve through revenues from advertisements. Also, access fees to the international database cannot be high, as 1) they are restricted by the access fees to the national universal databases, and 2) end-users are not be prepared to pay large amounts for international directory services – the number of international enquiry calls are already decreasing and an increase in tariff will only push more users onto the free services available on the Internet.

Supporters of an international database claim the costs of getting access to subscriber data do not need to be high, as incumbents ought to provide this data for free. The reason stated for this is that although incumbents control directory data as a result of their monopolistic history, this data really belongs to the subscribers themselves. Although some countries have already made access to directory data free (Italy) or are considering doing so (Spain, France), this political argument is likely to meet objections from established operators and further discussions can be expected.

4.6.4 Conclusions

Due to the barriers identified above, any implementation of a pan-European database will have to be a long-term project. Most respondents did not give a high priority to its creation. Rather, other areas were identified that would benefit from the European Commission's attention, and that would naturally open the way to a pan-European database over time. Telegate mentioned that enforcement of the rulings on non-discriminatory access to incumbents' databases would help the industry, whereas EIDQ believes the industry would benefit from a stricter enforcement of cost-oriented access charges, as well as a more stable vision on the opt-in/opt-out issue. A stricter implementation of Article 6 in all the EU and EEA Member States would lead to more comprehensive and complete subscriber databases, as well as improved access to these databases. These factors together may allow true pan-European subscriber databases to be established through commercial arrangements by alternative service providers, rather than through regulation on a European level.

5 Conclusions and recommendations

The purpose of this study has been to assess the status of the implementation of Article 6 of the EC Voice Telephony Directive 98/10/EC across EU and EEA Member States, to identify barriers to competition, and to investigate the feasibility of a pan-European directory database. This chapter presents our conclusions and puts forward a number of recommendations for consideration of the European Commission.

5.1 Conclusions

Implementation of Article 6

As explained in Section 1.1 above, the objectives of Article 6 are:

- to ensure that telecom subscribers who wish to can be listed in a subscriber directory and that this directory information is available to all users
- to promote competition in the provision of directory services by requiring subscriber data to be available on fair, cost-based and non-discriminatory terms to all directory service providers.

Our research has revealed that consumer organisations have not made any significant complaints about the availability of directory services for end-users and that no concerns have been voiced by consumers about the completeness or accessibility of directory services. It therefore seems that the first objective of Article 6 is satisfied.

The motivations for introducing competition in the market for directory services are to increase innovation in the market and to reduce prices for consumers. However,

competition can only be achieved if there is a level playing field for the incumbent service provider and new entrants. This is created by implementing numbering parity and by regulating access to telecom operators' subscriber databases. Although the vast majority of Member States have provisions in their regulatory framework which oblige operators to provide access to their subscriber databases on fair, cost-oriented and non-discriminatory terms, there are a large number of disputes on specific aspects of subscriber database access (in particular, the charges made for access).

Barriers to competition

Although a necessary precondition for competition, regulated access conditions alone are insufficient to create a competitive market. Indeed, as was illustrated in Section 4.3, even when the access conditions implemented in practice are fair, cost-oriented and non-discriminatory, a highly competitive market is not guaranteed. It therefore seems that in addition to regulation, commercial barriers are influencing competitiveness.

Directory enquiry services are generally part of an incumbent operator's universal service obligation. Overall, enquiry services have been loss-making, though recent price increases across the Member States have been implemented to allow this service to break even, and the emergence of value-added services is also improving revenue potential. The usage of telephone directory enquiry services is declining in response to the increased tariffs as well as due to competition from cheaper alternative delivery channels such as the Internet. This means that, despite price increases, the market for directory enquiries is likely to remain difficult and it is doubtful whether significant competition would be viable.

Paper-based white page directories are well used, but as these carry limited advertising and are offered for free to subscribers, the revenue potential is restricted and this is overall an unprofitable service. CD-ROMs and online directories have a significantly lower cost-base and are therefore potentially more economically viable.

The recently adopted Directive⁸ on privacy and electronic communications requires national regulators to implement an opt-in policy for new subscribers. There is a concern

⁸ 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 (Directive on privacy and electronic communications).

that under such a regime, subscribers may opt to go ex-directory as they change providers or move address, and this may over time reduce the comprehensiveness of the directory database. A database containing a smaller proportion of subscribers will in turn affect the attractiveness of directory services for end-users, as the chance of finding a subscriber through a directory service decreases. However, innovative new services developed by service providers have the potential to persuade subscribers of the real value of directory services, and thus of the necessity to opt-in.

Yellow pages services use a different revenue model, receiving payments from advertisement as well as possible ecommerce revenues from online directories. They therefore have a much greater potential to be a profitable business. Further, as yellow page service providers largely rely on their own databases of company information, the concern about access to operators' subscriber information is less pressing.

Based on the research undertaken and the analysis conducted, it seems that Article 6 is implemented in national law and, despite current disputes on access charges, should be capable of creating a level playing field for new entrant directory service providers. The main limitations to competition in the directory services market therefore seem to be the size of the market, the revenue potential and the willingness of consumers and businesses to spend money on directory services and on advertisements.

Pan-European directory database

With decreasing international directory enquiry call volume, and increasing use of the Internet, there may be a limited need for a pan-European database. However, the view of international directory service providers is that such a database would allow easier access to directory data through non-discriminatory conditions.

The creation of a pan-European database may be too ambitious to achieve in the short to medium term, given that national directory databases are still not universal (i.e. do not include all listed subscribers from all operators).

Regulators and the EIDQ are also concerned with the differences that exist between Member States in national legislation, especially regarding access to directory data

(different access charges) and permitted use of directory data (different levels of directory data protection). Agreements on these issues at a European level would first need be reached in order to establish a common legal ground for a pan-European database.

Directory service providers state that access to directory data in most countries is still difficult and that improved access conditions should be addressed first through the enforcement of the provisions in Article 6. With satisfactory access conditions for directory databases across Member States, directory service providers could achieve economies of scale by building up their own pan-European databases and providing directory services across different countries.

5.2 Recommendations

Implementation of Article 6

Although Article 6 is implemented in national law in almost all Member States, there are still a number of ongoing disputes on conditions of access to subscriber data that are hampering competition in the directory services market.

We recommend that the European Commission should urge national regulators to better enforce the provisions of Article 6 – in particular the provision that prescribes that ‘all organisations which assign telephone numbers to subscribers meet all reasonable requests to make available the relevant information in an agreed format on terms which are fair, cost oriented and non-discriminatory.’ Special attention should be given to the cost-oriented basis for access charges, with the European Commission encouraging regulators to conduct studies into the principles used to calculate access charges to directory data (see next section).

Barriers to competition

The European Commission should continue to promote national legislation that creates a level playing field for directory service providers and encourages competition in the market for directory services. To make service provider access to directory data easier (and

thereby increase the potential for competition and benefits for the consumers), access conditions to directory data need to be improved and universal subscriber databases created to make such data more readily available.

We therefore recommend that the European Commission should encourage national regulatory authorities to suggest principles for calculation of access charges and terms of access to directory data in markets where directory services providers have not been able to agree terms with data providers. This would involve resolving ongoing disputes and clarifying acceptable access charges and conditions. The European Commission could assist national regulatory authorities in providing guidance on principles for calculating access charges. For example, the distinction between directory services costs and costs incurred from other USO services such as operator and emergency services could be more clearly defined.

Analysys further recommends that a universal directory database with basic directory data be established in each country. The format of the data and the data fields available should be specified clearly, and access to data should be available on equal terms for all directory service providers. A universal database would potentially reduce the costs of subscriber data for all service providers, as it would limit duplication of effort. In countries where such a universal database exists, service providers have easier access to directory data as all information can be obtained from a single database, and can in turn enhance this basic directory data to allow differentiation of their offerings with additional services.

A universal database could be managed by different organisations, such as:

- the incumbent (as currently in most countries)
- a consortium of operators (such as in Finland)
- a public organisation (such as the national regulator in Spain)
- or an independent third party (such as NDD in Ireland).

Each of these solutions will have different implications with regards to likely access conditions and charges, and the ease with which data can be collected from different operators. The first option – the database being managed by the incumbent – has the advantages that the incumbent has years of database management experience, and with its large subscriber base has a low cost-base. However, problems with the collection of listed

subscriber data from alternative operators may arise (as is currently the case in many countries). Other database managers are less likely to experience such problems. When a consortium of operators manages the database, all parties have a vested interest in collecting directory data in one place, and guaranteeing fair and cost-based access conditions to this data for all service providers. An independent third party is also more likely to guarantee fair access to directory data, though charges for this data would need to be based on costs plus a suitable mark-up to allow the company a return on investment for the business model to be interesting to any organisation. Finally, a public organisation such as the national regulator could undertake the management of the universal database. As this operation could be run on a non-profit basis, potentially its access charges could be fairly low. It is however questionable to what extent public organisations such as a national regulator would have sufficient resources or be interested in taking on this responsibility on a long-term basis.

The optimum solution will vary from country to country, depending on local conditions. Analysys therefore recommends that the European Commission gives national regulators freedom to decide which database management structure is most suitable for their local conditions. A tendering process could be set up, allowing all interested parties to apply for this role. We recommend that the criteria for selection include estimated cost of access for directory service providers, comprehensiveness of the database and efficiency of operation.

It is likely that in some cases the incumbent will be the only interested party. In France, for example, although operators have been trying since 1996 to find an independent database manager as suggested in legislation, no organisation has been willing to take on this role. However, organisations like LSSi and Kapitol do claim to have an interest in taking on this role in some countries. In the case where the incumbent is the only interested party, Analysys sees benefit in creating a separate entity within the incumbent for the management of this database, in order to ensure fair and non-discriminatory access conditions.

We further recommend that the European Commission encourages regulatory authorities to fully adopt numbering parity and abolish any short codes favouring the incumbent. The implementation of the 118XY numbering range for directory services has proven to have a positive effect on competition in the directory enquiry market. Half of the EU and EEA Member States have not introduced numbering parity.

We also recommend that the European Commission encourages the national regulators to co-operate with other national legislative bodies to clarify how other national laws on privacy and security, such as the data protection law, affect the directory services market.

The European Commission should be aware that the number of competitors in smaller markets may remain limited, despite a favourable regulatory environment. Overall, it seems that a small market can sustain at most two competing directory service providers (of which one is the incumbent), whereas larger markets may sustain a higher number of significant competitors.

No action is required from regulatory authorities with regards to the technical issues investigated in this study. Regulators may give the market a positive impetus by actively supporting the creation of a data format standard and open standard protocol – though its actual development should be left to the market.

Analysys believes that the directory services market would benefit from an opt-out policy for fixed subscribers, whereas mobile operators should clearly be given the opportunity to be listed (i.e. no EC-level regulation on the default option), but with support from privacy laws to ensure that the subscriber information is only used for appropriate purposes related to subscriber directory services.

Pan-European database

Due to the anticipated lack of demand for a pan-European database, as well as the existence of better alternative solutions, we do not see an immediate need for the active involvement of any regulatory authority in setting up such a database.

With the enhanced enforcement of Article 6 and other existing legislation to create a level playing field in the national and international directory services market (including regulation on non-discriminatory international access conditions to incumbents' databases), such an international database is likely to be created naturally by directory service providers seeking economies of scale across the borders. Examples of such organisations can already be found with companies such as LSSi and Kapitol, which are attempting to collect directory data from a variety of Member States.

Summary of recommendations

Based on the findings from this study, and to further encourage competition in and consumer benefits from directory services, Analysys recommends that the European Commission:

- urge national regulatory authorities to improve the enforcement of the provisions of Article 6, in particular the provision which states that ‘all organisations which assign telephone numbers to subscribers meet all reasonable requests to make available the relevant information in an agreed format on terms which are fair, cost oriented and non-discriminatory.’
- support studies by the regulators to define more precisely the basis to be used for calculating cost-oriented access charges, including definitions of cost elements and methodologies
- encourage the existence of national universal subscriber databases
- allow the market freedom to establish the most efficient management structure for such universal databases, leading to the best access conditions in terms of format, fairness, cost and non-discrimination
- encourage regulatory authorities to fully adopt numbering parity and abolish any short codes favouring the incumbent
- actively encourage the use of standard data formats based on an open-standard protocol.