

Office of the Director of
**Telecommunications
Regulation**

Introducing Number Portability in Ireland

Decision Notice D1/99

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CONTENTS

1	Introduction	3
2	Forms of Number Portability to be Supported.....	5
2.1	Introduction.....	5
2.2	Non-Geographic Number Portability	5
2.3	Geographic Number Portability	7
2.4	Re-allocation of Number Blocks	8
2.5	The Extent of Location Portability.....	9
2.6	Requirement for Portability across Different Service Types and Technologies	10
2.7	Mobile Number Portability	10
2.8	Summary	12
3	The Responsibility for Routing Calls to Ported Numbers.....	13
4	Routing Rules	14
4.1	Routing Rules for Geographic and Non-Geographic Number Portability.....	14
4.2	Routing Information to be Passed Between Networks.....	15
5	Allocation of the Additional Costs of Number Portability.....	17
5.1	Allocation of System Set-up Costs	17
5.2	Allocation of Transaction Costs.....	17
5.3	Allocation of Additional Conveyance Costs.....	18
5.4	Practical Implementation Issues.....	20
6	The Porting Process.....	21
6.1	Interactions with the Customer	21
6.2	Timing and Control of the Transfer of Service and Number.....	21
6.3	Recovering from Problems	23
6.4	Restricting Win-Back Activities	23
7	National Number Portability Database	24
7.1	The Requirement for a Database	24
7.2	Functions and Specification of the Database	25
7.3	Operating and Funding the Database	25
8	Implementing Number Portability in Ireland	27
8.1	Committee Arrangements.....	27
8.2	The Timetable for Introducing Number Portability.....	27

1 Introduction

In January 1999, the Office of the Director of Telecommunications Regulation (ODTR) launched a consultation process in relation to number portability. The process involved publication of a consultation document (ODTR 99/01), a seminar that was held on 31st March, and some direct interviews with interested parties. The consultation document set out proposals in the following areas: -

- the forms of number portability to be implemented
- operator responsibilities for routing calls to ported numbers
- rules for routing calls to ported numbers
- rules for the process of porting a number
- rules for recovering the costs of number portability
- the requirements for a national number portability database
- an action plan for the introduction of number portability in Ireland.

As a result of the consultation process, the ODTR has made considerable progress in deciding how to introduce number portability in Ireland. In this Decision Notice, we present the outcome of the consultation, and the decisions the Director of Telecommunications Regulation (the Director) has made following the process. Specifically, this document: -

- outlines each of the issues analysed in the consultation document
- provides a summary of the views expressed by respondents
- presents decisions, or where appropriate, firm proposals on each of the issues in the light of the consultation.

Sixteen organisations/individuals responded in writing to the consultation document, as listed in Figure 1.1. The Director wishes to thank everybody who contributed and also those who attended the seminar on the 31st of March. With the exception of responses marked as confidential, their written comments are available for inspection at the ODTR's office in Dublin. These comments have played a major role in informing the decisions contained in this document.

In summary, there was broad agreement on the need to implement number portability within the proposed timescales to encourage the development of competition in the Irish telephony market. However, respondents differed in their views on certain specific proposals in the consultation document and other comments were received which did not necessarily correspond to the specific questions that were posed.

In particular, some confusion arose from the proposal to adopt the 'independent solution' for routing and charging. It must be stressed again that 'independence' describes responsibility for routing, not the actual routing and does not equate to the obligatory use of an IN solution, with all-call-query. This was addressed at meetings with the respondents who had raised issues on the subject, and is discussed further in Section 3.

Several respondents linked this issue to the proposed schedule. The choice of solution was seen by several respondents as being the major criterion for determining whether a solution could be implemented within the timetable. As mentioned, there is flexibility in the routing and charging rules, described in Sections 4 and 5 respectively, for operators to choose their own technical solution.

Given that the choice of solution does not impose restrictions on the technology employed, the Director believes that the timetable, as detailed in Section 2, is challenging but achievable.

In order to develop detailed functional specifications for portability services and porting procedures, the Director will immediately establish a Number Portability Committee, as detailed in Section 8. In addition, one of the primary tasks of the committee will be to determine the detailed requirements for an independent reference database, outlined in Section 7.

The full commitment of people who are willing to participate in the committee will be required in order to implement number portability on schedule. The Director looks forward to the continued co-operation from all involved in order to introduce initial number portability facilities in Ireland by 1 January 2000.

Figure 1.1 The List of Respondents

	Respondent	Category
1	Budget Telecom	Fixed network operator
2	Cable & Wireless	Fixed network operator
3	Conduit Europe	Providers of directory services
4	Cuffley Communications	Telecoms consultant with experience of the UK number portability process
5	Eircell	Mobile network operator
6	Esat Digifone	Mobile network operator
7	Esat Telecom	Fixed network operator
8	IDA Ireland	Irish Industrial Development Agency
9	Irish Multichannel	Fixed network operator
10	Meteor	First-ranked for third mobile license
11	Ocean	Fixed network operator
12	Telecom Éireann	Fixed network operator
13	Zockoll Group	Providers of non-geographic number services
14	Mr. Richard Barry	Interested individual
15	Mr. Edward Rafferty	Interested individual
16	Mr. Joseph Ryder	Interested individual

2 Forms of Number Portability to be Supported

2.1 Introduction

This Decision Notice considers the three types of number portability (NP) : -

- **Operator portability** - where a customer changes operator or service provider and keeps the same directory number. The following types of operator portability are considered in this Decision Notice:-
 - Non-geographic NP requirements are detailed in section 2.2.
 - Geographic NP requirements are detailed in sections 2.3 and 2.4
 - Mobile NP is discussed in section 2.7.
- **Location portability** - where a customer changes location and keeps the same directory number. The extent of location portability is discussed in section 2.5.
- **Service portability** - where a customer changes service and keeps the same directory number. The limitations imposed on service portability are detailed in section 2.6.

In addition, the implementation schedule in the Decision Notice allows for the initial introduction of operator-initiated NP for geographic numbers, followed by customer-initiated NP at a later stage: -

- With operator-initiated NP, the incumbent operator must be capable of exporting numbers to another operator, if that operator requests it. The requesting operator must offer to export numbers to the incumbent in return (reciprocity). However, a new operator can refuse NP to another requesting new operator if it is not already required to offer NP to Telecom Éireann on a reciprocal basis. This allows new operators to judge when the additional costs of implementing NP make it worthwhile.
- With customer-initiated NP, any operator must be in a position to provide the facility when the customer requests NP. The main advantage of customer-initiated NP is that the customer can avail of NP regardless of which operator he wishes to move to. Therefore, all operators must make their networks capable of dealing with both import and export of numbers.

2.2 Non-Geographic Number Portability

There was almost unanimous support for the proposal in the consultation document that non-geographic number portability (NGNP) should be given the highest priority. In addition, most respondents agreed that 1st January 2000 would be a reasonable but

challenging target date for introducing NGNP. The Director has decided that NGNP should be introduced on 1st January 2000.

Two respondents expressed concerns about introducing NGNP simultaneously with the start of the new millennium because of the Y2K problem. The ODTR believes that this should not be an issue in reality, given holiday arrangements and the likelihood that a customer would delay porting until Y2K issues are cleared.

Most respondents also believed that NP should apply to all non-geographic services. However, two respondents wished to limit the scope of NGNP to freephone, premium rate, shared cost, universal access and personal numbering services. To ensure that efforts are focused on the most relevant services, the ODTR believes that the requirement should initially apply to these main non-geographic services only. The Director may broaden the range of services covered at a later date.

While three respondents explicitly support the proposal of extending NGNP to include numbers which have been allocated by the ODTR but not yet in use by customers, most respondents did not express views. This proposal would allow a customer who wishes to start service from Operator Y to use a number that is in a block allocated to Operator X. The Director has decided that this proposal should stand, although it should be made clear that porting can only ever be initiated by a customer request. In the future, this issue may be resolved if the ODTR moves to individual allocation of non-geographic numbers to customers.

With these clarifications in mind, the Director has decided to:

- *require operators and service providers to implement NP of non-geographic numbers on the request of the user with effect from 1st January 2000. This means that all operators who provide these services will have to implement both an export and an import capability from the outset.*
- *initially extend this requirement to freephone, premium rate, shared cost, universal access and personal numbering services, with the inclusion of additional and future non-geographic services to be considered on a case by case basis.*
- *require an operator or service provider which enters the market after 1st January 2000 to offer number portability to users at the commencement of service or within two months of the allocation of a number block to the new operator, whichever is the later.*
- *require porting to apply to numbers after primary allocation but before, as well as after, the start of service.*

2.3 **Geographic Number Portability**

The proposals to provide operator initiated Geographic Number Portability (GNP) by July 2000, with customer-initiated GNP to be introduced as a later phase received a wide variety of responses. There is little agreement between them. For example: -

- Three respondents sought GNP as soon as possible and one believes that the target of 1st July 2000 could be improved on. One respondent pointed out that the assumption that GNP is less important ignores companies trying to enter the local market. Two respondents support the implementation of GNP as a parallel development to NGNP and local loop unbundling.
- Some respondents argued that a partial implementation of GNP could be achieved by 1st January 2000, perhaps through a limited use of call forwarding. Others reject interim solutions and think the target of 1st July 2000 too optimistic.
- Eight respondents favoured the two-phased implementation plan of operator-initiated, followed by customer-initiated portability, although three did not support the requirement for reciprocity. One respondent was concerned about the systems complexity of the two-phased approach.

The ODTR believes that there is clearly a wish to achieve GNP as soon as possible. However, there are practical constraints on the speed at which the necessary developments can take place. The ODTR remains to be convinced that a date earlier than July 2000 is possible and accepts that this date is challenging. However, delaying the introduction date further would affect the momentum behind NP development.

The consultation document also proposed that the requirement for porting should apply to unallocated DDI numbers, in a situation where a customer who has already ported a DDI number block needs more numbers and would prefer them to be contiguous. Three respondents explicitly supported this proposal. The ODTR does not suggest any amendments to the original proposal. However, as with porting of unallocated non-geographic numbers, porting will only be allowed at the request of an end-user and transaction charges should be levied by the donor to cover the cost of the port.

Finally, almost all respondents are satisfied with the proposed two-month establishment period for GNP as sufficient time to implement changes to make NP available in a particular area. However, some believe it is reasonable in the long-term, but may not be possible in the short-term, particularly for new operators, while others suggest that the establishment period may be reduced longer term. The ODTR is satisfied that two months is a sufficient establishment period.

With these responses in mind, the Director has decided: -

- *to require Telecom Éireann to provide the capability to export geographic numbers to any other operator who requests portability and who is willing to offer portability in return, by 1st July 2000.*

- *to require all operators to offer customer initiated geographic NP from 30th November 2000.*
- *up until 30th November 2000, to allow new operators who do not want to import geographic numbers to decline to export geographic numbers to other operators.*
- *where DDI numbers are allocated in blocks and a block of numbers is ported, the customer may subsequently need more numbers and prefer them to be contiguous with its existing numbers. In this situation, the requirement for porting should apply, provided that these numbers are not already allocated to other customers.*
- *Telecom Éireann should respond to requests from other operators for geographic NP in a minimum numbering area¹ within two months.*
- *after 30th November 2000, other operators should make geographic NP available in an area either on providing service in that area or within two months of receiving number blocks in the relevant minimum numbering areas, whichever is the later.*

2.4 Re-allocation of Number Blocks

As a result of requests received during the consultation process, and in order to bring the benefits of number portability to consumers as soon as possible, the ODTR believes that primary allocations of ‘clean’ number blocks can be transferred by the ODTR from one operator to another. This transfer of allocation would have the same result from a customer point of view as geographic portability. In this case, a ‘clean’ block is a primary allocation block from which secondary allocations have been made to only one customer.

Numbers are allocated in blocks of 1,000 or 10,000 to the different operators and calls are routed to the correct operator by analysing the digits in the called number in front of the number block. Where large customers have blocks of DDI numbers, for example, it is common practice to keep the remaining part of the block of 1,000 or 10,000 numbers unallocated so that additional numbers can be allocated as necessary to accommodate the growth in demand from the customer.

Provided that there is only one customer in a block of 1,000 or 10,000 numbers, the whole block can be re-allocated to a different operator. This would be implemented by changes in the routing tables of switches connected to the donor and recipient exchanges. The routing rules for portings would not apply because the operation is more of a re-allocation than a porting.

¹ The minimum numbering areas are defined in ODTR Document 98/42

After these changes have been made, calls would be routed directly to the correct network and there would be no need for prefixes and no additional conveyance costs. Transaction charges should be levied by the donor to cover the cost of the port.

Because porting of such number blocks does not involve the same changes to the network as for individual numbers, such porting could be provided at the request of the user from the outset. The procedures to support this type of porting have yet to be developed, but will be less onerous than that required for porting of individual numbers. The ODTR will seek to have these procedures developed as soon as possible, and ensure that this facility is available no later than 1st January 2000.

Given the feedback from respondents, the Director has decided to: -

- *require the re-allocation of 1,000 and 10,000 number blocks, where there is only one customer in the block, to commence no later than 1st January 2000, at the request of the user.*

2.5 The Extent of Location Portability

All respondents accepted the restriction of location portability within a minimum numbering area (MNA), so as to preserve location information in the numbering scheme. However, few saw the need for the ODTR to require specific location NP facilities or to impose further restrictions. In general, the view is that operators should be left to decide the extent to which they offer location portability within an MNA. The ODTR accepts that Telecom Éireann may require major network adaptations to offer MNA-wide location portability in all MNAs. In addition, the ODTR expects that most new operators will be in a position to offer location portability across entire MNAs.

Given that location portability is primarily an issue to benefit the consumer, the ODTR will consider how best to encourage operators to publicise the extent of their location portability capability, after consultation with interested parties. Nevertheless, the ODTR does not believe that there are sufficient grounds for mandating location portability at this time.

The Director therefore intends to: -

- *restrict the scope of location NP. The ODTR has already said, in its Decision Notice on numbering (D2/98) that it will initially restrict location NP for geographic numbers to portability within the minimum numbering area (MNA) for which they were issued. This decision may be reviewed from time to time, as required.*
- *allow Telecom Éireann to offer more restricted location NP. In most cases this will mean location NP across the area served by a Remote Concentrator Unit.*

2.6 Requirement for Portability across Different Service Types and Technologies

In the long term it may make sense to implement operator, location and service portability and combinations of them. At the moment, however, the number dialled provides valuable information to the caller, especially on the price paid for the call (e.g. the difference between freephone 1800 and part-paid 1850). It is important to preserve this information in the number until such time as alternative solutions are available. This means there is a need to limit the kind of NP services which are implemented.

The ODTR will therefore prohibit portability between services with fundamentally different pricing arrangements. Under this rule, NP between a freephone service and a personal numbering service or premium rate service is prohibited. But this restriction does not prevent NP between PSTN and ISDN (which is more a technology than a service difference) where the user pays the same price per call. All respondents agreed with these proposals.

In addition, all respondents agreed in principle that NP regulation should be independent of access technology. The ODTR accepts that portability for some technology combinations may have to be phased in later, but we consider that the most commonly used technologies should be addressed first.

The Director will therefore: -

- *prohibit portability between services which are fundamentally different or have distinctive pricing arrangements.*
- *not distinguish between different access technologies in requiring NP for a particular service category. In the interests of the user, this requirement should apply both within and between networks. In practice, the ODTR will make decisions on individual cases after consultation with the NP Committee.*

2.7 Mobile Number Portability

Opinion on the move to full mobile number portability (MNP) was polarised in the consultation responses. Three respondents see MNP as a future requirement and three others wish it implemented at least as fast as the other forms of portability.

The mobile market is growing rapidly. Taking into account the prospective licensing of a third operator, the mobile market will continue to grow and the cost of implementing NP will fall. In combination, these developments should significantly strengthen the economic case for full mobile NP.

However, some respondents were adamant that mobile is a fundamentally different type of service and there is no proven public policy case for MNP. They also claim that there is strong doubt that it will produce overall benefits. These respondents

believed that the ODTR should not even confirm the decision in principle to proceed with MNP in the long-term and recommend that a separate detailed consultation needs to be undertaken, including a cost benefit analysis of MNP.

The ODTR accepts that there may be merit to these arguments and will study the case for full MNP further. We are currently in discussion with the mobile operators in relation to the future of mobile number planning, with particular emphasis on the inefficiencies in the current plan and ensuring the future availability of numbers.

There was greater agreement on the use of the current partial NP solution. Most respondents believed that it is worth preserving the current system as an interim arrangement before implementing full MNP. Furthermore, the operators say they are committed to making the solution work better, and believe that solutions can be achieved for the current problems of number authentication, avoiding duplicate usage and dealing with pre-paid subscriptions. The operators are currently working with the ODTR to establish more satisfactory procedures.

A substantial market for pre-paid phones exists in Ireland. The ODTR is aware that mobile operators may not have customer records for pre-paid subscriptions and in such cases it may be difficult to authenticate a request for portability. Further study of the requirement for full MNP can include an assessment of the needs for MNP on pre-paid mobile subscriptions.

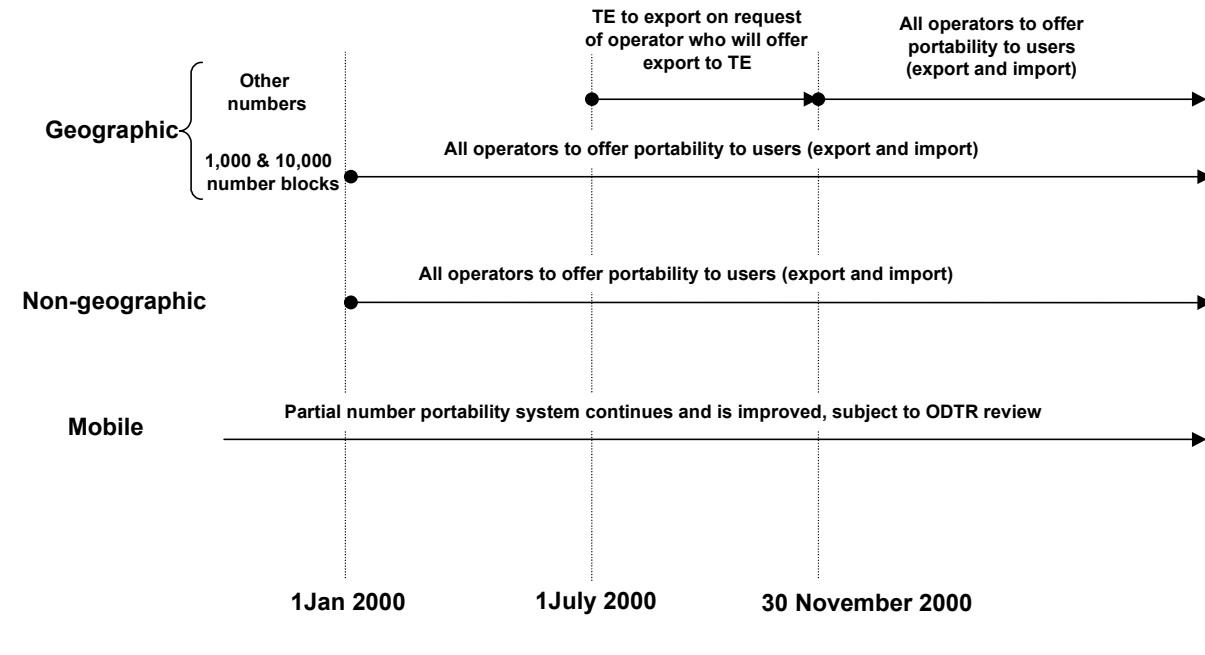
Given the feedback from respondents, the Director has decided: -

- *to continue with the current system of partial NP between mobile operators in the short term.*
- *to take the necessary steps to ensure that the mobile operators make the existing system of partial NP work properly.*
- *to retain the decision in principle to move to full NP between mobile operators in the long term, subject to further study. This will give the mobile operators an incentive to consider NP when developing systems from now on.*

2.8 Summary

Figure 2.1 summarises the timetable for introducing number portability in Ireland: -

Figure 2.1 The timetable for introducing NP in Ireland



3 The Responsibility for Routing Calls to Ported Numbers

The consultation document outlined the independent and inter-dependent solutions as the two main options for assigning responsibility for routing calls to ported numbers. The choice between these alternatives is fundamental and closely linked to the charging principles.

Most respondents (at least eight explicitly) supported the idea that the responsibility for routing lies with the originating operator. They therefore accepted the independent approach in principle. They agreed that the independent solution gives the right incentives for efficient routing in the long term.

However, a difficulty appears to have arisen from the distinction that Ovum sought to draw between the responsibility for routing and the actual routing implementation. Many respondents also equated the independent solution to an initial implementation based on an Intelligent Network (IN) solution, and with this they strongly disagreed, on the basis that such a solution would be too expensive to implement whilst the volume of ported numbers is small.

It is important that the adoption of the independent solution is not seen as imposing restrictions on the way in which operators implement NP. In particular, it allows for low cost initial solutions.

Taking account of the responses and after further analysis and discussions with operators, the ODTR believes the independent solution is most appropriate. However, the necessary information to support routing by originating operators should be available from the start of number portability, i.e. from 1 January 2000. This may mean establishing a low-cost interim database or recipient operators manually providing information to originating operators on ported numbers.

The ODTR believes that the independent solution provides incentives for operators to implement efficient solutions in the long term when the volume of ported numbers is high and fits in well with the concept of user initiated NP. The independent solution also offers the potential for higher functionality in the long term because it is more compatible with the development of advanced services using non-call related signalling.

The Director had decided to adopt the independent solution, where the originating operator has routing responsibility independent of the block network, from the start of number portability. This rule applies to all forms of number portability. The originating operator may either be the operator which provides the customer's access line or, in the case of carrier selection, the provider of the call service.

4 Routing Rules

4.1 Routing Rules for Geographic and Non-Geographic Number Portability

In the last section, the ODTR determined that the responsibility for correct routing of calls to a ported number rests with the originating operator rather than the block operator. Having made this fundamental decision, there are several technical options which an originating operator can use to implement NP routing capability.

Operators have the freedom to implement NP solutions that best fit their circumstances and the established time-scales. However, all operators must work together within a set of national rules if NP is to work effectively. The routing rules ensure correct routing of calls to ported numbers and operators must follow them when their network originates a call or receives a call from another network.

The vast majority of respondents agreed with the proposed routing rules. Although few operators responded on the matters of calls imported from abroad, and of Telecom Éireann providing a transit routing service, those which did respond are all supportive of the proposals.

The requirement on Telecom Éireann to provide a routing service to other operators reflects the fact that the Telecom Éireann network holds a special position, both as a former monopoly and in view of the current interconnection topology - Many other networks do not have direct interconnections but interconnect via Telecom Éireann in a star configuration. The service will be of potential benefit to very small operators using simple technology, who may not have their own routing capability.

In addition, one respondent additionally suggested that the block network should be required to route calls onward to exported numbers. Ordinarily, this requirement will not be utilised in practise, as either the originating or transit network will carry out the re-routing. However, it is useful as a safeguard to state the requirement explicitly and the ODTR has adopted this suggestion.

The ODTR also accepts the point made by some respondents that the rules need to be specified in detail by the operators themselves. These proposals should serve as a guide, and a reference point should disputes arise.

Given the choice of an independent solution within the national strategy, the Director has determined the following routing rules: -

- *the responsibility for correct routing should be placed on: -*
 - *the operator which originates the call, if the call originates within Ireland.*
 - *the operator which imports the call, if the call originates outside Ireland.*
- *this operator is free to decide whether to implement the necessary routing capability itself or to pass the call to another operator that will perform the*

additional routing functions. (New operators therefore have the freedom to outsource the routing capability).

- *Telecom Éireann is required to provide a routing service to other operators for the correct delivery of calls to ported numbers.*
- *operators are free to decide which routing technology to use. This freedom will enable the operators concerned to decide which technology best fits within their network and to change the technical solution used if synergy with other services or growth in the volume of calls to ported numbers makes a change appropriate.*
- *mobile operators, as well as fixed network operators, are responsible for routing to the correct fixed network operator. If full mobile portability is introduced, the fixed networks will be responsible for routing to the correct mobile operator.*
- *the block operator is required to provide a routing service to other operators for the correct delivery of an incoming call to any number which has been exported from the block operator's own network.*

4.2 Routing Information to be Passed Between Networks

The network that has carried out the re-routing needs to pass on some routing information to the subsequent network, which may be a transit network. The advantage of passing on the routing information is that only one network controls the routing, which means that problems of synchronising changes to routing information do not occur.

The proposals in the consultation document recommended a routing prefix of the form "Dxyz" to identify the recipient network. However, several operators were aware of possible problems supporting a hexadecimal prefix on their exchanges. In addition, views were mixed as to whether the prefix should identify the network or exchange or concentrator.

The ODTR believes that it is not critical to decide the form of the prefix until it has been discussed in more detail by the NP Committee. The Committee can assess the form of prefix which best suits all the switches of all the operators in Ireland, and advise the ODTR. In particular, we are open-minded about the use of number strings instead of hexadecimal digits. If hexadecimal are not used, then the ODTR will conduct an urgent review of available codes for prefixes that will fit the dialling plan.

In addition, the ODTR believes that the use of the prefix to identify the recipient network is marginally more appropriate for the independent solution. In this case, no changes need to be made to the routing information if the recipient network is re-organised internally. However, if exchanges or concentrators are to be identified in the prefix, then the use of codes that have the same form as the area codes should be considered. These issues will be discussed and decided upon as soon as possible by the operators at the NP Committee meetings.

The Director has decided that: -

- *the routing rules require that the re-routing network passes on routing information, in the form of a routing prefix, to the subsequent network.*
- *Telecom Éireann has the option of using different identifiers for each exchange in the case of areas like Dublin (which has a large minimum numbering area served in the Telecom Éireann network by more than one exchange)².*
- *the form of the prefix will be determined by the ODTR, following consultation with the NP Committee, no later than August 1999.*

In addition, the ODTR will consult with the NP Committee before deciding if the routing prefix should identify the network, exchange or concentrator.

² This would enable Telecom Éireann to avoid re-routing when a call to an imported number in a multi-switch MNA arrives in its network.

5 Allocation of the Additional Costs of Number Portability

5.1 Allocation of System Set-up Costs

It was proposed that each operator should pay its own system set-up costs, in line with the general consensus that has emerged elsewhere. Portability is intrinsic to a fully competitive telecommunications industry and each participant must make its network NP capable as a condition of entry.

There was general agreement with this proposal. We would like to again stress that the flexibility built into the routing rules allows for low-cost initial solutions to minimise the set-up costs.

The Director has decided that each operator should meet its own system set up costs when making its network and support systems NP capable.

5.2 Allocation of Transaction Costs

With the independent solution there are three elements to the transaction costs involved in porting an individual number from one operator to another.

- the administrative cost to the donor operator of exporting the number.
- the administrative cost to the recipient operator of importing the number. There is general agreement that the recipient operator should bear this cost itself.
- the cost of changing routing data for all operators who carry out re-routing functions.

The consultation paper proposed that the exporting operator could levy a transaction charge which recovers its administrative transaction costs from the importing operator in full and require all originating operators to bear their own costs for changes to routing data.

In general these proposals are well accepted. Two respondents felt that only Telecom Éireann's transaction charges should be regulated since it is the operator with significant market power. However, given that exporting is a monopoly activity even if the exporting operator is small, the ODTR believes that the transaction price should be regulated for all operators. In addition, it is also important that cost-based transaction charges apply for porting unallocated numbers to reduce uneconomic churn.

Most respondents also believe that the recipient should be entitled to recover its costs in whatever manner it considers appropriate, including passing the charges on to the customer.

Several respondents argued that the transaction charges should not include an allowance for failed portings, as proposed in the consultation document. They point out that they expect the number of failed attempts to quickly fall to 1-2%, based on international experience. The ODTR is therefore persuaded to drop the requirement to include the cost of failed portings in the transaction charge. However, further consideration may need to be given to this point if the actual number of failed portings does not rapidly fall to an efficient, low level.

With these responses in mind, the Director has decided : -

- *to allow the exporting operator to levy a transaction charge which recovers its administrative transaction costs from the importing operator. The transaction charge should only recover the costs of an efficient operator using an efficient technical solution.*
- *the transaction charge should exclude: -*
 - *costs of changes in routing, since correct routing is the operator's responsibility for calls originating on its own network.*
 - *costs which the exporting operator would incur if it were to relinquish the customer to another operator without NP. Such costs are part of the process of losing a customer but not additional costs generated by NP.*
- *to require all originating operators to bear their own costs for changes to routing data, including any changes made by other operators on their behalf.*
- *the charges of all exporting operators will be subject to approval by the ODTR.*

5.3 Allocation of Additional Conveyance Costs

The additional conveyance costs include the cost of adding a routing prefix (the re-routing element) and the cost of any additional routing between networks (the conveyance element) that may be required when a call is being routed to a ported number. Costs for the re-routing element have been shown to be sufficiently substantial in other countries to justify separate treatment.

Given the independent solution, it was proposed to require the originating operator to bear the additional conveyance costs and allow other operators who incur additional conveyance costs to recover them through charges on the originating operator.

Although the proposals generated a variety of views, the ODTR did not consider that any of them justified major changes to the original proposal. However, there were a number of noteworthy points, particularly about the difficulty of billing for additional conveyance. This is discussed in the next section.

In addition, most respondents believed that the same principles should apply to mobile operators and the ODTR agrees with this. Mobile operators should take responsibility for routing calls to ported fixed network numbers and should pay any additional conveyance charges which may result.

Equally, there was support for the proposal that the originating operator should take responsibility for routing to ported non-geographic numbers. Five respondents explicitly supported this recommendation. Two respondents commented that it would be wrong in principle for the originating operator to pay for the additional costs of calls to freephone numbers given that it is the terminating operator (recipient of the ported number) who bills the called party for the call. Nonetheless, it remains the originating operator who controls routing and must have an incentive to route efficiently.

Finally, it needs to be clarified that the originating operator is defined as the operator which has a contractual relationship with the calling party. This is the first operator in the call path which has control over routing. It is this operator which has the incentive to route calls efficiently. Specifically, where an operator has indirect access to a customer, but has been selected by the customer to carry a particular call, this operator (and not the access provider) should take responsibility for routing calls to ported numbers.

With these clarifications in mind, the Director has decided to:-

- *require the originating operator to bear any additional conveyance costs from the date of introduction of geographic and non-geographic NP. This requirement applies to both fixed and mobile operators.*
- *give the originating operator the freedom to recover these costs from its customers.*
- *allow all other operators who incur additional conveyance costs to recover them through charges on the originating operator.*
- *ensure that the conveyance element of any additional conveyance charges are set so as to recover costs.*
- *ensure that the re-routing element of these charges is cost based for Telecom Éireann but allow negotiated charges from new operators.*
- *require the originating operator to assume routing responsibility for all service types. Specifically, originating operators should bear the costs of additional conveyance for calls to ported non-geographic numbers, including freephone services.*

5.4 Practical Charging Implementation Issues

Respondents identified a number of practical problems of implementing the proposed charging rules.

The key problem envisaged by respondents is the difficulty of separately billing calls to ported numbers. Two separate issues were:-

- Difficulty verifying charges levied by the transit or block network - the originating network may have no visibility of whether a number has been ported.
- Difficulty assessing costs and calculating bills - some respondents believe that measuring traffic flows and modifying billing systems will be complicated.

The ODTR accepts that there will be some difficulties along the lines described by respondents. In general, the view of respondents is that discussion is needed at an industry level to resolve these concerns. This supports the requirement for the NP Committee to look at these issues in detail.

Specifically in the context of billing for additional conveyance, the ODTR believes that there are two possible solutions: -

- Operators could average conveyance charges over all calls both to ported and non-ported numbers, so long as the process of averaging is clear and cost-based. This would reflect the fact that there are general benefits from NP experienced by all customers. This requires further consideration by the ODTR.
- Conveyance charges could be waived, at least until the potential revenues exceed the costs of billing. An operator should always be free to waive charges if it finds the cost of collecting the revenues exceeds the revenues themselves. This is the solution preferred by the ODTR. However, it is not for the ODTR to impose such a solution.

The final solution for recovering additional conveyance costs can be agreed by the industry, in consultation with the ODTR.

6 The Porting Process

6.1 Interactions with the Customer

The proposal for offering a “one-stop-shop” to the subscriber from the recipient operator was widely accepted. In general, respondents also agreed that contact between the donor and the customer should be minimised. In addition, most respondents agreed that the issue of fraud/bad debts should be kept apart from the porting process.

Two respondents suggested conditions under which it would be appropriate for contact between the donor and the customer. However, we do not find sufficient reason in any of the responses to change the original proposal. Nevertheless, we do accept the point made by several respondents, that the ODTR should not be excessively involved in regulating this area. The ODTR therefore requests that the industry prepares a detailed set of porting procedures, based on these proposals but not restricted by them.

The Director has therefore decided to retain the following basic rules for the porting process:-

1. *The recipient operator should offer one-stop shopping to the subscriber so that the subscriber would: -*
 - *discuss and decide the service profile to be offered on the recipient’s network.*
 - *sign a separate instruction form for the closure of the account with the donor. This form would then be relayed to the donor by the recipient³.*
2. *The donor should proceed with the porting unless there are significant inconsistencies between the instructions received and the information already collected about the customer⁴.*
3. *The donor should raise an invoice and collect any outstanding payment direct from the subscriber. But the collection of this payment should not be a pre-requisite for releasing the number because such linkage would not be possible if the customer changed operator without number portability.*

6.2 Timing and Control of the Transfer of Service and Number

The consultation document detailed procedures for transfer of service and directory number and analysed how incoming calls would be handled in situations where new

³ If necessary, the standard terms of contract should be altered to allow the donor to respond to instructions received in this way

⁴ eg different name, different address

lines are installed by the recipient operator. The proposed procedure ensured outgoing call capability was always maintained.

In addition, timing of transfer of service and number was considered. Given that some customers would want the transfer to take place as soon as possible and others would want it to take place at a specific time, two options for transfer were proposed:-

- A timed process, where de-activation by the donor and the new routing for operator portability would be implemented at a fixed time specified by the recipient.
- A deferrable process, where de-activation by the donor and new routing for operator portability would be implemented at any time during a window of two working weeks. This required that the recipient would be able to initiate de-activation using an on-line method of control either from the customer's premises or elsewhere.

There were few direct responses to the proposals for the order of events in the transfer of service and number. Three respondents give it their support. Although one respondent considered the overlap arrangements too complicated and prone to error, this approach to porting is working successfully in other countries, and the ODTR sees no reason why it cannot be as effective in Ireland.

One respondent supported both the timed porting process and the deferrable process and argues that the timed porting process is particularly important for NGNP. Two respondents preferred the real-time on-line method of porting, but systems and security problems would need to be addressed. However, since both approaches are working well elsewhere, the ODTR sees no reason not to also offer both approaches in Ireland. Nonetheless, it is for the industry to decide, in consultation with the ODTR.

When defining the porting procedures, it should be made clear that it is the recipient operator who is required to notify other operators that a number has been ported, within a timescale to be agreed by the NP Committee.

The Director has therefore decided that: -

- *when a new line is being installed by the recipient operator, the porting procedure rules should be organised to ensure that outgoing service is always available on either line, and any interruption to incoming service is minimised.*
- *the recipient operator is responsible for informing other operators that a number has been ported.*

The ODTR further proposes that: -

- *several options should be available for the transfer. These include: -*

- *de-activation by the donor and implementation of the new routing for operator portability at a fixed time specified by the recipient.*
- *de-activation by the donor and implementation of the new routing for operator portability at any time during a window of two working weeks with the recipient able to initiate de-activation using an on-line method of control either from the customer's premises or elsewhere. This facility could be offered in the longer term.*

6.3 Recovering from Problems

Whilst supporting the idea that the industry should develop detailed rules to enable service restoration in the case of faults during the porting process, most respondents feel it would be inappropriate for the ODTR to specify rules at this level of detail. In any case, respondents indicated that the proposals need to be fine-tuned to derive industry standard service level agreements.

The ODTR therefore retains the proposals on error recovery, but only as a guide to the industry when developing a detailed specification for the porting process: -

- *each donor should retain the necessary information to restore the original service within 60 minutes if requested by the recipient operator.*
- *this capability should be available for at least the first 24 hours from the time of de-activation of the service by the donor.*

6.4 Restricting Win-Back Activities

Most respondents support the development of an industry code of practice on win-back activities. Several respondents expressed concerns about the effectiveness and practicality of a code and the ODTR recognises that it will not be a complete solution, and may need to remain voluntary.

The Director has decided that there should be an Industry Code of Practice for number porting. This will address inter-alia, win-back activities.

7 National Number Portability Database

7.1 The Requirement for a Database

A national reference database to support number portability primarily records the relationship between the ported number and the identity of the network that is currently serving that number. Such databases are not involved in the routing of calls. Each operator will have their own operational databases which include copies of the information held on the reference database for this purpose.

There was strong support in the responses for the introduction of a central reference database to support number portability. Nine respondents favoured this approach. Other respondents indicated that further detailed industry discussion was required before committing to a database solution, and only if it was shown to be the most efficient and effective implementation.

Several respondents see the number portability database as an essential requirement which should be made available at the time NP is introduced. Others are equally concerned that without a reference database, Telecom Éireann may become *de facto* controller of information on ported numbers. Two respondents specifically seek that the database is established on the same timetable as non-geographic NP, although one also noted that it was not on the critical path to NGNP.

In short, the industry has raised a number of good reasons why the number portability database should be established as a matter of urgency. In particular, a reference database would ensure that the originating operator has the information to route calls directly to ported numbers.

Given the strength of these arguments and the high level of support for the database approach, the ODTR believes that the database should be established as an integral part of the NP solution from the outset. However, it is not necessary to delay the implementation of NP in order that the database may be ready to support the first porting. If necessary, a manual process of informing originating operators with routing capability can be employed as an interim measure.

Therefore, the ODTR will encourage the industry to fast-track the development of a reference database to be available at, or as soon as possible after, the implementation of non-geographic NP. Database specifications and implementation details will be agreed by the NP committee and the ODTR as part of the initial work output.

The ODTR accepts that a centralised independent national reference database should be established as soon as reasonably possible. However, since the number of porting transactions is likely to be low initially, the reference database does not have to be operational before number portability can commence.

7.2 Functions and Specification of the Database

In general, respondents wished to restrict the database to NP applications, at least in the short term. This will speed its implementation. However, three respondents wished to see it serve as the repository of directory services information, and one supported its use for individual number allocation. Most respondents indicated that such developments should be considered only after further industry consultation.

There was a strong preference for a centralised database structure. However, it is possible that some respondents may not have considered the protocol issues in great detail. This issue may need to be discussed further with the operators.

Taking account of the responses, the ODTR recommends that:-

- *the database is connected to the reference databases of the operators using a common communications infrastructure.*
- *the communications infrastructure supports both information exchange between donor and recipient and subsequent broadcasting of changes to all operators.*
- *the logical structure of the database is related to the allocation mechanism. For numbers allocated in blocks to operators, the independent national reference database should maintain a compiled master table for all ported numbers.*
- *additional applications for the database, e.g. for central number allocation functions, will be added only after consultation with industry.*

7.3 Operating and Funding the Database

There was overwhelming support for an independent body to create and manage the database. Some would like the ODTR to retain responsibility for the database, while others believed this could be done by the industry collectively. Either way, a tendering process was envisaged to select the database provider and manager.

The widespread view was that funding of the database should principally be based on the volume of numbers an operator has imported. However, some or all of the set-up costs should be borne by the industry as a whole.

Ideally, the database should be established by the operators. If necessary, however, the ODTR is prepared to take the initiative to ensure that the database is available for 1.1.2000, and hand over responsibility to the operators at a later stage.

The Director has decided that for the long-term operation and funding on the independent database:-

- *an independent database operator shall be selected by a tendering process.*

- *a legal constitution for the operation and management of the database is developed by the operators and approved by the ODTR.*
- *the operator of the database manages and co-ordinates all activities related to the database and provides some support services to the operators.*

8 Implementing Number Portability in Ireland

8.1 Committee Arrangements

There was almost unanimous support for the establishment of a committee to develop functional specifications and porting procedures. Furthermore, some respondents believe that the committee should consider commercial issues. One respondent suggests that user involvement would be important.

Separate working groups may be required to develop specifications in technical, operational and commercial areas. The ODTR will either chair each of these working groups or appoint an independent chairperson. However, the work of this committee, especially in the commercial area, will need to be supplemented by bilateral negotiations between the operators.

The Director has decided to:-

- *establish a committee to consider the practical NP implementation issues.*
- *set deadlines for completion of key tasks by the committee. If an issue cannot be resolved within the deadline, the ODTR will make an interim determination.*

8.2 The Timetable for Introducing Number Portability

To meet the timetable for introducing NP in Ireland, the ODTR and the operators will need to move quickly to agree on routing and porting process rules.

One of the primary tasks for the committee will be to establish the charging regime for number portability. The ODTR plans to set the commercial element of the committee a target date by which time it must either reach agreement or hand the issue over to the ODTR for resolution.

The ODTR are also hopeful that the NP procedural working group can reach an agreement on the design and development of the number portability reference database without extensive involvement from the ODTR.

Figure 8.1 provides a detailed schedule of what is required to implement number portability: -

Figure 8.1 An action plan for NP in Ireland

<i>Task</i>	<i>Responsible</i>	<i>By when?</i>
General		
Define national strategy guidelines on porting and routing rules	ODTR	4/1999
Establish NP Task Force	ODTR	5/1999
Produce framework of costs for NP	Telecom Eireann	7/1999
Determine cost allocation rules for NP	ODTR	8/1999
Determine form of routing prefix, and commence allocations	ODTR, following consideration by NP Committee	8/1999
Develop specification for national reference database and associated porting protocols	NP committee and ODTR approval	8/1999
Award contract to establish national reference database	To be advised by NP Committee	To be advised
Non geographic NP		
Finalise routing rules for non geographic NP	NP committee and ODTR approval	5/1999
Finalise porting procedures for non geographic NP	NP committee and ODTR approval	7/1999
Modify support systems processes for non geographic NP (mostly manual)	Operators and SPs	10/1999
Add NP prefixes to routing tables for calls to non geographic numbers	Operators and SPs	10/1999
Test non geographic NP	Operators and SPs	11/1999
Modify and test charging arrangements for non geographic NP charging	Operators and SPs	11/1999
Offer portability to all user	Operators and SPs	1/2000
Geographic NP (1,000 and 10,000 number blocks for DDI)		
Prepare procedures and contact points	Operators and SPs	7/1999
Test procedures	Operators and SPs	Before 11/1999
Offer portability to all relevant users	Operators and SPs	Before 1/2000
Geographic NP		
Finalise routing rules for geographic NP	NP committee and ODTR approval	8/1999
Finalise porting procedures for geographic NP	NP committee	8/1999
Modify support systems for export of geographic numbers	Telecom Éireann	4/2000
Install routing capability in trial area	Telecom Éireann	4/2000
Test geographic NP in trial area (export from Telecom Éireann)	Telecom Éireann and another operator	5/2000
Modify and test charging arrangements for geographic NP charging	Telecom Éireann and another operator	5/2000
Offer portability to other operators who make reciprocal offer	Telecom Éireann	7/2000
Offer portability to all users	All relevant operators	11/2000