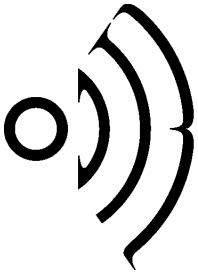

Office of the Director of
Telecommunications
Regulation

Numbering in Ireland

Proposals for the 21st Century

A consultative document

Foreword by the Director

The availability of competitive and innovative telecommunications services is a key requirement for growth and development in all sectors of the Irish economy. The telecommunications industry is currently going through a period of major change – with liberalisation, the development of new technology and services, and the increasing convergence of broadcasting, telecommunications and entertainment services. I am committed to ensuring that regulatory initiatives are taken to facilitate the development of the industry, and to enable it to grow and contribute to the competitiveness of the country.

Advanced telecommunications services cannot be developed and delivered without a suitable numbering scheme. The numbering scheme must be easy to use, provide an adequate supply of numbers for new services and service providers, and it must provide fair and equitable access to numbering resources for all players.

Changes to the telephone numbering regime affect network operators, service providers, equipment suppliers and customers. The liberalisation of telecommunications services will create new demands and challenges for the Irish numbering scheme, and the manner in which it is managed. Changes will need to be implemented over the next two years, so I have decided to undertake a review of the options available, and to consult widely before taking any decisions.

This consultation document outlines the major decisions on telephone numbering that must be addressed over the next six months. I hope it will be widely read, and that responses are received from all interested groups from consumers to network operators. It is intended to stimulate debate on the issues and to ensure that decisions taken will be based on the best available information. The decisions taken and procedures put in place following this consultation will not last forever, but will provide the basis for transition through full liberalisation and beyond.

Etain Doyle
Director

Summary

The need for consultation

Telephone numbers affect everyone. They form the universal interface between the user and a wide range of telecommunications services. They also provide information to the caller on the service called and the price paid.

The Office of the Director of Telecommunications Regulation (ODTR) has conducted a review on how best to develop numbering arrangements to meet Ireland's needs for the first part of the 21st Century. It covers both long-term needs and requirements for full liberalisation of the telecommunications markets in January 2000. The Director now wants your views on the findings of that work.

Existing numbering arrangements

Ireland currently uses the dialling and numbering plan illustrated in Figure 1.

Figure 1 The Irish dialling and numbering plan

Digits dialled	*Action performed by the network*	*Example*
00 + International number (country code + NDC + subscriber number)	Call to another country	00 33 1 3456 7890
01 + 7 digit subscriber number	Call to Dublin subscriber (NDC = 1)	01 323 4567
021 + 6 digit subscriber number	Call to Cork subscriber (NDC = 21)	021 234567
0402 + 5 digit subscriber number	Call to subscriber in Arklow (NDC = 402)	0402 22345
080 + UK number	Call to subscriber in Northern Ireland	080 1334 423456
086 + 7 digit subscriber number (1)	Call to Digifone GSM subscriber (NDC = 86)	086 8412345
087 + 7 digit subscriber number (1)	Call to Eircell GSM subscriber (NDC = 87)	087 2912345
10	Reach operator for operator-assisted call	
112 or 999	Call to emergency services	
1800 + 6 digits	Call to freephone subscriber	1800 223223
YXX XXXX (2)	Local call to subscriber in Dublin	323 4567
YXXXXX or YXXXX (2)	Local call to subscriber in other parts of Ireland	234567 or 23456

(1) 6 digit subscriber numbers being phased out
(2) Y = 2 to 9, X = 0 to 9

There are three dialling procedures – one for international calls, one for calls within Ireland and one for local calls. For national calls, users dial the trunk prefix 0 followed by a nationally significant number. This takes a wide variety of formats and consists of up to eight digits for geographic numbers (like basic telephony) and up to nine digits for non-geographic numbers (like cellular mobile). Figure 2 shows how these dialling procedures work and defines the main terms used in this report.

Figure 2 The different numbering terms and dialling procedures used

The numbering plan is controlled by the ODTR. The ODTR allocates number blocks[1] to Telecom Eireann and, from January 2000, to other service providers as well. Telecom Eireann then allocates individual numbers to users.

The factors to take into account in reviewing numbering arrangements

In its review, the ODTR has sought to take account of five main factors:

- the need to ensure an adequate supply of numbers at all times. Running out of numbers has serious economic consequences. Losses might quickly mount into hundreds of millions of pounds
- the need to make the plan as user-friendly as possible. This means simple dialling procedures, uniform number formats and information in the number for the caller
- the need to give new service providers equal access to numbering resources so that they can compete on equal terms with Telecom Eireann
- the need to keep the costs of a change to a minimum for service providers
- the need to minimise disruption to users when changes are made. No-one likes a number change. But sometimes it is essential to provide more numbering capacity. Making the change as easy as possible is then important. The cost of change for users is many times greater than the cost of change for service providers.

The ODTR has also taken account of international trends in numbering in making its proposals.

[1] Typically of 10,000 numbers

The need for additional numbering capacity

The current numbering plan has considerable spare capacity to meet future needs. But there are 'hot spots' where the demand from new service providers following liberalisation in January 2000 could lead to a shortage of numbers. So the ODTR proposes to:

- take immediate action to increase geographic numbering capacity in the Dundalk and Tralee areas
- review whether action is required in the Cavan, Drogheda, Ennis, Letterkenny or Sligo areas to increase numbering capacity
- require Telecom Eireann to increase the efficiency of utilisation of its existing number allocations in the Cork and Dublin areas.

There is adequate numbering capacity for non-geographic services (such as personal numbering and cellular mobile), but not enough national destination codes to meet possible long- term requirements[2]. NDCs of the form 8X (X= 0 to 9) are already used for non geographic services. The ODTR proposes to use one of the NDC ranges 3X, 7X or X0 in addition. The idea is to make a clear distinction between numbers used for geographic services and numbers used for non-geographic services.

Long-term options for the Irish numbering plan

How should the Irish numbering plan develop over the next twenty years? The ODTR has identified two main options:

- *Option A: continue with the current plan*. This option retains the main characteristics of the existing plan. It continues to use existing NDCs and dialling procedures. Subscriber numbers behind the NDCs are lengthened as required to provide additional capacity
- *Option B: closure of the current plan.* After closure, users always dial eight digits when calling geographic numbers and nine digits when calling non-geographic numbers in Ireland. Local dialling disappears along with the trunk prefix 0.

Unlike Option A, Option B provides uniform number length, uniform number formats, and a single dialling procedure. This, in turn, makes the plan more user-friendly and reduces misdials and transcription errors. But Option B involves significant extra disruption to users. Ninety per cent of the population[3] must change their number and then everyone must learn the new dialling procedures of a closed plan. The choice is a difficult one and the ODTR is especially keen to get as wide a range of views as possible on which of these options is preferred.

Specific numbering issues arising from liberalisation

Full liberalisation in January 2000 presents new numbering challenges for Ireland. It is important to ensure that:

- new entrants have equal access with Telecom Eireann to numbering resources to enable fair competition

- the numbering interface between the user and the networks remains user-friendly when, following liberalisation, there are many more service providers that require number allocations.

[2] National Destination codes or NDCs are the initial digits of the national number. For example, Dublin has the NDC 1, Cork 21, and Esat Digifone 86.
[3] Compared with about 20% for Option A.

With these challenges in mind the ODTR makes a number of proposals:

- to give existing NDCs national significance and to allocate new entrants number blocks from the space behind each NDC[4]. This will help preserve information in the initial digits of the number on the price of a call and the service called
- to establish rules for number allocation and use those which, at least in the short term, will preserve the principle that a user can find out the price of a call from the number dialled
- to continue with the current arrangements for numbering cellular mobile services until full number portability between mobile operators is introduced. This arrangement appears to work well
- to retain, at least in the short term, the current arrangements for numbering freephone and premium rate services using the 18X and 15X space of the dialling plan
- to reclaim part of the 18X and 15X numbering space from Telecom Eireann, for re-allocation to competing service providers
- to allocate the NDC 700 and reserve other NDCs of the form 70X for personal numbering services
- to ensure co-ordinated and efficient use of scarce 1XX short codes across rival access network operators[5] so that a user can, for example, reach directory enquiries using the same 1XX code from different access networks
- to define geographic numbering areas within which numbers will be portable
- to specify rules for the structure and values of short codes, which will allow users to select long-distance service providers and directory enquiry service providers
- to look at the possibility of moving away from the system in which:

  – *the ODTR allocates number blocks to service providers and service providers allocate individual numbers to users to one* in which

  – *a central allocator issues individual numbers to users, who could then seek their service provider.*

- Such a system could have significant value for selective ranges (such as freephone) once number portability has been implemented
- to change the Northern Ireland access code from 080 to 128 in conjunction with number changes that are taking place in the UK over the next 18 months. This change will release the NDC 80 for future numbering of non-geographic services.

Numbering administration in a competitive environment

It is important to ensure that the ODTR administers the Irish numbering and dialling plan in a way that:

- is transparent and efficient
- preserves the user friendliness of the plan
- ensures equal access to numbering resources for all service providers.

[4] The main alternative is to give each new entrant its own NDCs and allow it to use the numbering space behind them as it sees fit.
[5] For example, Telecom Eireann, mobile operators, CATV operators offering telephony.

With this objective in mind the ODTR has made three proposals:

- to draw up a set of *National Numbering Conventions,* which describe how service providers and subscribers can use numbers of different types and which specifies the process of applying for numbers. The ODTR wants to make conformity with these conventions a licence condition for all service providers
- to examine the idea of charging for numbers. The ODTR might charge service providers for number blocks allocated (so as to focus their attention on how many numbers they require when applying for numbers) and allow service providers to charge individuals who request specific memorable numbers
- to set-up procedures by January 2000 for resolving future numbering issues. The ODTR proposes that it should make any final decisions on such issues. In the case of major changes, it proposes to consult all interested parties through a written consultative document (like this one) before taking decisions.

How to respond

We would welcome your response to this consultative document. Please study the relevant parts of the main text and the questions posed there and send your written comments by 30th April 1998, to:

Stephen Blake
Office of the Director of Telecommunications Regulation
Abbey Court
Irish Life Centre
Lower Abbey Street
Dublin 1
Ireland

We will then analyse your comments and issue a document setting out the findings of the consultation process by June 1998.

1 About this consultation

Demand for telephone numbers in Ireland is growing rapidly:

- demand for additional numbers from *existing services* is strong. For example, the number of cellular mobile subscribers grew by over 80% in 1997. At the same time, fixed line growth is far from over. There are only 38 lines per 100 people in Ireland, compared with over 60 in many other European countries. In addition, the use of direct inward dialling to large business sites and the introduction of new features on digital switches is increasing the quantity of numbers required per fixed line
- *new non-geographic services* create additional demands – both for more numbers and for distinctive codes at the start of the number. Already, freephone and premium rate services are well established. Personal numbering, universal access numbers and corporate numbering services could also lead to substantial new demands. Finally, we need to allow for new services that no-one can yet foresee
- the introduction of *competition* in January 2000 will create new demand for numbers and lead to lower utilisation of the available numbering space.

Together, these developments have led the Office of the Director of Telecommunications Regulation (ODTR) to conduct a review of the best way to develop the Irish numbering plan, so as to ensure it does not constrain the future development of telecommunications in Ireland. Now the ODTR wants to consult on the findings of that review. It recognises that telephone numbering affects everyone. For example:

- the telephone number is the universal link between callers and the telecommunications services that they use. It is important to make sure that this interface is as user-friendly as possible
- callers use the numbers dialled to get information on the service used and the price paid.

Therefore, the ODTR has decided to consult widely on how best to develop the plan in the interests of all. It seeks comments from:

- users, whether business or residential
- telecommunications operators and service providers (referred to from now on as just service providers)
- telecommunications equipment suppliers and distributors.

All comments are welcome, but we would particularly like responses to the questions posed in this document. Please send your comments in writing, by 30th April 1998, to:

Stephen Blake
Office of the Director of Telecommunications Regulation
Abbey Court
Irish Life Centre
Lower Abbey Street
Dublin 1
Ireland

The responses should not include confidential information, as the ODTR may use the information supplied in future work. To make the task of analysing your replies easier, we would be grateful if you could reference your comments with the appropriate question numbers used in this document.

We plan to issue a further document setting out the findings of the consultation process by June 1998.

2 Current numbering arrangements in Ireland

2.1 The formal numbering plan

The Irish numbering plan is part of a larger global numbering plan. This plan has three components:

- the country codes (353 for Ireland)
- the national destination codes (for example, 1 for Dublin, 21 for Cork and 86 for Esat Digifone)
- the subscriber numbers (five, six or seven digit numbers in Ireland).

Together the ***national destination code*** (*NDC*) and the ***subscriber number*** are referred to as the ***nationally significant number***.

This global plan allows government authorities to allocate a unique telephone number to each subscriber throughout the world. This number is used by the world's telephone networks to route calls and to charge callers.

2.2 The dialling procedures

Callers use the telephone number in different ways when making calls. As Figure 2.1 illustrates, there are three different dialling procedures:

- for calls into or out of Ireland the caller dials an international prefix (most commonly 00) followed by the country code, the NDC and the subscriber number
- for calls within Ireland the caller dials 0 (the trunk prefix) followed by the NDC and the subscriber number
- for local calls within the same NDC area the caller need only dial the subscriber number.

Figure 2.1 Dialling procedures for calls to Irish telephone users

2.3 The dialling plan in Ireland

Callers in Ireland dial a sequence of digits, which the network interprets to route calls.. This sequence is the *dialling plan,* which includes within it the Irish part of the global numbering plan. Figure 2.2 shows what happens when a caller dials different sequences of digits. The list is illustrative rather than exhaustive. Annex A provides more details[6].

Figure 2.2 The Irish dialling and numbering plan

Digits dialled	*Action performed by the network*	*Example*

00 + International number (country code + NDC + subscriber number)	Call to another country	00 33 1 3456 7890
01 + 7 digit subscriber number	Call to Dublin subscriber (NDC = 1)	01 323 4567
021 + 6 digit subscriber number	Call to Cork subscriber (NDC = 21)	021 234567
0402 + 5 digit subscriber number	Call to subscriber in Arklow (NDC = 402)	0402 22345
080 + UK number	Call to subscriber in Northern Ireland	080 1334 423456
086 + 7 digit subscriber number (1)	Call to Digifone GSM subscriber (NDC = 86)	086 841 2345
087 + 7 digit subscriber number (1)	Call to Eircell GSM subscriber (NDC = 87)	087 291 2345
10	Reach operator for operator assisted call	
112 or 999	Call to emergency services	
1800 + 6 digits	Call to freephone subscriber	1800 223223
YXX XXXX (2)	Local call to subscriber in Dublin	323 4567
YXXXXX or YXXXX (2)	Local call to subscriber in other parts of Ireland	234567 or 23456

(1) 6 digit subscriber numbers being phased out

(2) Y = 2 to 9, X = 0 to 9

Examination of Figure 2.2 and Annex A indicates that:

- 00 is the international prefix. This is an EU requirement
- 0 is the trunk prefix
- NDCs are one, two or three digits long
- there are 66 geographic NDCs allocated to number users of voice and Integrated Services Digital Network (ISDN) services
- there are 4 non-geographic NDCs allocated to number users of mobile and paging services
- subscriber numbers are five, six or seven digits long and the first digit is a number between 2 and 9

[6] See also *Irish Telephony Numbering Scheme,* ODTR, March 1998 and *Irish Mobile and Personal Communications Numbering Plan,* ODTR, February 1998

- the nationally significant numbers (NDC plus subscriber number) are seven or eight digits long for geographic services, and eight or nine digits long for non-geographic services (with a defined schedule for moving to nine digit numbers only)
- the formats of the numbers used in the dialling plan vary as shown in Figure 2.3
- the digits 1XX(X) are used in two ways:

  – *to create short codes of two to four digits to access directory enquiries, operator assistance, customer support and so on*

  – *to number certain non-geographic services – freephone, shared costs and premium rate services.*

- 080 is used as the prefix for calls to Northern Ireland.

Figure 2.3 The geographic numbering formats of the Irish plan

Digits in NDC	*Digits in subscriber numbers*	*Number of NDCs*	*Example*
1	7	1	01 3234 567

2	6	5	021 234567
3	5	15	0402 22345
2	5	45	047 77234

The dialling plan for Ireland includes within it the Irish part of the global numbering plan. Figure 2.4 shows the relationship between them.

Figure 2.4 How the numbering plan fits within the dialling plan

The general rules are:

- digit sequences starting with 00 are followed by numbers from the other parts of the global numbering plan. They are used to make outbound international calls
- digit sequences starting with 0 are followed by numbers from the Irish part of the global numbering plan. Users in other countries can call these numbers
- digit sequences starting with 1 indicate short codes or numbers for specially tariffed services such as freephone and premium rate service. Only callers in Ireland can dial these numbers successfully
- digit sequences starting with digits 2 to 9 indicate subscriber numbers[7]. Only callers in the same NDC area can dial these numbers successfully.

2.4 Administrative arrangements for numbering

The procedures for allocating numbers vary by service:

- for basic PSTN numbers the ODTR allocates blocks of 1,000 or 10,000 numbers to Telecom Eireann for geographic services when demand justifies. Telecom Eireann then allocates individual numbers to subscribers and requests new blocks when existing blocks are about to be used up
- numbers for specially tariffed services (such as freephone and premium rate services) have been allocated only to Telecom Eireann. Telecom Eireann allocates individual numbers from across virtually the whole of these ranges
- when demand justifies, the ODTR allocates additional 100,000 number blocks for co-ordinated use by the mobile operators from a numbering space of ten million numbers. The mobile operators then allocate numbers to individual users from the open ranges and add their own NDC to the subscriber number to create the full national number. This administrative process means that mobile subscribers who change operator can keep their subscriber number and only need to change one digit of their NDC.

[7] Except for 999, which is used for access to emergency services

3 Developing the plan – the factors to consider

3.1 Introduction

The ODTR proposes to consider five main factors when deciding on how to develop the current Irish numbering plan:

- the need to ensure an adequate supply of numbers at all times
- the need to make the plan as user-friendly as possible
- the need to give competing service providers equal access to numbering resources
- the need to minimise disruption to users when changes are made
- the need to keep the costs of a change to a minimum for service providers.

Applying these factors will lead to conflicts. For example, it is possible to develop a more user-friendly plan at the expense of user disruption. The ODTR will review responses to the consultation before taking these factors into account.

The ODTR also considers it important to ensure any development of the numbering plan is compatible with harmonisation requirements of the European Union and international recommendations from the ITU. We look at this issue in *Chapter 7*.

3.2 Ensuring an adequate supply of numbers

The numbering plan must ensure an adequate supply of numbers at all times to meet demand generated by:

- future growth in existing services; for example, new PSTN lines or the introduction of direct inward dialling
- new services, such as freephone and personal numbering
- new service providers.

It is also important that the plan should preserve options for simple expansion of numbering capacity by adding extra digits.

3.3 User-friendly numbering

User-friendly numbering means that:

- users make greater use of telephone services and generate greater revenues for service providers
- users waste less time through misdials.

Research in other countries indicates that users want:

- simple dialling procedures
- uniform number lengths and standard number formats
- numbers that convey information to the caller, especially on the price paid and the type of service called.

In the past it was very important to make numbers as short as possible. But this is now of decreasing importance as networks are digitalised and the proportion of handsets with memory dialling and push button touch-tone signalling increases.

3.4 Equal access to numbering resources

Rivals to Telecom Eireann will need equal access to numbering resources if they are not to be disadvantaged in competing with the incumbent. This means a requirement for:

- independent and transparent administration of numbering resources
- identical dialling procedures and number lengths for all service providers competing to offer any given service
- an adequate supply of numbers and carrier access codes for new entrants.

3.5 Minimum disruption to users

No-one likes their telephone number to change. But change is sometimes vital to ensure an adequate supply of numbers. The cost of number changes to customers is substantial[8], but the cost of running out of numbers is considerably higher. Experience in other countries indicates that, when change is needed, users want:

- adequate advance notice of the change
- a period of parallel running, in which both the old and new numbering arrangements work simultaneously
- a period of at least three months in which the network traps and deals with calls misdialled as a result of the change
- changes that last for at least ten years before further change is required.

In addition, users value the opportunity to keep their number when they change service provider or location through the use of number portability services.

3.6 Minimising the costs to service providers

Numbering changes generate costs for service providers as well as users. Costs include modifying switches and support systems, trapping misdials and publicising the change. It is clearly desirable to keep these costs to a minimum. But it is also important to remember that these costs are likely to be much smaller than the costs of a change for users or the cumulative benefits of making the plan more user friendly.

3.7 International trends in numbering

Many other countries have made significant changes to their numbering plans over the last ten years and a number of common trends have developed. The ODTR believes it is important to consider and, *where appropriate*, adopt these international trends within the Irish plan.

[8] In terms of changing stationery, and signs, reprogramming auto diallers, upgrading equipment and learning the new dialling procedures.

We can summarise the main trends as follows:

- the proportion of a numbering plan used for non-geographic services is growing in all countries
- there is a move towards reducing the number of geographic NDCs. This reflects a trend by incumbent operators to use local exchanges that serve many more customers and so to narrow the difference between the cost of carrying local and national calls
- there is a general move towards more uniform number length and number formats
- there is a general trend towards making a clear distinction (through the initial digits dialled) between geographic and non-geographic services
- a number of countries have moved to a *closed* plan with a single dialling procedure and no local dialling. This trend is particularly noticeable in countries of a similar size to Ireland. Norway, Denmark and France have closed their numbering plans in the last ten years. Switzerland and Spain plan to do so before 2000
- there is a general trend to use the initial digits of the form 7X, 80X and 90X for personal numbering, freephone and premium-rate services respectively.

3.8 Questions

Q3.1: *Do you agree that this chapter outlines the right factors for developing the Irish numbering plan?*

4 Ensuring the numbering plan has adequate capacity

4.1 Introduction

This section sets out options for the development of the current plan which attempt to meet the goals of *Chapter 3*. The focus is on ensuring adequate numbering capacity while making the plan easier to use. We look at the specific issue of equal access for operators in the next chapter.

4.2 Techniques for expanding the capacity of the plan

The ways in which we can expand the capacity of the plan from its current level are limited. We cannot simply add digits wherever we want. It is important to add digits in a way that allows the networks to trap and remedy misdials caused by the change.

Suppose, for example, that we want to increase capacity for subscriber numbers in the Sligo area by adding an additional digit to the existing five digit numbers. We know that no subscriber numbers begin with a 9. So we can add a 9 to all existing subscriber numbers; for example, 23456 becomes 923456. It is then clear that anyone who dials a Sligo number where the subscriber number does not start with 9 has misdialled. The network can trap these misdials and tell the caller to redial inserting the digit 9.

We can generalise this example as follows. Before we can expand capacity it is best to ensure that at least one of the possible values of a given digit in the number (normally the first or second) is unused right across the number range for which we are providing expansion[9].

4.3 The value of the leading digits conveying information

The leading digit of the current nationally significant numbers (NDC plus subscriber number) provides a clear indication to callers both on whether they are calling geographic or non- geographic services and which geographic region they are calling. Figure 4.1 shows how the geographic NDCs indicate the location of the called party.

This feature is well worth preserving. To do this we should, instead of adding a new leading digit to each NDC, expand capacity by:

- adding a digit to the front of *subscriber* numbers ***or***
- adding a digit behind the leading digits of the NDC.

At the moment the 3X NDCs are reserved for expanding the numbering plan by adding the leading digit 3 to the front of all numbers. This would significantly weaken the information currently available from the leading digits of the number. The ODTR therefore proposes to release the 3X NDCs for other purposes, while preserving migration paths for expanding numbering capacity in other ways.

[9] It is also possible to use digit counting to make a change. But this is expensive and creates long call set-up times for users.

Figure 4.1 The significance of geographic NDCs in Ireland

4.4 Shortages in geographic numbering capacity

There is still considerable capacity left in the current numbering plan, but there are a number of 'hot spots' in the geographic numbering ranges where demand could outstrip supply in the next few years.

Liberalisation could have a major effect on the speed at which the current geographic number space reaches exhaustion. But the effect is highly uncertain. It depends upon:

- the number of entrants offering service in each NDC area. UK experience suggests that liberalisation could increase the demand for geographic numbers by up to 35% over the first five years
- the speed with which Telecom Eireann further rationalises its charging structure. Any additional rationalisation will increase the efficiency of utilisation of numbering capacity which is possible
- the speed of introduction of local number portability. This again will increase the utilisation of numbering capacity which is possible
- the impact of non-geographic services (such as cellular mobile) on requirements for geographic numbers. In Finland, for example, demand for fixed lines has fallen significantly over the past few years as an increasing number of single person households have chosen to use cellular mobile, rather than fixed line telephones.

Annex B provides a detailed analysis of demand for geographic numbers. Based on this analysis the ODTR concludes that:

- there is an urgent requirement to provide additional capacity in the Tralee (NDC 66) and Dundalk (NDC 42) areas so as to ensure an adequate supply of numbers. The problem has already arisen in Dundalk, where some subscribers are numbered from the 43 NDC. ODTR proposes to require Telecom Eireann to take the necessary steps to provide this capacity immediately.. This will require number changes, particularly in the 42 NDC
- any shortages in other areas that currently use five digit subscriber numbers can be solved through simple local number changes. The ODTR proposes to discuss with Telecom Eireann any requirements to make changes to provide additional capacity in advance of the year 2000 in the following areas:

  Drogheda (NDC 41)
  Cavan (NDC 49)
  Ennis (NDC 65)
  Sligo (NDC 71)
  Letterkenny (NDC 74)

- there should be no shortages in the Dublin area for the foreseeable future providing Telecom Eireann uses only its current number allocation. This will require it to change certain operational procedures for number allocation and use of number blocks to identify specific groups of lines. The ODTR proposes to implement this restriction
- continuing to use the NDC 21 with six digit subscriber numbers to number subscribers in the Cork area could lead to numbering exhaustion within five years of liberalisation. To avoid imposing a number change that later proves unnecessary the ODTR proposes to:

  – *rigorously scrutinise future Telecom Eireann applications for number blocks behind the NDC 21*

  – *review the numbering capacity requirements of the Cork area in the year 2000 when demand from new entrants is more certain*

  – *decide how best to expand capacity if such expansion is needed*

- the way in which numbering capacity for Cork is expanded will have significant impact on the long-term development of the plan. There are two main options:

  – *to expand the subscriber numbers in the Cork area from six to seven digits*

  – *to renumber subscribers using the 2X NDCs so that subscribers in the Cork area use numbers of the form 2 ZXX XXXX (where Z = 2 to 6) and others use NDCs 27 and 28. Annex D provides examples of what such a change would mean.*

The implications of this decision are discussed further below:

- there are no other short- or medium-term capacity problems in areas using six digit subscriber numbers.

4.5 The supply of NDCs for non-geographic services

There are currently 26 unused NDCs that could be used for non-geographic services. But many of them are unsatisfactory for long-term use. For example:

- using individual NDCs such as 48, 57 or 59, which are free but are scattered among NDCs used for geographic numbers, could cause confusion for callers (who might think they are calling geographic numbers)
- using the free 3X NDC to number non-geographic services would eliminate several of the options for the long-term development of the plan described below.

The ODTR believes that using only the 8X NDCs for numbering non-geographic services is inadequate. Using nine digit numbers for this range provides enough ***numbers*** (100 million numbers to serve a population of 3.3 million) but not an adequate supply of ***distinctive NDCs***. Six of the 10 8X NDCs are currently in use. And, as Annex C indicates, there are many other potential demands for non-geographic NDCs.

The ODTR believes that there are three main options for providing the additional range of non-geographic NDCs required in the long term:

- to use the 3X range of NDCs. These are already free and are very distinctive to callers through the initial digit. However, using the 3X range in this way eliminates the best options for closing the numbering plan. The advantages and disadvantages of this development are discussed below
- to use the X0 range of the NDCs. This range is distinctive, like the 3X range. It is used in other countries, such as USA and Denmark and is recommended by the European Telecommunications Office. Six of the NDCs in this range are already free and a seventh (80) could be cleared relatively easily. Clearing this range completely would involve numbering changes for around 5% of users, but would reduce the variation in the number formats used in Ireland by eliminating any three digit geographic NDCs
- to use another range such as the 7X NDCs. There is some evidence of a move to using such ranges for non-geographic service, in other countries. Clearing this range would involve numbering changes for around 3% of users.

Which range is best depends upon which long-term option for the development of the plan is selected. We discuss this choice in the next section.

4.6 Long-term options for developing the numbering plan

There are two main options for the long-term development of the Irish numbering plan:

- *Option A: continue with the existing open plan*. This option retains local and national dialling procedures and the wide variety of number formats that currently exist
- *Option B: closure of the plan*. This involves moving to a plan in which there is a single national dialling procedure that involves dialling eight digit geographic numbers and nine digit non-geographic numbers.

We discuss the characteristics and relative strengths of these two options in this section.

Option A – continue with the current plan

Under this option we:

- retain existing geographic NDCs
- lengthen subscriber numbers behind the NDCs through local number changes as required
- use the NDCs 3X and 8X for non-geographic services.

This option has one major advantage – minimum disruption to users. It also provides the caller with good information from the leading digits of the number dialled on the type of service used and the price to be paid in most cases, but this advantage is largely shared with Option B.

- Option A suffers from one major weakness. It does nothing to reduce the range of dialling procedures, number lengths and number formats which is, by international standards, a weakness of the current plan. For example, the current plan uses two national dialling procedures (local and national) and a wide range of number formats. These include:

- 1+7 (one digit NDC plus seven digit subscriber number), 2+6, 2+5 and 3+5 digit numbers for geographic services
- 4+6 digit sequences for numbering special tariff services such as freephone and premium rate services in the 1XX dialling space
- 2+7 digit numbers for other non-geographic services.

Option B – closure of the current plan

Option B addresses this weakness. Under Option B we close the plan[10]. Closure means using a single dialling procedure for all calls within Ireland and abandoning local dialling and the trunk prefix. Figure 4.2 illustrates what would happen on closure and a fuller explanation is given in Annex E.

Figure 4.2 The effect of closure

	Digits dialled	
	Open plan	*Closed plan*
Call to Dublin subscriber from Dublin	234 5678	1234 5678
Call to Dublin subscriber from Cork	01 234 5678	1234 5678

[10] There is a trend towards closure of numbering plans elsewhere in Europe, particularly in countries of a similar size to Ireland. Norway, Denmark and France have closed their numbering plans in the last ten years. Switzerland and Spain plan to do so before 2000

After closure:

- everyone dials eight digit geographic numbers and nine digit non-geographic numbers within Ireland using the initial digits shown in Figure 4.3
- all numbers can be written in a standard format for ease of transcription and dialling. For example, eight digit numbers might use the format XXXX XXXX and nine digit numbers the format XXX XXX XXX.

Figure 4.3 The significance of the initial digits under Option B

The big advantage for Option B is that it provides uniform number lengths and a single dialling procedure within Ireland. Experience in other countries indicates that this, in turn, leads to lower transcription errors and rates of misdialling.

Unfortunately, the advantage of Option B comes at a significant cost in terms of user disruption through numbering changes. Figure 4.4 lists the changes that will be required (perhaps spread over the next ten years) to reach one of the variants of Option B. As well as the changes involved in the final closure of the plan (which everyone will experience), we estimate that nearly 90% of the population[11] will experience a change of NDC and or/local number at some point during the transition. This is clearly a major change. But it is no more complex than changes that are now being implemented in other countries such as Australia.

[11] Compared with about 20% over the same period for Option A.

Figure 4.4 The migration to Option B

Step	*Comment*	
Rationalise 2X NDCs with Cork area on (Z= 2 to 6) and all other users on	Provides Cork with adequate long-term capacity NDCs 27 and 28 + 6 digit subscriber numbers	02 ZXX XXXX
Clear 7X NDCs	For non-geographic services	
Clear X9 NDCs	For possible long-term expansion of capacity	
Move Dublin from 1X to 3X NDCs	To avoid a clash with the 1XX short codes on closure	
Expand remaining 7 digit geographic numbers	To create uniform number lengths on closure	to 8 digits
Close plan and drop trunk prefix	The final step	

There are two other smaller disadvantages of Option B:

- callers will, on average, dial more digits. The average digits dialled will increase from 7 to 8[12] for geographic numbers
- closing the plan will eliminate local dialling. This simplifies dialling procedures, but obscures the fact that the number called is local[13].

4.7 Deciding between the long-term options

The ODTR believes that the choice between the two long-term options is largely a matter of weighing:

- the higher user friendliness of Option B. This should lead to fewer misdials and transcription errors and hence to traffic stimulation
- the lower cost of change inherent in Option A. Option B involves many additional numbering changes and hence additional costs to users in terms of changing stationery and signs, modifying telecommunications equipment[14] and learning new dialling procedures.

If we were starting from scratch, then we would probably design a plan like Option B as the best way of supporting a 21st century information economy. But we are not starting from scratch. There are significant costs of user change in reaching Option B.

We do not need to decide now between the two options. Indeed, the ODTR believes it makes sense to delay any final decision until early in 2000 (when we will have clearer information on the impact of liberalisation on demand for numbers). In the meantime, the ODTR:

- seeks the views of users and industry players on their preferred long-term option
- believes that it is important not to prejudice migration to either options through short-term actions. For example, we would not want to number non-geographic services now using the 3X range of NDCs. To do so would immediately block the migration path to Option B.

[12] Assuming 35% of calls are dialled using full national numbers.

[13] In many countries, closing the plan also leads to a loss of tariff information in the number dialled. In Ireland the position is less clear cut. For some calls in Ireland, national dialling is associated with local charging.

[14] Such as PABXs, key systems, private payphones and alarms.

The choice of long-term option also affects the choice of NDCs for non-geographic services. The ODTR proposes to:

- use the 8X and 3X ranges if a decision is made in favour of Option A
- use the 8X and 7X or X0 ranges if a decision is made in favour of Option B
- minimise the use of non-geographic NDCs outside the 8X range in the meantime.

4.8 Questions

Q4.1: *Do you think that we should preserve the meaning of the leading digits in the current plan? (Section 4.3)*

Q4.2: *Do you agree with the ODTR's proposals to ensure an adequate supply of geographic numbers for liberalisation in January 2000? (Section 4.4)*

Q4.3: *Do you agree with the ODTR's assessment of long-term demand for non-geographic numbering space? (Section 4.5)*

Q4.4: *Which NDC ranges do you think should be used to number non-geographic services in future? (Sections 4.5 and 4.7)*

Q4.5: *Do you think that there are options in addition to Options A and B which we should consider for the long-term development of the numbering plan? (Section 4.6)*

Q4.6: *Which of Options A and B do you prefer and why? (Section 4.6)*

Q4.7: *Do you prefer the 7X or the X0 range of NDCs, in addition to the 8X NDCs, for numbering non-geographical services? (Section 4.7)*

Q4.7: *Do you think that the decision on the choice of long-term option should be delayed? If so until when? (Section 4.7)*

5 Specific numbering issues arising from liberalisation

5.1 Introduction

In the last chapter we considered options for the long-term evolution of the numbering plan. The focus was on ensuring adequate capacity and improving user friendliness where possible. In this chapter we consider short-term development of the plan to ensure that:

- new entrants have equal access with Telecom Eireann to numbering resources to enable fair competition
- the numbering interface between the user and the networks remains user-friendly when, following liberalisation, there are many more service providers using the numbering plan.

This section discusses how to allocate numbers to rival service providers once markets are liberalised. It is not intended to indicate when a market will be liberalised unless otherwise specified.

5.2 The allocation of geographic numbering capacity

There are two main ways of numbering the geographic services of new entrants:

- each new entrant is assigned a separate and distinctive NDC and uses the numbering space behind the NDC for its geographic services
- the existing geographic NDCs take on national significance. New entrants, together with Telecom Eireann, are assigned number blocks from the numbering space behind each NDC.

The ODTR believes that the second option is both more user-friendly and more equitable for service providers. It therefore proposes the following principles:

- geographic NDCs should have national significance, rather than being associated with a particular service provider
- the ODTR should define the geographic area which each NDC will number. In most cases it expects these areas to correspond to existing areas used by Telecom Eireann
- all service providers numbering subscribers in each area will use blocks of 1,000 numbers[15] or blocks of 10,000 numbers[16] allocated by the ODTR from the numbering space behind the relevant NDC
- all service providers will implement any required numbering changes simultaneously.

These arrangements are designed to ensure that:

- users get the maximum information from the number called on the location of the called party and the price paid for the call
- users of the networks of different service providers continue to be able to use local dialling procedures
- users do not have to dial longer numbers when calling one service provider rather than another.

[15] Where there are five digit subscriber numbers.
[16] Where there are six or seven digit subscriber numbers.

These principles are consistent with the recommendations of the European Telecommunications Office and the allocation procedures used in virtually every other country that has introduced competition.

5.3 Geographical numbering and charging

Under current numbering plans callers:

- receive an indication of what they are paying for a call from the number dialled
- can find out the precise price of a call from the number by consulting published documents such as telephone directories.

For non-geographic services this is done simply by looking at the NDC. For geographic services the process is more complex. Figure 5.1 illustrates the general rule currently used by Telecom Eireann for charging for calls.

Figure 5.1 Telecom Eireann's current charging arrangements

We can see that:

- Telecom Eireann divides each NDC area into charge areas. Each NDC area currently contains between one and six charge group areas
- a caller always pays a local rate for locally dialled calls, that is calls within the NDC area
- whether a caller pays a local or national rate for a nationally dialled call depends upon whether the called party is located in a Telecom Eireann charge area adjacent to the boundary of the caller's own charge area
- the caller can determine whether they pay a local charge by looking up the NDC and the initial digits of the subscriber number called in their local telephone directory
- to preserve the link between the price paid and the number dialled the ODTR must allocate number blocks that are specific to the Telecom Eireann charge area rather than to the NDC area.

The ODTR proposes to preserve the principle that the caller can find out the price of a call from the number dialled in the short and medium term[17]. To do this after liberalisation will mean introducing rules that specify what service providers can use numbers for. Again the most challenging area is that of geographic numbering. Here the ODTR makes the following proposals for relating numbers to charging:

- service providers should have the maximum freedom to tariff their geographic services as they wish within the rules specified below
- the ODTR will define and maintain *minimum numbering areas* across Ireland. To start with the minimum numbering areas will correspond to the existing Telecom Eireann charge areas. The ODTR will then expand these minimum numbering areas as and when service providers expand their charge group areas[18]
- the ODTR will issue number blocks to service providers which are specific to a given minimum numbering area
- each service provider will use numbers from a given block only to number subscribers located in the corresponding minimum numbering area
- service providers will only be able to offer geographic portability of numbers across a minimum numbering area and not beyond its boundaries.

5.4 The allocation of non-geographic numbering capacity

General guidelines

The ODTR proposes that the allocation of non-geographic numbering capacity should, wherever practicable, follow three main guidelines:

- NDCs for non-geographic services should have national significance

- service providers should receive number blocks for each non-geographic service from the space behind the nationally significant NDC
- service providers should use these blocks to provide numbers with a common length of nine digits (NDC plus subscriber number).

[17] In the long term the ODTR may be able to relax this principle as other methods of informing a caller of the price of a call develop or as a caller comes to accept the idea that a number indicates an upper limit rather than a precise value on the price paid for a call.

[18] There is a general trend towards expanding the size of local charge areas as operators rationalise their networks.

It may not always be possible to follow these guidelines. For example, the current numbering of cellular mobile services involves the use of NDCs which are specific to service providers.

The ODTR also proposes to fix a maximum charge that will apply to calls made to certain non-geographic number services. This will not limit service providers' ability to vary service charges, but will prevent callers from being charged unexpectedly high call rates for dialling these numbers. The services to be covered by this condition would include:

- freephone (1800)
- shared cost (1850, 1890)
- premium rate (15X0, 1559)
- personal numbering and universal access numbering.

Long-term numbering of non-geographic services

It is difficult to reach decisions on the long term numbering of non-geographic services until the overall direction for development is clear. The analysis of Section 4.5 indicates that we should:

- use the 8X range of NDCs for the non-geographic services
- consider use of the 3X, X0 or 7X NDC ranges to provide additional NDCs for non-geographic services.

However, there are a number of specific short-term issues that we need to address. We discuss these in the remainder of this section.

Numbering of mobile services

Demand for mobile services is growing rapidly. How should they be numbered?

Currently, the cellular mobile operators make co-ordinated use of a single block of ten million subscriber numbers to which they then add their own operator-specific NDC (86, 87 or 88). Subscribers currently use a mix of six and seven digit subscriber numbers, but will move to only seven digit numbers by September 1998. The system works well and the allocated space has adequate long-term capacity (up to ten million numbers for a population of 3.3 million people).

In future the ODTR proposes:

- to allocate a further NDC (probably 85) for use by a new mobile operator
- to introduce full number portability between mobile operators as soon as possible after January 2000.

With the introduction of number portability there is a choice to be made. The ODTR could:

- move all subscribers from their current NDCs to a single common 8X NDC. This would involve a number change for all subscribers, but would release three 8X NDCs for other use in future[19]
- allow existing mobile subscribers to retain their NDCs. This would quadruple the numbering capacity available for mobile services once number portability is implemented. It is debatable whether this capacity is required.

We seek views on which option is preferable.

[19] This option involves rationalising numbers for the small percentage of mobile subscribers who use the same subscriber number on more than one network.

Numbering of freephone and shared cost services

Currently freephone services are numbered as follows:

- Telecom Eireann alone provides freephone services
- Telecom Eireann uses the dialling space 1800 XXX XXX to number this service. Such numbering is consistent with international practice in the use of 800 as a flag to indicate a freephone service. But it is unusual in the use of the 1XX dialling space rather than an NDC. Most other countries use the NDC 800 to number freephone services. Under current arrangements, Irish freephone subscribers are only accessible from within Ireland and not from other countries
- in response to demand for memorable numbers, Telecom Eireann has used the whole of the number space behind 1800 except 0XX XXX, 1XX XXX and 9XX XXX.

A similar situation exists for shared cost services, which are numbered using the dialling space 1850 XXX XXX and 1890 XXX XXX.

The ODTR has decided, in principle, to allocate freephone and shared cost numbers to service providers other than Telecom Eireann before January 2000. This situation raises three main issues, which we discuss below.

Firstly, should freephone numbering be moved from 1800 to 0800 in line with much international practice? The ODTR proposes *not* to make such a change at least in the short to medium term. There are two reasons. A change:

- would involve disruption to freephone customers.
- could lead to misdials by Irish users who dial UK 0800 freephone numbers advertised in the UK press or on UK television. Using 1800 numbering helps avoid this problem.

There is a disadvantage to staying with the present system. Freephone numbers will remain inaccessible from other countries. But we can find little evidence of demand for such access, especially with development of the alternative global freephone service.

Secondly, how should the ODTR allocate freephone numbers to new entrants? The ODTR proposes to:

- take control of the unused 0XX XXX, 1XX XXX and 9XX XXX ranges of the 1800 numbering space
- recover the 8XX XXX range from Telecom Eireann over the coming year
- allocate blocks of 1,000 numbers to service providers that can adequately justify an application for freephone numbers. Initially it will use the 9XX XXX and then the 8XX XXX ranges for this purpose.

Thirdly, how will service providers gain access to memorable numbers on an equal basis with Telecom Eireann? It is clear that many freephone customers want memorable numbers and that the ODTR's proposals do not provide equal access to memorable numbers for Telecom Eireann's rivals in the short term. To deal with this problem the ODTR proposes to:

- introduce number portability between freephone service providers as soon as possible after January 2000. This will give Telecom Eireann's rivals the opportunity to win the business of established freephone customers and the memorable numbers that they use
- encourage the use of alpha-numeric telephone keypads. This should significantly increase the supply of memorable numbers
- examine the possibility of moving to direct central allocation of individual freephone numbers. This will bring unallocated memorable numbers under the control of a neutral third party.

The ODTR makes parallel proposals for shared cost services.

Numbering of premium rate services

The numbering of premium rate services has many of the same characteristics as the numbering of freephone services. But there are two important differences:

- premium rate services are numbered using the 15XX numbering space. This is an Ireland- specific flag for premium rate services. The internationally recognised flag is 90 or 900
- demand for memorable numbers is less strong for premium rate services than for freephone services.

The ODTR sees two main options for the future numbering of premium rate services:

- to continue with current arrangements
- to move premium rate services to the internationally recognised NDC 900.

The ODTR favours the first option, at least in the short term, for three main reasons. Moving to 0900:

- involves user disruption for existing premium rate service customers
- involves possible misdialling by Irish users who call UK 0900 premium rate service numbers[20]
- may conflict with the long-term strategy for the development of the Irish plan and the ranges used for non-geographic services.

Universal access service numbering

There is now significant demand from large companies in Ireland for universal access numbers. These would allow callers to dial a single number from anywhere in the world and be routed to the company at a network termination point convenient to that organisation. What NDCs should be used for numbering this service?

The ODTR proposes to allocate a three digit NDC from the 8X range within the next few months for this purpose. It believes that:

- a three digit NDC followed by six digit subscriber numbers provides adequate capacity for such a service
- using a NDC from the 8X range does not eliminate any of the options for long-term development of the plan.

Personal numbering services

A personal number is an individual number that can deliver calls to a customer at various locations; for example, the office, home, mobile or pager. The customer can determine when and how the calls will be routed to the different locations.

[20] The UK plans to use the 0900 range for premium rate service numbers in the immediate future.

The ODTR proposes to provide numbering resources for personal numbering services as follows:

- to designate the NDC 700 and reserve other 70X NDCs for personal numbers. This allocation meets an urgent request for personal numbering. It also matches international practice. But it may conflict with the long-term development of the plan if Option A is chosen and the NDC ranges 8X and 3X are used for non-geographical services. In this case the ODTR may wish to move the NDC to the 3X range at a later date
- to require service providers to use six digit subscriber numbers behind the NDC 700
- to divide the one million subscriber numbers into 100 blocks of 10,000 numbers. This will provide personal numbers for up to 100 different service providers
- to take account of efficiency of use, adequacy of supply and fair distribution of memorable or DREAM[21] numbers when deciding how to allocate and distribute personal numbers to rival service providers
- to require service providers to implement number portability between service providers when the economic benefits outweigh the costs of doing so.

5.5 Co-ordinated use of 1XX short codes by access network operators

Short codes are used for two main purposes:

- as prefixes; for example, 141 for CLIR
- to access operator-based services; for example, 1190 for directory enquiries

It is important for users that the main 1XX short codes (for example, those used by callers to access operator assistance, directory enquiries and emergency services) are used in the same way by all access network operators. For example, in future subscribers might use:

- one access network operator from home

- another (mobile) access network operator from their car
- a third access network operator from their office.

It is clearly in the interests of both users and service providers that callers should be able to reach directory enquires using the same 1XX short code from all three access networks.

It is also important to make the best possible use of short codes. The supply is limited. Using three digits creates only 100 1XX short codes and increasing the length of these codes diminishes their value.

With these considerations in mind the ODTR makes the following proposals:

- to give most short codes national significance, and require operators of different access networks to use them in the same way
- to restrict the number of 1XX short codes designated as *network unique.* Currently the codes 172, 173 and 174X have this status. Access network operators will be able to use these codes as they see fit

[21] **D**esirable, **RE**cognisable, **A**ttractive and **M**emorable

- to restrict the purposes for which 1XX short codes are used. Assessment criteria include:
  - *national importance; for example, emergency services*
  - *high call rate; for example, directory enquiries*
  - *required to successfully complete call; for example, carrier selection*
- to require service providers which fail to meet the ODTR's assessment criteria for short codes to use full length numbers (for example, freephone numbers) instead.

5.6 Supply of carrier selection codes

Carrier selection will allow callers who are connected to the Telecom Eireann network (or any other network) to select different operators to carry their long-distance and international calls. There are two variants:

- pre-selection, which allows customers to choose a preferred long-distance carrier and then override this selection from time to time
- call-by-call selection, which allows a caller to choose the carrier for each individual call.

Both variants require the use of carrier selection codes.

The Minister for Public Enterprise has decided that Ireland should implement carrier selection by 1st January 2000 and that the ODTR should ensure that arrangements are in place to achieve this. So the ODTR needs to decide which codes to use for carrier selection as a matter of some urgency.

It therefore makes the following proposals, which strike a balance between a requirement for *short* carrier selection codes and a requirement to ensure a sufficient supply of codes:

- to structure each carrier selection code into a *carrier access code* and a *carrier identity code;* that is, a code of the form XX YY(Y) as shown in Figure 5.2
- to use **13** as the *carrier access code* (XX)
- to divide the *carrier identity codes* into two types:
  - *YY = 00 to 49 giving 50 two digit codes*
  - *YYY = 500 to 999 giving 500 three digit codes*
- to make the shorter carrier identity codes available to carriers which interconnect with Telecom Eireann and to make the longer codes available to service providers offering calling card and similar services
- to develop a fair and transparent mechanism for allocating carrier selection codes in the cases where there are multiple requests for attractive codes; for example, 1300. A lottery might be required to distinguish between coinciding applications.

Figure 5.2 Dialling procedure for carrier selection

Call type	*Dialling procedure*	*Example*
Standard call	Trunk prefix + national number	021 234567
Carrier selected call	Carrier access + Carrier ID+ trunk prefix + national number	1325 021 234567

5.7 The impact of number portability on the numbering plan

Number portability is a key enabler of competition in many telecommunications services. Without number portability users will not change service provider, because they do not want to change their number. Introducing number portability, which allows users to keep their number when changing service provider, removes this barrier and increases the level of competition for customers.

Recognising the importance of number portability to the development of effective competition, the Minister for Public Enterprise has decided to require number portability between PSTN service providers from January 2000[22]. The ODTR also believes it is important to introduce number portability between providers of specially tariffed services[23] and between mobile operators as soon as is technically feasible.

Again, detailed proposals as to how and when carriers should introduce number portability is outside the scope of this consultative document[24]. But number portability will affect the numbering plan in three important ways:

- number portability will increase the usable capacity of the numbering plan. We consider this effect in the other parts of the document where relevant
- number portability will create new opportunities for the allocation of numbers in selected ranges like that for freephone. Rather than a user choosing a service provider which then allocates an individual number, a user might first choose a number from a central allocator and then select a service provider with which to use the number. The ODTR proposes to investigate this possibility further over the next 18 months
- there is a danger that number portability will lead to loss of information in the number for the caller. With full geographic number portability across Ireland, for example, the caller would have no information from the PSTN number dialled on the location of the called party or the price paid for the call. To minimise this danger the ODTR proposes to restrict the number ranges over which numbers are portable. For example, it plans to restrict the geographic portability of PSTN numbers to the relevant minimum numbering area[25]. It will then review these restrictions and, if appropriate, relax them from time to time.

5.8 Directory enquiry services

Providing directory services in a competitive industry raises many issues that are outside the scope of this document; for example, ownership of number information and open access to directory enquiry databases. These issues will need to be examined in a separate forum. But the short codes used to access directory enquiry services need to be examined here.

At present there are three designated directory enquiry codes:

- 1190 for national and Northern Ireland directory enquiries
- 1197 for directory enquiries for Great Britain
- 1198 for international directory enquiries.

[22] In line with the European Commission proposal for a directive on operator number portability and carrier pre-selection, COM(97)480, 1/10/97.

[23] Such as freephone and premium rate services.

[24] The ODTR will initiate action in this area during 1998.

[25] As defined in Section 5.3.

Callers to any of these numbers are automatically connected to their access network operator – currently Telecom Eireann, Eircell or Esat Digifone. There is no mechanism for customers to choose between

competing providers of directory enquiry services. The ODTR believes that it should develop such mechanisms, but should balance this requirement with the need to preserve simple access to directory enquiry services.

The ODTR therefore proposes to:

- introduce the code 118X(XX) for directory enquiry access. This follows the recommendations made by the CEPT
- withdraw the use of the existing 119X codes for directory enquiries use at some point over the next few years.

One possible way of using the 118X(XX) codes is as shown in Figure 5.3

Figure 5.3 Possible use of the 118 code for directory enquiries

Code	Possible use
1180	Access to the **national** directory enquiry service of the caller's access network operator
1181	Access to the **international** directory enquiry service of the caller's access network operator
1182 to 1184	Reserved
11850 to 11879	30 codes for access to competing providers of directory enquiry services
118800 to 118999	Up to 200 codes for access to competing providers of directory enquiry services

5.9 The Northern Ireland access code

To make calls to Northern Ireland, users currently dial 080 followed by the relevant UK national number. The ODTR believes it is important to retain a special access arrangement rather than dialling 00 44 plus a ten digit UK number. But it also believes there is a need to change the access code used so as to release the NDC 80 for future numbering of non-geographic services.

The need to make a decision on whether to change is urgent. The UK authorities plan to renumber Northern Ireland (using the single UK NDC 28) from 2000. They will precede the change with an 18 month period of parallel running. It makes sense to co-ordinate the change of Northern Ireland access code and the UK renumbering and to combine the publicity associated with these two changes.

There are two main options for a new Northern Ireland access code:

- use of a free NDC, such as 048 or 057. There are relatively few such codes available and it is important, if this option is chosen, to select a NDC that does not reduce the long-term migration possibilities for the numbering plan itself
- use of a 1XX short code. Compared with NDCs there is a relatively plentiful supply of these codes. In addition, these codes indicate clearly to the user that the call is a non- standard one.

The ODTR favours the second option and proposes to use the code **128** followed by the Northern Ireland subscriber number for calls to Northern Ireland. This would mean that, while a caller from the UK dials 028 BCD EFGH to call a Northern Ireland subscriber, a caller from Ireland would dial 128 BCD EFGH.

5.10 Questions

Q5.1: *Do you support the ODTR's proposed rules for allocation of geographic numbering capacity to rival service providers? (Section 5.2)*

Q5.2: *Do you agree with the ODTR's proposals for relating geographic numbers to the price paid for geographic services by the caller? (Section 5.3)*

Q5.3: *Do you agree with the ODTR's proposed guidelines for allocating non-geographic numbering capacity? (Section 5.4)*

Q5.4: *What views do you have (Section 5.4) on the ODTR's proposals for the future numbering of:*

– mobile services?
– freephone services?
– premium rate services?
– universal access services?
– personal numbering services?

Q5.5: *Is the proposal to fix a maximum charge for calls to non-geographic numbers a good idea? (Section 5.4)*

Q5.5: *Do you think cellular mobile numbers should be rationalised onto a single NDC when number portability is introduced? (Section 5.4)*

Q5.6: *Do you agree with the ODTR proposals for treating short codes as a scarce resource and co-ordinating their use? (Section 5.5)*

Q5.7: *What comments do you have (Sections 5.6, 5.8 and 5.9) on the ODTR's proposals for use of 1XX codes for:*

– carrier selection codes?
– access to directory enquiry services?
– the Northern Ireland access code?

Q5.8: *Do you believe that Ireland should move to central allocation of individual numbers from selected ranges (for example, freephone) when number portability is introduced? (Section 5.7)*

Q5.9: *Do you agree with the ODTR's proposal to restrict the area over which numbers are portable so as to preserve information in the number for callers? (Section 5.7)*

6 Numbering administration in a competitive environment

6.1 Introduction

Acting on behalf of the State, the ODTR already has overall responsibility for the independent administration of the Irish numbering plan. In preparation for full liberalisation at the beginning of 2000 it plans to take the following steps to ensure that this administration is user- friendly, transparent and neutral between competing service providers:

- to draw up *National Numbering Conventions,* which specify the rules for allocation and withdrawal of numbers and the purposes for which they can be used
- to develop proposals for charging for numbers
- to specify procedures for resolving numbering issues as they arise in future.

We discuss each of these proposals in more detail below.

6.2 The development of National Numbering Conventions

With the introduction of competition, many different service providers will use numbers from the Irish numbering plan. So it is important to develop and agree *National Numbering Conventions* that specify how those numbers can be used (to ensure a consistent user interface to telecommunications services) and how they are allocated (to ensure fair and transparent allocation procedures).

The ODTR proposes to draft a set of numbering conventions over the next six months and to consult with consumers and the telecommunications industry on their content. Figure 6.1 indicates the proposed scope of the National Numbering Conventions. We discuss some of the key conventions below.

The rights of users and service providers

There is now a growing consensus that numbers are a scarce resource owned by the State. Service providers and users are allocated numbers from this national resource for use with telecommunications services, but the State has the ultimate right to recover or change these numbers in the national interest. Associated with this model of number ownership is a requirement to give end users and service providers rights of use over numbers.

For users this might include the right to:

- retain a number when transferring service between carriers or service providers when the service is supported by number portability
- retain a number during the course of a contract with a single carrier or service provider, except in specified circumstances (for example, the numbering plan is changed, the customer does not subscribe within a reasonable period of time to the service for which the number was allocated, or breaches the conditions of use of that number or service)

- a period of notice in the event that the carrier or service provider wishes to withdraw or change a customer number
- assistance following withdrawal or change of number.

Service providers might have the right to continue to use number blocks unless:

- number blocks remain unused and there is reasonable evidence that they will not be used for a substantial period of time
- numbers are used in a manner inconsistent with the requirements of the national number plan
- a breach of other conditions of allocation occurs.

Figure 6.1 The proposed scope of the National Numbering Conventions

Conditions of use of numbers, for example:

- the purpose for which numbers behind each NDC can be used
- the number lengths allowed behind each NDC
- the definition of NDC areas and minimum numbering areas
- restrictions on portability of numbers
- withdrawal and change of numbers

Applying for numbers

- the application process
- the information required in making an application
- the grounds for rejecting an application
- the timescales for dealing with an application
- the reservation of numbers

Responsibilities for notification of bringing numbers into service

The rights of end users and service providers to use numbers and number blocks

Audit information required from service providers

Standards for alpha-numeric keypads

Requirements on the ODTR to publish the use of the dialling and numbering plan

Any rules on charging for numbers

The process for revising the National Numbering Conventions

The process for allocating numbering blocks

It is important that the ODTR allocates numbers to service providers in a manner which is fair and seen to be fair. It therefore proposes a set of rules for number allocation. In outline these are:

- service providers must apply in writing to the ODTR for number blocks and supply the pre-defined information required by the ODTR in making this application
- the ODTR will normally decide whether or not to grant the application within a pre-defined period
- the ODTR will normally grant all applications from eligible applicants that can justify their requirement, offer number portability (where appropriate), and agree to conform with the conditions of use associated with the number blocks applied for
- the ODTR will, if appropriate, consult with other interested parties on the application before reaching a decision
- the ODTR will give its reasons for rejecting any application in writing.

Alpha-numeric keypads

The ODTR believes that it is important that telephone keypads should, as soon as possible, be marked with the letters of the alphabet as well as the digits 0 to 9. This will make telephone numbers more memorable and so stimulate the use of many telephony services. For example, a subscriber calling a national chain of florists on ***1800 356937*** might remember and dial this number as ***1800 FLOWER***.

The ODTR therefore proposes to set out, within the National Numbering Conventions, a recommendation for large corporations, equipment vendors and service providers to encourage use of telephony keypads with a mapping of the letters of the alphabet onto the ten digits which conforms to ITU recommendation E.161 (Option A). Figure 6.2 illustrates this recommendation.

Figure 6.2 Proposed mapping of letters to digits on the telephone keypad

Digit on the keypad	*Letters which this digit might represent*
0	–
1	–
2	ABC
3	DEF
4	GHI
5	JKL
6	MNO
7	PQRS
8	TUV
9	WXYZ

Enforcing the National Numbering Conventions

It is important that the ODTR has adequate powers to enforce the National Numbering Conventions. It therefore proposes that the licences of all service providers (whether general licences or individual licences) should contain a condition requiring conformance with the National Numbering Conventions.

6.3 Charging for numbers

The ODTR proposes to examine the idea of charging for numbers on the grounds that telephone numbers are a scarce resource.

There are two different kinds of scarcity:

- scarcity of *individual numbers*. Particularly users, and very large corporations place a high value on specific individual numbers. For example, an airline might want the number 1800 747 747
- scarcity of *number blocks*. Allocating number blocks generates costs for the Irish economy in the long run. When the number supply reaches exhaustion and needs to be expanded, significant costs are incurred. The expansion involves changes to customer premises equipment and network equipment. Users must re-print stationery, change signs, re-program auto-diallers and learn the new system. All this costs money..

The best way to ensure optimal use of a scarce resource like numbers may be to charge for them.

The current position

At the moment the ODTR allocates number blocks and short codes free of charge. In addition, Telecom Eireann and other service providers are required not to charge end users for individual numbers. The ODTR proposes to review this position and to consider:

- allowing service providers to charge users who request specific individual numbers
- charging service providers for the number blocks allocated to them.

Experience in other countries

Charging for numbers is not new. Other European countries have already implemented this idea, for example:

- roughly 50% of the regulators in Europe charge service providers for allocating number blocks. Charges vary from 1p to 8p per number allocated per year with higher charges for certain number ranges

- several regulators charge for the use of carrier selection codes, with higher fees for three digit than for four digit codes
- many service providers in Europe charge users who request individual numbers. For example, BT charges users for 'choice numbers' with significantly higher fees for freephone numbers than for ordinary PSTN numbers.

A possible set of charging mechanisms

The ODTR intends to study this issue in more detail over the next 18 months. In the meantime it sets out below a possible set of charging mechanisms and seeks comments on them:

- to charge for number blocks allocated to all service providers at a level that will lead to the long-term efficient allocation of numbers. This charging mechanism should improve the effectiveness of the ODTR's allocation process by focusing each service provider's attention on how many numbers it requires when making its application
- to allow service providers to charge users that require specific individual numbers. There is a strong argument that such charges will lead to more effective allocation of numbers so that the person or organisation which values a specific number most is allocated that number. The implementation of standard alpha-numeric keypads will enhance the value of such a measure by significantly increasing the supply of memorable numbers
- to give service providers freedom to determine the charging mechanism for individual numbers. The ODTR will monitor the way service providers use this freedom carefully and act swiftly against any abuses
- to charge end users that require specific individual numbers if, in the future, the ODTR takes over the process of allocating individual numbers from a centralised database for a specific number range[26]. The ODTR might set prices for memorable individual numbers through monthly auctions.

Revenue collected by the ODTR under a number charging scheme could be used to reduce the turnover-based charge currently being introduced by means of the statutory levy order.

6.4 The process for resolving future numbering issues

It is clear that many new and as yet unforeseen numbering issues will arise in future. The ODTR believes it is important to establish procedures for resolving these issues before full liberalisation in January 2000. Based on experience in other countries, the ODTR proposes to:

- make the final decision on all numbering issues after appropriate consultation with interested parties
- consult formally with the telecommunications industry and users on all *major* issues. These will include any review of the numbering plan or of the National Numbering Conventions. The ODTR will normally institute this formal consultation through issuing a consultative document and seeking written responses.

6.5 Questions

Q6.1: *Does Ireland need National Numbering Conventions? (Section 6.2)*

Q6.2: *What views do you do have on the ODTR's proposals for the content of these National Numbering Conventions? (Section 6.2)*

Q6.3: *Do you believe that there should be charging for numbers? (Section 6.3)*

Q6.4: *What are your views on the possible charging mechanisms set out in Section 6.3?*

Q6.5: *What are your reactions to the ODTR's proposals for resolving numbering issues from January 2000? (Section 6.4)*

[26] Such as the freephone range.

7 Harmonisation with international initiatives

There are a number of international bodies which have made recommendations for standardisation of numbering schemes. These include the ITU, the CEPT and the European Commission.

The Irish numbering scheme already conforms to the major harmonisation initiatives. For example:

- it uses 0 as the trunk prefix, and 00 as the international prefix in line with ITU-T recommendation E.164 and EU directives
- it uses the emergency services access code 112 as required by European Council of Ministers Decision 91/396
- it uses the code 800 for freephone numbering.

The ODTR supports the principle of international harmonisation as a way of making the Irish numbering plan more friendly for visitors and making other numbering plans easier for Irish citizens to use when travelling in other countries. But it does not favour harmonisation if the resulting changes are not in the long-term national interest. The ODTR has therefore tried to strike a balance between these (sometimes conflicting) objectives in developing the proposals set out in this document. So, for example, it proposes:

- to use the code 118 for directory enquiries as per the CEPT ECTRA recommendation of December 1997
- to use the NDC 700 for personal numbering in line with European Telecommunications Office recommendations for numbering scheme development.

However, it does not intend to use the code 900 for premium rate service because of possible misdialling to numbers advertised in the UK media. This is a special situation which is unique to Ireland.

Annex A The dialling plan for Ireland

The 1XX codes in Ireland

Digits dialled	Function
00	International Direct Dialling prefix
0	National numbering plan - see below
1X	Short codes and national access non geographic services - see below
2X to 9X	Subscriber numbers for local dialling

Digits dialled	*Function*	*Number format*
10	Operator-assisted calls	
999	Emergency access code	
112	Emergency	
114	International operator	
1190	DQ - Ireland	
1191	Airtime	
1197	DQ - GB	
1198	DQ - international	
121	Eircell VM	
13X	Free	
141	CLIR	
142	[illegible]	
1511	Access to Eirpac - charged	
1512	PIRS	
153	**PIRS**	
154	PRS	
1550	**PIRS**	4-6
1559	AdPIRS - adult entertainment	4-6
16X	Free	
171	VM retrieval	
172	Network unique	
173	Network unique	
174	Network unique	
1800	Freephone	4-6
1801	Access to Eirpac - free	
1808	Telecom Eireann Chargecard and IVPN	
1850	Part paid	4-6
1890	Part paid	4-6
1891	PAP delivery	4-6
190	Customer support	
191	Customer support	
192	Withdrawn and temporarily unusable	
193	Withdrawn and temporarily unusable	
194	Withdrawn and temporarily unusable	
195	Withdrawn and temporarily unusable	
196	Telemessages	
198	Withdrawn and temporarily unusable	
199	Used for engineering test purposes	

(1) Free unless otherwise stated

Ireland - National numbering plan

NDC	Area	No, format	Charge groups in NDC	Block allocation size (000s)	No. of blocks available	No. of blocks open	% open	Nos allocated (000)
1	Dublin, Balbriggan, Dunboyne, Celbndge, Greystones	1-7	5	10	790	420	53%	4200
20	Free							
21	Cork, Kinsale, Coachford, Middleton	2-6	4	10	79	47	59%	470
22	Mallow	2-5	1	1	79	32	41%	32
23	Bandon	2-5	1	1	79	27	34%	27
24	Youghal	2-5	1	1	79	13	16%	13
25	Fermoy	2-5	1	1	79	19	24%	19
26	Macroom	2-5	1	1	79	13	16%	13
27	Bantry	2-5	1	1	79	21	27%	21
28	Skibbereen	2-5	1	1	79	20	25%	20
29	Kanturk	2-5	1	1	79	19	24%	19
30 to 39	Free							
400	Free							
401	Free							
402	Arklow	3-5	1	1	79	15	19%	15
403	Free							
404	Wicklow	3-5	1	1	79	20	25%	20
405	Enfield, Edenderry	3-5	2	1	79	25	32%	25
406	Free							
407	Free							
408	Free							
409	Free							
41	Drogheda, Ardee	2-5	2	1	79	59	75%	59
42	Dundalk, Carrickmacross, Castleblaney	2-5	3	1	79	75	95%	75
43	Longford, Granard	2-5	2	1	79	33	42%	33
44	Mullingar, Moyvore, Castlepollard, Tyrellspass, Killucan	2-5	5	1	79	37	47%	37
45	Naas, Kildare, Curragh	2-6	3	10	79	13	16%	130
46	Navan, Kells, Nobber, Trim	2-5	4	1	79	46	58%	46
47	Monaghan, Clones	2-5	2	1	79	27	34%	27
48	Free							
49	Cavan, Cootehill, Oldcastle, Belturbet	2-5	4	1	79	53	67%	53
500	Free							
501	Free							
502	Portlaoise, Abbeyleix	3-5	2	1	79	45	57%	45
503	Carlow, Muine Bheag	3-5	2	1	79	43	54%	43
504	Thurles, Templemore	3-5	2	1	79	26	33%	26
505	Roscrea	3-5	1	1	79	14	18%	14
506	Tullamore, Clara	3-5	2	1	79	25	32%	25
507	Athy	3-5	1	1	79	14	18%	14
508	Baltinglass	3-5	1	1	79	5	6%	5
509	Portumna, Birr, Banagher	3-5	3	1	79	30	38%	30
51	Waterford, Carrick, New Ross, Kilmacthomas, Wellington Bridge	2-6	5	10	79	20	25%	
52	Clonmel, Cahir, Killenaule	2-5	3	1	79	45	57%	45
53	Wexford	2-5	1	1	79	36	46%	36
54	Enniscorthy, Ferns	2-5	2	1	79	25	32%	25
55	Gorey	2-5	1	1	79	14	18%	14
56	Kilkenny, Castlecomer, Freshford	2-5	3	1	79	45	57%	45
57	Free							
58	Dungarvan	2-5	1	1	79	22	28%	22
59	Free							
60	Free							
61	Limerick, Scariff, Shannon Airport, Kilialoe, Adare, Cappamore	2-6	6	10	79	29	37%	290
62	Tipperary, Cashel	2-5	2	1	79	30	38%	30
63	Charleville	2-5	1	1	79	20	25%	20
64	Killarney, Rathmore	2-5	2	1	79	41	52%	41
65	Ennis, Ennistymon, Kilrush	2-5	3	1	79	56	71%	56
66	Tralee, Dingle, Killorglin, Cahirciveen	2-5	4	1	79	71	90%	71
67	Nenagh	2-5	1	1	79	22	28%	22
68	Listowel	2-5	1	1	79	24	30%	24
69	Newcastle West	2-5	1	1	79	21	27%	21
70	Free							
71	Sligo, Ballymote	2-5	2	1	79	51	65%	51
72	Manorhamilton	2-5	1	1	79	15	19%	15
73	Donegal	2-5	1	1	79	18	23%	18
74	Letterkenny, Lifford, Ramelton	2-5	3	1	79	51	65%	51
75	Dungloe	2-5	1	1	79	16	20%	16
76	Free							
77	Buncrana	2-5	1	1	79	24	30%	24
78	Drumshanbo, Carrick on Shannon	2-5	2	1	79	28	35%	28
79	Boyle	2-5	1	1	79	6	8%	6
80	Northern Ireland access code							
81	Trial of personal numbers	2-6						
82	Paging	3-6						
83	Free							
84	Free							
85	Free							
86	GSM cellular - Digifone	2-7						
87	GSM cellular - Eircell	2-7						
88	Analogue cellular - Eircell	2-7						
89	Free							
90	Free							
901	Free							
902	Athlone, Banagher	3-5	2	1	79	32	41%	32
903	Roscommon	3-5	1	1	79	17	22%	17
904	Free							
905	Ballinasloe	3-5	1	1	79	25	32%	25
906	Free							
907	Castlerea, Ballaghaderreen	3-5	2	1	79	49	62%	49
908	Free							
909	Free							
91	Galway, Loughrea, Gort	2-6	3	10	79	22	28%	220
92	Ballinrobe	2-5	1	1	79	8	10%	8
93	Tuam	2-5	1	1	79	24	30%	24
94	Castlebar, Claremorris, Swinford	2-5	3	1	79	42	53%	42
95	Clifden	2-5	1	1	79	17	22%	17
96	Ballina	2-5	1	1	79	34	43%	34
97	Belmullet	2-5	1	1	79	10	13%	10
98	Westport	2-5	1	1	79	24	30%	24
99	Kilronan	2-5	1	1	79	4	5%	4

Annex B Analysis of supply and demand – geographic numbers

1. Demand for geographic numbers is currently growing at an average rate of 5% per annum..

2. Demand in the UK increased by up to 35% in larger urban areas and up to 15% in smaller towns (less than 30,000 people) over the five-year period following full liberalisation in 1992.

3. Liberalisation could lead to even higher additional demand in NDC areas which consist of several charge groups. But in compensation:

- we do not anticipate such strong demand for numbers from CATV operators in Ireland as has happened in the UK
- the introduction of number portability at an earlier date should reduce the extra demand.

4. Allocating more than 69 out of the possible 79 blocks available in the space following the NDC is unwise, since this makes capacity expansion difficult.

5. Using the demand assumptions of Paragraphs 1, 2, and 4 above leads us to conclude that:

- NDC areas serving large towns are potential candidates for number exhaustion if more than 50% of number blocks are currently allocated
- NDC areas serving small towns and rural areas are likely to reach numbering exhaustion before 2005 if more than 60% of number blocks are currently allocated.

6. Applying these rules to the block allocations of Annex A indicates that:

- of the main urban areas, Cork and Dublin are in danger of number exhaustion before 2005. See below for further analysis
- of the small towns and rural areas, Tralee and Dundalk are already close to exhaustion and urgent attention is required
- of the small towns and rural areas, Drogheda (41), Cavan (49), Ennis (65), Sligo (71) and Letterkenny (74) could reach exhaustion within a short period after 2000.

7. Further analysis of Dublin indicates that current utilisation of the allocated numbers is low. See Figure 1. If numbers in Dublin were used at the same level of utilisation as in other urban areas there would be no danger of exhaustion for many years.

8. The position in Cork is more serious. There is a good chance that Cork will reach exhaustion by 2005 or thereabouts, although this is not certain. A sensible solution to this dilemma, which avoids imposing a number change that later turns out to be unnecessary, is to:

- ration further allocation of number blocks to Telecom Eireann in the Cork area very strictly
- review the need for a numbering change in 2000 when the demand from new entrants for local numbers is more certain.

Figure 1 The allocation of number blocks in urban areas

Urban area	*NDC NDC area (000)*	*Population of allocated (000)*	*Numbers per person*	*Numbers*
Dublin	1	1,162	4,090	3.5
Cork	21	311	470	1.5
Limerick	61	143	290	2.0
Waterford	51	111	200	2.1
Galway	91	106	220	1.8

Annex C Demand for non-geographic NDCs

Service type	*Numbering range used or possible*
Cellular mobile	Three 2 digit NDCs used One 2 digit NDC required for new mobile operator Other NDCs possibly required for additional operators
Personal numbering	Part of 2 digit NDC required
Freephone and part-paid services	Currently uses 18X dialling space Possible long-term demand to use NDCs
Premium rate services	Currently uses 15X dialling space
Paging	Uses 82X
Universal access number	Need for 3 digit NDC
Undefined non-geographic services	Long-term demand for several 2 digit NDCs likely
Corporate numbering services	Possible requirement for one or more 2 digit NDCs

Annex D Possible renumbering of the South West of Ireland

Area	*Current numbering*		*Possible future numbering*	
	National dialling	*Local dialling*	*National dialling*	*Local dialling*
Cork	021 234567	234567	02 Z234567 [1]	Z234567 [1]
Mallow	022 23456	23456	027 Y23456 [2]	Y23456 [2]
Bandon	023 23456	23456	028 Y23456	Y23456
Youghal	024 23456	23456	02 Z234567	Z234567
Fermoy	025 23456	23456	027 Y23456	Y23456
Macroom	026 23456	23456	028 Y23456	Y23456
Bantry	027 23456	23456	028 Y23456	Y23456
Skibbereen	028 23456	23456	028 Y23456	Y23456
Kanturk	029 23456	23456	027 Y23456	Y23456

[1] Z = 2 to 6

[2] Y = 2 to 9

Annex E Closing the numbering scheme

Ireland's numbering scheme is currently open. This means we draw a distinction between local dialling and trunk dialling. In contrast, a closed plan has no local dialling – the country is one single dialling area. The dialling procedures which correspond to an open and closed numbering scheme are described below.

1. Open numbering scheme

If I want to call Mrs. Kelly in Waterford, and I am calling from another telephone within the 051 area, then I can simply dial her number (234567). If I want to call Mrs. Kelly from any other location within the country, then I must dial the trunk prefix, the National Destination Code (NDC) and the subscriber number (0 51 234567). To call Mrs. Kelly from any other country, I replace the trunk prefix (0) with the international prefix (normally 00) and insert the Irish Country Code (00 353 51 234567).

Components of the number dialled (Open Scheme)

	International prefix	*Country Code*	*Trunk Prefix*	*National Destination Code (NDC)*	*Subscriber Number for Mrs. Kelly*
Local Call (from Waterford)	–	–	–	–	234567
National Call (eg from Dublin)	–	–	0	51	234567
International Call (eg from France)	00	353	–	51	234567

2. Closed numbering scheme

If Ireland operated a closed numbering scheme I would always dial the NDC followed by the subscriber number regardless of where I call from. The country is a single dialling area. So to call Mrs. Kelly from anywhere in the country (including next door), I would dial 51 234567. There is no need for a trunk prefix. To call her from another country, I simply add the international prefix and the country code for Ireland (00 353 51 234567).

Components of the number dialled (Open Scheme)

	International prefix	*Country Code Code (NDC)*	*Trunk Prefix Mrs. Kelly*	*National Destination*	*Subscriber Number for*
Local Call (from Waterford)	_	_	_	51	234567
National Call (eg from Dublin)	–	–	_	51	234567
International Call (eg from France)	00	353	–	51	234567

3. Non-Geographic Numbers

The same principles apply to both geographic and non-geographic numbering. If I currently call Mrs. Kelly on her mobile telephone by dialling (086 8456789), the number dialled after closing the scheme would be (86 856789). To call this mobile telephone from another country, I simply prefix the number with the international prefix and the country code (00 353 86 856789).

Annex F Glossary of terms

BT	British Telecom
CATV	Cable Television
CEPT	European Conference of Postal and Telecommunications Administrations
CG	Charge Group
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
DQ	Directory Enquiries
DREAM	Desirable, REcognisable, Attractive, Memorable
E.161	ITU recommendation on the arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network
E.164	ITU recommendation on numbering plans for the ISDN era
ECTRA	European Committee for Telecommunications Regulatory Affairs
ETO	European Telecommunications Office
EU	European Union
ID	Identity
ISDN	Integrated Services Digital Network
ITU	International Telecommunications Union
NDC	National Destination Code
ODTR	Office of the Director of Telecommunications Regulation
PoP	Point of Presence
PRS	Premium Rate Service
PSTN	Public Switched Telephone Network

VM	Voice Mail