

FINAL REPORT
ON
**HARMONISED NATIONAL
NUMBERING CONVENTIONS**

■

23 October 1997

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Executive summary

Introduction

ETO has prepared a proposal for a framework of harmonised national numbering conventions for CEPT countries. The required study has been commissioned by the European Commission, which has emphasised this issue in its recent Green Paper on Numbering. The significance of the issue had already been stressed in the previous ETO study on 'Non-discriminatory Access to Numbering Resources' of which the final report was delivered on 15 July 1996.

In a competitive environment, a clearly defined regulatory framework on numbering is needed in order to facilitate non-discriminatory and transparent access to numbering resources. These regulations are called 'numbering conventions'. They comprise the national numbering plans and their management and administration. The management is defined as the assignment of numbers to market parties, the surveillance of usage and the withdrawal of assigned numbers. The administration is defined as the regulatory activities on the higher level, i.e. the establishment and change of numbering conventions.

The study focuses on the management and administration of the national numbering plans and does not address the national numbering plans themselves. Issues concerning number portability, carrier selection and directory enquiry services are not explicitly addressed. The final report comprises a review, an analysis and, finally, proposals for harmonised national numbering conventions regarding telephone numbers, Data Network Identification Codes (DNICs) and International Signalling Point Codes (ISPCs). As required by the Commission, the study has been restricted to the numbering conventions for these three types of numbers, which are considered most urgent.

Country review and analysis

The review of national numbering conventions in Europe as existing per 1 January 1997 rests on the results of a comprehensive questionnaire. Twenty-two countries responded to the questionnaire, of which thirteen are members of the EU.

One of the most important conditions ensuring non-discriminatory access to numbering resources is that the bodies in charge of national numbering plan management and/or administration are independent of the telecommunications organisations. National Regulatory Authorities (NRAs) fulfil this condition by definition. Seventeen of the responding countries, of which twelve belong to the EU, had NRAs in charge. Sixteen had NRAs with responsibilities for at least telephone numbers and DNICs and thirteen of them also for ISPCs. Most countries were in the middle of the process of developing numbering conventions. In many cases, responsible NRAs had no elaborated or written rules yet.

For the analysis of the review of national numbering conventions, a number of other information sources have been considered. These include European policy, former studies undertaken for the Commission, non-European sources and the expertise of ECTRA/PTN and ENF members and ETO.

Proposals for harmonised national numbering conventions

The study resulted in proposals for harmonised national numbering conventions which cover the main aspects of the management of the national numbering plans. They also cover relevant aspects of the administration of the national numbering plans, in particular the change of national numbering plans. The proposals regarding ISPCs are based on the input from an expert group under the guidance of the ECTRA/PTN which has developed detailed recommendations on conventions for ISPCs.

ETO has developed a structure for the proposals which is based on the main aspects that are subsequently addressed when going through the process of managing the national numbering plans. The proposals offer a framework of guidelines for NRAs. The guidelines either indicate *what* should be regulated or state *how*. Further elaboration of details that are not suitable for harmonisation is left to the NRA.

The proposals take existing EU regulation on numbering into account and address the following ten blocks of issues regarding telephone numbers, DNICs and ISPCs:

NRA responsibilities

- national numbering plans should be controlled by an NRA and their administration should be carried out by an NRA or another independent body
- the national numbering plans should provide sufficient capacity, enable fair competition and be in line with ITU-T Recommendations
- the management of the national numbering plans should be controlled by an NRA
- the management should be carried out in an objective, non-discriminatory, equitable, proportionate, timely and transparent manner.

Consultation by NRAs

- the NRA should consult market parties on important numbering conventions issues and large-scale withdrawals of assigned numbers.

Publicity and appeal

- Information should be appropriately published regarding the national numbering conventions, primary assignments by the Numbering Plan Manager (NPM) and the status of each number
- publicity of a change in a substantial part of the active national telephone numbers should be well co-ordinated and started well in advance
- appropriate appeal procedures should be laid down.

Applications for primary assignment

- eligible applicants should be defined
- the information required for the NPM to decide on an application should be defined

Primary assignment and the choice of numbers

- the principle of ‘first come, first served’ should be applied, except when starting assignment from newly designated number ranges
- applicants should have the right to indicate their preference for specific telephone numbers
- users should have the right to use telephone numbers that are not frequently misdialed.

Timescales for decision on applications for primary assignment

- the time limit between receipt of an application and notification of the decision on the application should be laid down
- the applicant should be informed by the NPM as soon as possible on receipt of the application.

Refusal of primary assignment

- the applicant should immediately be informed about a refusal, its reasons and the procedure for appeal against the refusal
- refusal should only be allowed for a limited set of reasons which should be laid down.

Usage conditions after primary assignment

- assignment should only imply the granting of rights of use
- the legitimate purpose of usage of assigned numbers should be laid down
- the time limit for activation should be laid down
- the assignee should provide information on usage to the NPM
- fees should seek to cover the administration and management costs
- transfer of assigned number is prohibited so long as no appropriate regulatory framework for number trading has been put in place
- the assignee should not use network-specific telephone numbers that may cause interference with the national telephone numbering plan.

Withdrawal of numbers from assignees of primary assignments

- withdrawal should only be allowed for a limited set of reasons which should be laid down
- the overall societal costs of a withdrawal should be carefully considered
- the procedure for a withdrawal should allow an assignee to clarify its position before a decision is taken
- when a change of active telephone numbers is imposed, the users of these active numbers should have the right to have disruption minimised.

Conditions for secondary and tertiary assignment

- secondary and tertiary assignment should comply with the national numbering plans
- the usage conditions for primary assignment should also apply regarding the granting and transfer of rights of use and the right of users to have disruption minimised because of a number change.

Proposals, specifically for DNICs and for ISPCs, have also been made.

The general nature of the structure of the proposals provides a basis for further study on numbering conventions for other types of numbers, names and addresses and elaboration of certain aspects. Such studies should be undertaken as soon as possible including the investigation of a regulatory framework for number/name trading.

1. Presentation of the study

The work order

The complete text of the work order can be found in Annex A.

Based on the proposals of ETO in its Final Report on Non-discriminatory Access to Numbering Resources (15 July 1996), the European Commission asked ETO to prepare a comprehensive proposal for European Numbering Conventions that CEPT countries could implement. These conventions consist of the regulatory framework needed for the management of the national numbering plan, i.e. the assignment of numbers to market parties, the surveillance of usage and the withdrawal of assigned numbers.

Some principles regarding the general framework have been settled in EU regulation. The Commission has emphasised this issue in its recent Green Paper on Numbering. In a competitive environment, it is important to define these conventions in order to facilitate non-discriminatory and transparent access to numbering resources.

The work requirement is:

1. to study current rules and principles of telephone number use in European countries
2. to study current rules and principles on the use of DNIC, X.400 and Internet addresses, Signalling Point Codes and Issuer Identifier Numbers for international telecommunication charge cards in European countries¹
3. to define issues to be included in European Numbering Conventions and to propose a structure for these Conventions
4. to prepare a detailed proposal for European Numbering Conventions.

It should be noted that the original title ‘European numbering conventions’ of the study has been changed into the present title ‘Harmonised national numbering conventions’ in order to prevent any confusion with possible conventions for a European Telephony Numbering Space (ETNS). The present title better reflects the purpose of the study, which is harmonisation of national numbering conventions and not replacement of national numbering conventions by a set of European numbering conventions.

¹ At a later stage during the study, the Commission limited the scope of the study to telephone numbers, DNICs and International Signalling Point Codes (ISPCs), excluding X.400 and Internet addresses, National Signalling Point Codes and Issuer Identifier Numbers.

Schedule, methodology and scope

In the first phase of the study, a review has been made of the current situation in CEPT countries regarding numbering conventions. The review has been based on a comprehensive questionnaire which has been distributed to all CEPT countries. It concerns nine types of numbers, names and addresses:

- telephone numbers
- Data Network Identification Codes (DNICs)
- X.400 names for value-added data services
- Internet names
- National Signalling Point Codes (NSPCs) for national signalling networks
- International Signalling Point Codes (ISPCs) for international signalling networks
- Issuer Identifier Numbers (IINs) for international telecommunications charge cards
- Mobile Network Codes (MNCs)
- NSAP addresses (NSAP = Network Service Access Point).

For the analysis of the existing numbering conventions in European countries, additional information has been obtained from the following sources: former recommendations to the Commission, regulations in USA, Japan and Australia, an ITU-T Recommendation, an OECD study and expertise from ECTRA/PTN and ENF members and ETO itself.

The first 'Interim Report on Numbering Conventions' of 13 December 1996 contained the total result of the review and the initial input from other sources. For telephone numbers, the responses were extensively presented and provided with analyses. It was sent to the Commission, the ECTRA/PTN and the ENF members for comments.

A workshop was held on 9 January 1997 with the Commission, ECTRA/PTN and ENF members, mainly to identify the issues for numbering conventions.

A draft second interim report was offered for comments to the Commission, the ECTRA/PTN and ENF members. Next to the review, it comprised analyses and preliminary proposals regarding the nine different types of numbers, names and addresses.

At that stage, the Commission decided to focus the study on telephone numbers, DNICs and ISPCs as numbering conventions were considered most urgent for these three types of numbers. A meeting with a subgroup of the ECTRA/PTN was held on 11 March 1997 to discuss the proposals for numbering conventions in depth.

The 'Second Interim Report on Numbering Conventions' of 14 April 1997 contained, along with the review, the analyses and the proposals for telephone numbers, DNICs and ISPCs. It was sent for comments to the Commission, the ECTRA/PTN and ENF members.

The draft final report was sent for comments to the Commission, all CEPT/ECTRA members, the ECTRA/PTN and the ENF.

The final report of the study includes comments from individual ENF members and individual CEPT/ECTRA members regarding their respective national regimes.

The final report will be delivered to the Commission after ECTRA approval.

2. Elements and scope of numbering conventions

National numbering conventions consist of the regulations needed for the management of the national numbering plan. The national numbering plan management is, according to the definition in this report, the assignment of numbers to market parties, the surveillance of usage and the withdrawal of assigned numbers. It should be noted that there does not exist a generally accepted definition and that the definition in this report may not apply elsewhere.

The regulatory framework for the national numbering plan management can be divided into four sets of rules:

1. The national numbering plans

National numbering plans and designated number ranges have significance for telephone numbers only. For DNICs and ISPCs, these are straightforward. Each country has one national telephone numbering plan which differs from country to country. The definition of a national numbering plan also differs per country. Annex E contains a definition of a national numbering plan which consists of a minimum set of assets that is thought to be common to all countries. This definition is made merely for the purpose of this report.

2. The full set of designated number ranges within the national numbering plans

The full set of designated number ranges comprises the area codes with the associated geographic areas, the service access codes with the associated non-geographic services and special codes. Compared with the national numbering plan as defined above, the set of designated number ranges further specifies the structure and the purpose of usage of numbers.

3. The rules for the administration of the national numbering plan

The administration of the national numbering plan, according to the definition in this report, comprises the establishment and change of national numbering conventions. Again, it should be noted that there does not exist a generally accepted definition and that the definition in this report may not apply elsewhere. The administration could be considered as a higher level activity (policy making) while the management (see item 4) could be considered as a lower level activity (executing the established policy).

4. The rules for the management of the national numbering plan

The management of the national numbering plan has been defined above.

The national numbering plans and the sets of designated number ranges are excluded from this report. The scope in this report covers the main aspects of the management of the national numbering plan and the relevant aspects of the administration of the national numbering plan concerning the change of national numbering plans and designated number ranges.

Number portability, carrier selection and directory services are not explicitly addressed.

As the main part of the numbering conventions in this report concerns the management process, the structure of the following chapters is based on the main aspects specific terms have been chosen to describe the elements of this process.

The body that is carrying out the management of the national numbering plan is called Numbering Plan Manager (NPM) in this report. The NPM serves the market parties: the network operators, the service providers and the users of telecommunications services. For telephone numbers and DNICs, the national management process is usually divided into two or even three stages whereby management responsibility for the second and the third stage is left to market parties. A fourth stage is never used. For ISPCs and, in some particular cases, for telephone numbers, the national management process has one stage. The subsequent stages of the assignment process are called primary assignment, secondary assignment and tertiary assignment respectively. The existing three options for dividing the national assignment process can then be described as follows:

1. One stage assignment process

Only primary assignment by the NPM to a market party which may be a network operator, a service provider or a user of telecommunications services.

2. Two stages assignment process

Primary assignment by the NPM to a network operator or service provider, who makes secondary assignment to users.

3. Three stages assignment process

Primary assignment by the NPM to a network operator or service provider, who makes secondary assignment to his customers. These customers could be service providers or even network operators again, who in their turn make tertiary assignment to users.

A list of definitions is provided in Annex E.

The following both chapters, with the country review and analysis and with the proposals, have been provided with a structure which reflects the main aspects that are subsequently addressed when going through the process of managing the national numbering plans:

- NRA responsibilities
- Consultation by NRAs
- Publicity and appeal
- Application for primary assignment
- Primary assignment and the choice of numbers
- Timescales for decision on applications for primary assignment
- Refusal of primary assignment
- Usage conditions after primary assignment
- Withdrawal of numbers from assignees of primary assignment
- Conditions for secondary and tertiary assignment.

3. Country review and analysis

3.1 The questionnaire

A comprehensive questionnaire was sent to NRAs of all CEPT countries in order to review the state-of-the-art regarding the rules for the management of the national numbering plan and, for telephone numbers, the rules for the establishment and change of the national numbering plan and for the designation of number ranges.

One of the most important conditions ensuring non-discriminatory access to numbering resources is that the bodies in charge of national numbering plan management and/or administration are independent of the telecommunications organisations.

Respondents were requested to indicate for which type of numbers, names and addresses NRAs had responsibilities. The specific questions for each type needed to be answered only if an NRA had responsibility for that type.

The questions had been elaborated extensively for telephone numbers and to a lesser extent for DNICs. For the other types of numbers, names and addresses, including ISPCs, a limited set of questions, which were more general and open, had been used.

All questions referred to the situation as expected to exist on 1 January 1997.

3.2 Reliability of the questionnaire

Twenty-two out of the forty-three CEPT countries responded to the questionnaire. They are listed in the table of section 4.3.

They include all countries from which at least some elaborated numbering conventions could be expected. Of the twenty-two respondents, thirteen are members of the EU.

Responses regarding responsible NRAs should be interpreted with caution.

The most difficult part of interpreting the responses was to know the exact status of the rules on which the answers were based. In many cases, there are no approved rules yet or no written rules or only very general explicit rules. As could be expected, most explicit rules exist for telephone numbers and, to a lesser degree, also for DNICs. In this respect, the questionnaire was biased in having elaborated the questions for these numbers, which fortified the explicitness of the answers for these numbers. Apart from that, most of the questions for telephone numbers and DNICs were of the multiple-choice type or provided with examples of possible answers. The possible answers given beforehand undoubtedly influenced the response and may have made the rules appear more explicit than they actually are.

Obviously, most countries that responded are in the middle of the process of establishing rules, which limited the possibilities for specifying the existing or expected rules in detail.

It should be realised that the responses reflect the situation at 1 January 1997. In the meantime, regulation in most countries probably would have developed further.

3.3 General overview

The table below presents a countrywise overview of the different types of numbers, names and addresses with NRA responsibilities. The crosses indicate where NRA responsibilities are in place, the crosses between brackets indicate that there are firm plans to have these NRA responsibilities. The meaning of NRA responsibilities may differ case by case. In one case an NRA may do all administration and management, in another case an NRA may delegate part or even all of these tasks.

Country	Tel.	DNIC	X.400	Internet	ISPC	NSPC	IIN	MNC	NSAP
EU:									
Austria	(x)	(x)	(x)		(x)	(x)	(x)	(x)	(x)
Belgium	x	x	x		x	x	x	x	x
Denmark	x	x	x		x		x	x	
Finland	x	x	x	x	x	x		x	x
France	x	x	x		x		x	x	
Germany	x	x	x		x	x	x	x	x
Ireland	x	x			x	x		x	
Italy	x	x	x	(x)					
Netherlands	x	x			(x)	(x)	(x)		
Portugal	x	x	x		x	(x)	x	x	
Spain	x	x	x		x			x	
Sweden	x	x	x		x		x	x	
UK	x	x			(x)	(x)			
Non-EU:									
Bulgaria	(x)	(x)	(x)	(x)	(x)	(x)	(x)	(x)	(x)
Croatia									
Estonia							x		
Malta									
Norway	x	x	x	(x)	x	x	x	x	x
Poland	x	x	x		x	x		x	
Slovak Rep.	x	x			x	x	x	x	
Switzerland	x	x	x	(x)	x		x	x	x
Turkey									
Total number of countries	16 (+2)	16 (+2)	12 (+2)	1 (+4)	13 (+ 4)	7 (+5)	10 (+3)	13 (+2)	5 (+2)

x = NRA responsibilities

(x) = firm plans for NRA responsibilities

(blank) = no NRA responsibilities

Table Countrywise overview of the different types of numbers, names and addresses with NRA responsibilities

Sixteen countries have NRA responsibilities for at least telephone numbers and DNICs and thirteen of them also for ISPCs.

3.4 Review and analysis

This section reviews and analyses the national numbering conventions. The information on ISPCs is limited as the questionnaire had less elaborated questions for ISPCs. For the analysis of the national numbering conventions, ETO has considered other information sources. These sources include EC and EU Directives (Annex B), former recommendations to the Commission by Ovum and ETO (Annex C) and Non-European sources (Annex D). The non-European sources are the existing national numbering conventions in the USA, Japan and Australia, an OECD study and ITU Recommendation E.169 on the management of Universal International Freephone (UIFN) numbers by ITU. The sources further include opinions of experts of the ECTRA/PTN and of the ENF and of ETO. The input from the ECTRA/PTN on ISPCs has been accepted by ETO and is not considered in this section.

A bibliography has been provided of the documents that have provided input for the report (Annex G).

Telephony is the main telecommunications service. Its users identify themselves to each other by telephone numbers. Therefore, telephone numbers are a significant asset of the European society and the most important type of number from a regulatory point of view when compared with DNICs and ISPCs. The structure and the use of telephone numbers are defined in ITU-T Recommendation E.164.

DNICs are used for data services on data networks. Numbers from DNICs are used more for terminal identification than for the identification of users. The structure and the use of DNIC numbers are defined in ITU-T Recommendation X.121.

ISPCs are used by network operators within telephone networks for the identification of network nodes, e.g. switches, to allow communication between the network nodes. The structure and the use of ISPCs are defined in ITU-T Recommendation Q.708.

Subdivision into the ten following sections reflects the main aspects of the national management process. The relevant administration process aspects are not presented in separate sections but included where they support the management process.

3.4.1 NRA responsibilities

Review

In all responding countries with NRA responsibilities (sixteen countries for telephone numbers and DNICs and thirteen of them also for ISPCs), the national Numbering Plan Manager (NPM) is an NRA. This NRA is a ministry in some countries and a state agency in the other countries. The NRA with the NPM tasks also sets up the management rules, except in Germany and The Netherlands, where the rules are set up by a ministry and the management is carried out by a state agency. In all countries, the NRA that sets up the management rules also sets up and carries out the rules for changing the national telephone numbering plan and for designating new number ranges within the plan.

Analysis

EU policy (see Annex B) requires that EU members ensure the availability of adequate numbers and that the assignment is objective, non-discriminatory, equitable, proportionate, timely and transparent. It further requires that NRAs control the national telephone numbering plans and that the assignment of telephone numbers is carried out by a body independent of telecommunications organisations.

Ovum (see Annex C) suggests that some of these activities could be delegated. E.g. changes of the telephone numbering plan, designation of telephone number ranges and assignments could be carried out by independent national bodies under the control of an NRA. The OECD (see Annex D) states that a consultative body could even undertake all the planning and administration of the national telephone numbering scheme. The delegation of activities is worth considering once countries have gained more experience in management and administration. An NRA should however stay in control of delegated activities.

ETO supports the opinions of Ovum and OECD and foresees that delegation of activities could be considered once competition has been established.

3.4.2 Consultation by NRAs

Review

NRAs in most countries consult a body for changes of the national telephone numbering scheme but only a few do so for assignments. The consultation body represents the different market parties. The degree to which NRAs are obliged to consult such a body, varies from country to country.

Analysis

The OECD (see Annex D) assumes that the establishment of a consultation body is a prerequisite. ETO is of the opinion that a consultation body also has an important function by acting as a sounding board for important numbering policy issues, such as number portability and carrier selection. ETO further believes that consultation is valuable in achieving transparency and non-discrimination of numbering conventions. ETO is also of the opinion that other ways of consulting market parties or their representatives instead of having a consultation body should not be excluded.

3.4.3 Publicity and appeal

Review

In most countries, the management rules for telephone numbers and DNICs are published while other countries are still developing the rules or have no rules written down or published yet. The same applies to the rules for changing the telephone numbering scheme and designating telephone number ranges. Likewise, publication of the telephone numbering scheme, designated telephone number ranges and assigned numbers are undertaken in most countries while some countries have not started these activities or have made no publication yet.

Most countries have specified who has to inform the public in advance about changes of active numbers as a consequence of a telephone numbering scheme change. Half of the countries have specified how long in advance the public has to be informed. The period varies between less than one year and more than two years and averages one and a half year.

Specific procedures for appeal against a management decision, i.e. the assignment of telephone numbers or DNICs, refusal and withdrawal of these numbers, are provided for in some countries. These countries also provide possibilities for specific appeal against telephone numbering scheme changes and designation of telephone number ranges. Of course, in all countries, affected parties could follow general appeal procedures and go to court.

Analysis

EU policy (see Annex B) requires transparency which implies publicity of rules. It explicitly requires NRAs to ensure publicity regarding the national telephone numbering plan.

Commercially sensitive information or information that violates privacy rights of users should be excluded. It seems sensible to use the national official gazette to make references to publications.

When preparing an extensive telephone numbering scheme change, a well co-ordinated, intensive and timely communication to the public is considered very important.

It seems sensible that appeals against management decisions by the NPM can be made through a body independent of the NPM.

3.4.4 Application for primary assignment

Review

The eligibility of applicants is defined in almost all countries but the definitions vary. Generally speaking, only network operators are eligible. At present, there is only one country where assignment of telephone numbers for specific services (freephone, shared cost call and shared revenue call) is made by the NPM directly to the users.

Analysis

Some definition of eligibility seems necessary, in particular for telephone numbers, in order to provide clarity of procedures to the market parties and not to burden these parties and the NPM with confusion and unnecessary applications. For telephone numbers, eligibility of service providers will probably be necessary as far as new non-geographic services are concerned. To assess an application of an eligible applicant, the NPM has to ensure that the appropriate information is supplied by the applicant. Information requests by the NPM should not make unreasonable demands on the applicant or subject it to unnecessary commercial risk.

An applicant for DNICs should be obliged to inform the NRA about applications for DNICs that he may have made to other countries or ITU-T. The latter DNICs are alternative resources which may provide adequate capacity for the usage for which the application has been made.

3.4.5 Primary assignment and the choice of numbers

Review

Criteria for the size of an assignment of telephone number ranges or DNICs to network operators or service providers have been provided by almost all countries. These criteria are not very specific and leave much room for other considerations.

As a minimum size for telephone number ranges, 1,000 and 10,000 numbers are most commonly specified. For DNICs, the minimum size specified is mostly one tenth of a DNIC. Half of the countries give the applicant the right to choose between available telephone numbers. Half of the countries have specified the principle of ‘first come, first served’ to decide coinciding applications for the same telephone numbers.

Analysis

Estimating numbering needs requires knowledge, not only of the expected number of users and the average usage of numbers per user, but also of the factors that limit the use of the full allocated capacity. The role of these factors could vary considerably from case to case. It seems that a general rule for determining the size of an assignment of telephone numbers is hard to give. For DNICs the problem is less complex.

Applicants may benefit considerably from using specific telephone numbers. In particular the user may benefit when using his number for marketing purposes. A specific number may represent a considerable economic value to him. Also, network operators and service providers may prefer certain number ranges to brand their services. Besides, a network operator may prefer certain number ranges to facilitate routeing. It merits meeting applicants' requests for specific numbers within reasonable technical and administrative constraints. When primary assignments of telephone numbers are made to users directly, the users should have the right to use numbers that are not frequently misdialed. As a preventive measure, withdrawn numbers should have a dormant period before they are reassigned. If a user nevertheless suffers from being called by misdialling, then a number change should be considered.

When starting the assignment of numbers from a newly designated number range, a problem may occur because of a concentrated occurrence of coinciding applications. This concentrated occurrence may happen in particular for the assignment of telephone numbers to users. A temporary selection procedure independent of the moment of receipt of an application could solve the problem.

3.4.6 Timescales for decision on applications for primary assignment

Review

The target time for dealing with the applications for telephone numbers and DNICs is less than one month or between one and two months for most countries. Even an application for a telephony service, for which telephone number ranges still have to be designated at the moment of application, does not seem to require substantially more time.

Reservation of telephone numbers or DNICs may precede allocation in some countries for a certain period in advance of the expected start of activating numbers. This period varies between one and more than three years.

Analysis

For transparency reasons, the timescales for deciding on applications should be laid down. The NPM should immediately notify an applicant of the reception of the application and of the timescales for deciding on the application.

3.4.7 Refusal of primary assignment

Review

Most countries have reasons specified for refusal of assignment of telephone numbers or DNICs to network operators or service providers. No reasons have been specified for refusal of assignment of ISPCs. The most common reasons are:

- previous allocations to the same applicant have not been sufficiently used
- alternative resources are available
- the requested numbers are not for public services
- technical shortcomings
- the applicant is expected not to comply with the usage conditions.

Analysis

Obvious reasons, not considered in the review, for refusing an application is when an applicant is not eligible and when an applicant is not providing the information required to decide on the application.

If an application is refused, the applicant should be informed about the reasons for the refusal and about the possibilities for appeal.

3.4.8 Usage conditions after primary assignment

Review in general

An overview is given of the usage conditions for telephone numbers and DNICs that have been specified (the first condition is specified most often, each subsequent condition is specified less commonly):

- no transfer of right of use of numbers allowed (possibly with an exception for mergers, etc.)
- no use of network-specific telephone numbers (with possible exception for special range)
- obligation to inform the NPM about number usage and concerned activities
- obligation to pay a fee to the NPM
- usage of telephone numbers restricted to the purpose specified in the application
- starting date of activating telephone numbers restricted to that indicated in the application
- compliance of usage of telephone numbers with national or EU regulations
- compliance with ITU-T Recommendations
- usage of DNICs to be with appropriate interconnection with other data networks.

Only one country has specified a usage condition for ISPCs.

Analysis in general

For efficient use of numbering resources, it is important that the NPM is informed when activation of the assigned numbers has been terminated for all numbers. Similarly, it is important that the NPM is notified of the deactivation of each of the assigned numbers that have been assigned individually to users directly.

Review of transfer

The prohibition of transfer (not including secondary and tertiary assignment) was specified by all countries except one.

Analysis of transfer

Although transfer is generally prohibited, it should be studied and discussed whether such transfer should be allowed when number portability between network operators and service providers is possible, in particular for golden numbers.

Ovum proposed to offer mechanisms for trading of right of use of numbers by the users (see Annex C).

Austel (see Annex D) undertook a public consultation on trading of right of use of numbers but has no regulation proposed yet. It believes that such trading requires well-defined rights of use of numbers, clear number portability rules and a clear understanding of constraints. Austel believes that to allow trading without an administrative support structure which identifies the rights of use of numbers would lead to chaos.

OECD (see Annex D) identifies the possibility of holding lotteries for primary allocations combined with a regulatory framework for trading of right of use of numbers.

ETO (see Annex C) proposes to define precise terms and conditions for rights of use of numbers for all parties. ETO clearly states that assignment only implies the granting of the rights of use of numbers. As numbers represent a public resource, numbers cannot be owned by any party. In addition, no intellectual or industrial property rights should be granted for a number or series of numbers. ETO is of the opinion that possibilities for transfer and trading of numbers become more important as the commercial value of numbers increases and number portability makes numbers independent of service provider, of location or, in a limited way, of services.

Review of network-specific telephone numbers

The use of network-specific telephone numbers is prohibited in most countries.

Analysis of network-specific telephone numbers

The use of network-specific telephone numbers requires the attention of the NPM as the network-specific scheme may interfere with the national scheme. Interference could occur either by having the same numbers identifying different objects or by conflicting information on services or tariffs in the designated number ranges of both schemes.

An example of the first case is when a mobile network uses 'local' numbers which don't have the first digit '0' for network specific services. These numbers do not interfere with a national scheme if this scheme is open and has '0' as the national prefix. If, however, it is decided to close the national scheme and delete the national prefix, then interference will probably occur. An example of the latter case of interference is that network-specific services compete with national services and become of such importance that numbering of network-specific services and national services would have to be harmonised. E.g. a network-specific freephone service using a service code that differs from the national freephone service code would cause user confusion.

Review of information obligation

Half of the countries have an information obligation towards the NPM, either by way of annual reports or at the request of the NPM.

Analysis of information obligation

Information obligation towards the NPM is necessary in order to control efficient usage of numbering resources. At the same time, this information helps the NPM to obtain a picture of present and future usage. Care should be taken that the information obligation does not place an undue burden.

Review of fees

Half of the countries have fees in all cases to cover management costs. The extent to which direct costs or indirect costs of numbering management or even costs of other NRA activities are covered differs between countries. The other countries have no fees or are still considering fees. One country has fees for 5-digit golden numbers, set to market demand.

The specified fees differ widely between the countries. Both annual fees and a combination of initial and annual fees are used. The annual fees are proportional to the number of numbers, except for telephone numbers in Switzerland and Finland for which the principle of 'the higher the number of numbers, the lower the fee per number' is followed. The annual fees per normal telephone number vary between approximately 0.01 ECU and 1 ECU. The fees for short telephone numbers are hard to compare because of the differences in types of short numbers. The fees per DNIC vary between approximately 1,500 ECU and 15,000 ECU.

Analysis of fees

The principle that fees for numbers can only be aimed at cost recovery is laid down by the EU (see Annex B) and also recommended by OECD (see Annex D). Fees for scarce resources may reflect the need to ensure the optimal use of these resources (see Annex B). According to OECD (see Annex D), it would be logical for the long term to consider a system of market-based assignment of golden numbers, the benefits of which would be better management and more efficient assignment of this resource. ETO (see Annex C) also recommends number pricing to regulate the use of scarce resources, in particular short numbers. According to ETO, the pricing should be left to the NRAs to decide.

Review of starting dates of activation

The timescales regarding the starting date of activation of allocated numbers are specified by half of the countries for telephone numbers and by a minority of the countries for DNICs. The timescales are expressed in the length of the period between the application and the expected start of activating numbers from the allocation. The timescales vary between countries from less than one year to about two years and with an average of about one year.

Analysis of starting dates of activation

It is difficult to generalise about the timescales. They should strike the right balance between certainty and preparation time for market parties on one side and efficient use of numbering resources on the other.

Activation should be well defined. A number is active when it has been implemented by the network operators and service providers to fully support the concerned service offering. The timescales should be considered in relation to the possibility of reservation preceding allocation and its function. A minority of countries do make reservations and do so for different reasons. A reservation may imply that allocation is made at the moment when activation is started, if within a certain time limit. In most countries, a reservation is not automatically followed by an allocation. In these cases, a separate application has to be made for allocation and the allocation should normally happen well in advance of activation in order to allow market parties the time to prepare for activation.

3.4.9 Withdrawal of numbers from assignees of primary assignment

Review

Primary assignments are made for an unlimited period of time in most countries. Almost all these countries have specified reasons for full or partial withdrawal of assigned telephone numbers or DNICs. The most commonly specified reasons are (from more to less commonly specified):

- certain usage conditions have not been fulfilled
- withdrawal required for effective use of numbers in the general interest
- certain reasons for which primary allocations can be refused have become applicable
- the expected start of activating numbers from the allocation has been delayed
- withdrawal required for state security reasons.

Occasionally the changing of the telephone numbering scheme involves the withdrawal of a considerable part of the active numbers and their replacement by new numbers. Most countries have specified the reasons for which such extensive changes can be made. These reasons are mainly to solve capacity shortage and, to a lesser extent, also to adapt to international harmonisation and to allow fair competition.

Only one country has specified a reason for the withdrawal of ISPCs.

Analysis

The reasons for withdrawal should be limited in number as far as possible and be as specific as possible in order to provide maximum certainty to market parties regarding continuity in the rights of use of assigned numbers.

Reasons for withdrawal regarding inefficient usage of numbering resources should be mentioned explicitly, in particular the deactivation of all numbers of an assignment and the low usage level of a number range which is used for secondary assignment. The minimum usage level of these number ranges may be defined, if feasible, e.g. a minimum percentage of the assigned numbers that should be active after a certain period of time.

As far as extensive telephone numbering scheme changes are concerned, the three specified reasons relating to capacity, competition and harmonisation may justify such changes. In all these cases, active numbers that are withdrawn should be replaced simultaneously by new numbers. The benefits should at least balance the societal costs, in particular the direct and indirect costs for the users, which may be very high.

Other reasons for changes should be avoided.

If assigned numbers are withdrawn, the assignee should be informed of the reasons for withdrawal and of the possibilities for appeal. The assignee should have sufficient opportunity to clarify its position before a decision on a withdrawal is taken.

3.4.10 Conditions for secondary and tertiary assignment

Review of conditions for secondary and tertiary assignment

Apart from prohibiting transfer of the right of use of numbers, some conditions for secondary or tertiary assignment have been specified by only a few countries. In particular, stress has been laid on the rights of users facing a telephone numbering scheme change to be provided with the parallel running of old and new numbers followed by recorded announcements to users calling an old number.

Analysis of conditions for secondary and tertiary assignment

It is obvious that secondary and tertiary assignment should comply with the national numbering plans. Not much extra is regulated in the field of secondary and tertiary assignment. Prohibition of transfer is an exception. Rights and obligations regarding the second and third stages in the assignment process should rather be left to market mechanisms as much as possible. It is generally accepted that some regulation is imposed to minimise inconvenience and disruption of the user of telephone numbers because of number changes and because of misdialling. In general, telephone number changes should be guided by the parallel running of old and new numbers and recorded announcements to callers of old numbers. There may be situations where a telephone numbering plan change is made overnight without harming the users. No parallel running is required then.

Austel (see Annex D) has specified in detail the conditions under which numbers that have been assigned to users, may be withdrawn or modified and what notice period and parallel running is required then.

4. Proposals on harmonised national numbering conventions

The main part of the proposals made in this chapter is based on the elements presented in the previous chapter. Discussions with ECTRA/PTN members have further shaped the proposals. Detailed proposals on ISPCs, made by an expert group under the guidance of the ECTRA/PTN, have been added and integrated with the main part.

The proposals offer a framework of guidelines for NRAs. The guidelines either indicate *what* should be regulated or state *how*. Further elaboration of details that are not suitable for harmonisation is left to the NRA.

The proposals comprise a framework of harmonised national numbering conventions concerning telephone numbers, DNICs and ISPCs with more details for ISPCs in particular.

The numbering conventions should fulfil the following criteria:

- they should facilitate transparent and non-discriminatory access to numbering resources
- they should take existing EU regulation² into account (see Annex B)
- they should allow room for national peculiarities, for flexibility over time and for case by case treatments
- they should allow room for leaving solutions to market mechanisms as much as possible
- they should be presented in a general framework which easily allows future extension of the numbering conventions to other types of numbers, names and addresses.

If a proposal is not applicable to all of these three types of numbers, this is explicitly mentioned.

The proposals on management aspects concern primary management by the NPM only, unless it is stated otherwise.

4.1 NRA responsibilities

EU policy requires that EU members ensure the availability of adequate numbers and that their assignment is objective, non-discriminatory, equitable, proportionate, timely and transparent. It further requires that NRAs control the national telephone numbering plans and that the assignment of telephone numbers is carried out by an independent body.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. The national numbering plans and the associated designated number ranges should be controlled by an NRA. Their administration should be carried out by an NRA or another national body independent of telecommunications organisations.

² See article 12 of the Directive 97/33/EC of the European Parliament and of the Council.

2. The national numbering plans and the associated designated number ranges should:
 - provide sufficient capacity in both the short term and the long term
 - enable fair and open competition
 - be in line with the relevant ITU-T Recommendations.

3. The management of the national numbering plan, consisting of the assignment of numbers to market parties, surveillance of usage and withdrawal of assigned numbers, should be controlled by an NRA.
 The management should be carried out by an NRA or another national body independent of telecommunications organisations. This body is here called a Numbering Plan Manager (NPM). If the national management process is divided up into a number of stages (primary and secondary/tertiary), the primary management should be carried out by the NPM, while the secondary and tertiary management are to be handled by market parties.

4. The management (primary, secondary and tertiary) should be carried out in an objective, non-discriminatory, equitable, proportionate, timely and transparent manner.

For ISPCs, in addition:

5. Requests to ITU-T for allocation of additional SANCs (Signalling Area/Network Codes) should be made when at least 75% of the ISPCs from the available SANCs have been assigned and there are indications that the available SANCs will not be sufficient to satisfy short term needs.

4.2 Consultation by NRAs

As consultation of market parties by NRAs on important numbering conventions issues is generally considered a prerequisite, ETO proposes that the following be included in the numbering conventions:

1. The NRA should consult all interested market parties or their representatives, e.g. by means of a consultation body, on important issues concerning numbering conventions and on large-scale withdrawals of assigned numbers by the NPM.

4.3 Publicity and appeal

EU policy requires transparency which implies publicity of rules. It explicitly requires NRAs to ensure publicity regarding the national telephone numbering plan. It seems to add to transparency if the national official gazette is used to make references to publications. In certain cases, ITU-T should be informed.

When executing an extensive telephone numbering scheme change, a well co-ordinated, intensive and timely communication to the public is considered very important.

It seems sensible to ensure that appeals against management decisions by the NPM can be made through a body independent of the NPM.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. Up-to-date information on the following items, if applicable, should be published in an appropriate manner:
 - the national numbering conventions, i.e. the national numbering plans, the full set of the associated designated number ranges, the rules for the administration and the rules for the management of the national numbering plan
 - the numbers assigned by the NPM and information on the concerned assignees and the usage conditions as far as this information does not contain commercially sensitive information or violates the privacy of the users
 - the status of each number, at least indicating whether the number is:
 - free
 - reserved by the NPM
 - allocated by the NPM
 - permanently unavailable (including the reason)
 - temporarily unavailable (including the reason and the period of unavailability).
 Reference should be made in the national official gazette to the manner in which the information is published.
2. Appropriate procedures should be laid down for appealing to an institution independent of the NPM against management decisions by the NPM.

For telephone numbers, in addition:

3. The publicity of a change in a substantial part of the active national numbers should be well co-ordinated and started timely, e.g. one and a half year in advance.

For ISPCs, in addition:

4. Notification to ITU-T of ISPC allocations and withdrawals should be made within one month. The notification should, apart from the ISPC assigned, contain the name of the applicant and a unique identity of the concerned signalling point (town and/or name). ITU-T should be notified of any change in the information provided before. This should happen within one month from the date when the change becomes apparent to the NPM.

4.4 Applications for primary assignment

The definition of applicants that are eligible to submit applications for primary assignment offers clarity to the market parties and prevents burdening these parties and the NPM with confusion and unnecessary applications.

To assess the application of an eligible applicant, the NPM has to ensure that the appropriate information is supplied by the applicant. Information requests by the NPM should not make unreasonable demands on the applicant or subject it to unnecessary commercial risk.

An applicant for DNICs should be obliged to inform the NPM about applications for DNICs that he may have made to other countries or ITU-T.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. Eligible applicants should be defined.
2. The information required to decide on an application should be defined. Additional information may be required depending on the specific application.
The required information should not place an undue burden on the applicant.

For DNICs, in addition:

3. An applicant should inform the NPM of any other DNICs or parts of DNICs which have been assigned to the applicant by another country or ITU-T or for which the applicant has an application to another country or ITU-T pending.

For ISPCs, in addition:

4. As a minimum the applicant shall provide the NPM with information which needs to be passed on to ITU-T. Additional information may be required by the Member State. See Annex H.

4.5 Primary assignment and the choice of numbers

The principle of ‘first come, first served’ is generally accepted for the assignment of numbers. When starting the assignment of numbers from a newly designated number range, a temporary selection procedure independent of the moment of receipt of an application could solve the problem of coinciding applications.

Applicants may benefit considerably from using particular telephone numbers. It merits meeting applicants’ requests for specific numbers within reasonable technical and administrative constraints. If the assignee is a user, then he should have the right to use numbers that are not frequently called by misdialling.

For ISPCs, the NPM should choose the specific ISPCs in such a way that SANCs are efficiently used. ISPCs should also have a dormant period before reallocation, to prevent confusion.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. Generally, the principle of 'first come, first served' should be applied.
2. When new number ranges become available by designation, then assignment of numbers from these ranges should be preceded by a certain period of time, e.g. two months, for which a selection procedure should be defined independent of the moment of receipt of an application.
This period may be preceded by another period in which no applications are accepted and during which trials could be made using the new numbers on a temporary basis.

For telephone numbers, in addition:

3. Applicants should have the right to indicate their preference for specific numbers. The NPM may have the right to decide differently.
4. If the assignee is a user, then he should have the right to use numbers that are not frequently misdialed. This implies that this user has the right to:
 - allocation of numbers that, after withdrawal, have not been active for a reasonable dormant period, e.g. half a year
 - change of allocated numbers if, after activation, they appear to be frequently misdialed and if there are no substantial constraints on making such a change.

For ISPCs, in addition:

5. For efficiency reasons, ISPCs are assigned in consecutive order across the available SANCs.
6. An ISPC that has been withdrawn should be dormant for about a year before it will be available for allocation again. The dormant period should start as soon as it becomes apparent to the NPM that the ISPC is not in use anymore.

4.6 Timescales for decision on applications for primary assignment

It is difficult to generalise about timescales. For reasons of transparency, timescales for deciding on applications should be laid down. The NPM should immediately notify an applicant of the reception of the application and of the timescales for deciding on the application.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. The time limit between receipt of an application and notification of the decision on the application should be laid down. For exceptional cases, the time limit may be extended. These cases and the associated extended time limit should be laid down.

2. On receiving an application, the NPM should, as soon as possible, acknowledge receipt and inform the applicant about either the decision or the timescale of the decision-making process.
If an extended timescale is applied, the NPM should state its reasons.

For ISPCs, in addition:

3. Notification of the decision on an application should be given within three months after receipt of the application.

4.7 Refusal of primary assignment

When assignment is refused, the applicant should be informed about the reasons for the refusal and about the possibilities for appeal.

Several reasons could be generally applied to prevent the waste of numbering resources. For ISPCs some detailed reasons for refusal should be stated to improve efficiency as countries experience scarcity of ISPC resources.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. When assignment is refused, the NPM should immediately inform the applicant about the refusal, the reasons for the refusal and the procedure for appeal against the refusal.
2. The reasons for which assignment can be refused should be laid down. These reasons should include the following:
 - the applicant is not eligible
 - the applicant has not provided all information required to decide on the application
 - previous relevant assignments to the applicant have not been sufficiently used
 - other adequate resources are available to the applicant
 - the applicant has not demonstrated an ability to comply with the usage conditions.

For ISPCs, in addition:

3. Assignment can be refused when the concerned signalling points are physically located outside the country. It should be the objective that ISPCs are used for signalling points within the country.

For ISPCs, in addition:

4. Assignment can be refused for efficiency reasons, e.g. to limit the number of ISPCs for the same signalling point to one. It is not advisable to assign an entire SANC unless all individual ISPCs within the SANC are required.
5. Assignment should be refused for non-existent nodes, but could be made on a temporary basis for test purposes.
6. Assignment should be refused if the applicant has not implemented or is not about to implement a signalling point having at least one Message Transfer Point (MTP) signalling relationship with other signalling points having ISPCs in the international signalling network.

4.8 Usage conditions after primary assignment

First of all, it should be clear that assignment only implies the granting of the rights of use of numbers. As numbers represent a public resource, numbers cannot be owned by any party. Other usage conditions should provide the tools by which the NPM can ensure efficient and effective use of numbering resources:

- The usage should conform to the intended purpose.
- The activation of numbers should occur within agreed timescales.
- The NPM should be informed of the usage and of changes in the provided information.
- According to EU policy, fees for numbers can only be aimed at cost recovery. However, fees for scarce resources may reflect the need to ensure the optimal use of these resources.
- Transfer of rights of use of numbers (not including secondary and tertiary assignment) is generally prohibited. Transfer may, however, be allowed and regulated in future.
- The use of network-specific telephone numbers should be limited by the NRA to the extent that the network-specific scheme may interfere with the national scheme.

For ISPCs, more specific rules should be added in order to control optimally the efficient use of the scarce resources.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. Assignment by the NPM should only imply the granting of rights of use of numbers. It should not be possible to grant intellectual or industrial property rights for a number or series of numbers.
2. The legitimate purpose of usage of assigned numbers should be laid down, e.g. by referring to the concerned national numbering scheme and the designated number ranges or to the application requirements.
3. The time limit for activation should be laid down.

4. The assignee should provide information to the NPM:
 - on the usage or the planned usage of the assigned numbers at the request of the NPM
 - on the date when all numbers of an assignment become deactivated, as soon as this becomes apparent
 - on the date when an individual number becomes deactivated that has been assigned directly to a user, as soon as the deactivation becomes apparent
 - on any relevant change that has occurred to the information provided earlier as soon as the change becomes apparent.

This information obligation should not place an undue burden on the assignee.
5. Any fees imposed by the NPM as part of the assignment should seek only to cover the administration and management costs. The fees for categories of assigned numbers should be proportionate to the work involved. Where scarce resources are to be used, in particular short telephone numbers, fees may reflect the need to ensure the optimal use of these resources.
6. The assignee should not transfer or trade assigned numbers without the sanction of the NPM so long as no appropriate regulatory framework for number trading has been put into place. An exception may be made for mergers, acquisitions and joint ventures, in which case the NPM should be notified.
Secondary and tertiary assignments are not defined as transfer or trade.

For telephone numbers, in addition:

1. The assignee should not use network-specific numbers that may cause interference with the national numbering plan. Interference occurs when network-specific numbers and national numbers are identical while identifying different objects or when information on services or tariffs in network-specific numbers conflicts with information in similar national numbers.

For ISPCs, in addition:

2. The signalling point should comply with relevant ITU-T Recommendations and relevant ETSI deliverables.
3. An allocated ISPC has to be activated within one year from the date of allocation.
4. Assigned ISPCs should be used efficiently.
5. When an assigned ISPC is no longer used, the assignee should inform the NPM within one month.

For ISPCs, in addition:

6. The assignee should inform the NPM of any change in the information provided earlier within one month.
7. The assignee should not sell, license or trade assigned ISPCs, except in the case of a merger, acquisition or joint venture.

4.9 Withdrawal of numbers from assignees of primary assignment

The reasons for withdrawal should be limited in number as far as possible and be as specific as possible in order to provide maximum certainty to market parties regarding continuity in the rights of use of assigned numbers. The costs of a withdrawal and the number changes involved should be carefully considered. These should include the costs for users, service providers, network operators, manufacturers and regulators.

Next to that, withdrawal of numbers may be needed to solve constraints in numbering capacity, to allow fair and open competition or to adapt to international harmonisation. In all these cases, active numbers that are withdrawn should be replaced by new numbers. Disruption of the user should be minimised, e.g. by the parallel running of old and new telephone numbers and by recorded announcements to callers of old telephone numbers.

If assigned numbers are withdrawn, the assignee should be informed about the reasons for withdrawal and about the possibilities for appeal. Before a decision on withdrawal is taken, the assignee should have sufficient opportunity to clarify its position.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. Assigned numbers should only be withdrawn for one or more of the following reasons:
 - a failure of the assignee in meeting one or more of the usage conditions
 - the usage level of a number range, which is used for secondary assignment, is low
 - all numbers of an assignment have become deactivated
 - an individual number assigned directly to a user has become deactivated
 - the need for numbering capacity, fair and open competition or international harmonisation, if withdrawal is in the interest of all market parties as a whole
 - state security.
2. Before any decision on withdrawal is taken, the overall societal costs of the withdrawal, the timescales and the number changes involved should be carefully considered.
3. When the NPM intends to withdraw assigned numbers, it should inform the assignee about its intention, the reasons and the timescales for withdrawal and the procedure for appeal against the withdrawal. The NPM should allow the assignee sufficient opportunity to respond and to clarify its position.

4. When active numbers are withdrawn, because of the need for numbering capacity, fair and open competition or international harmonisation, the assignee should have the numbers simultaneously replaced from previously assigned or newly assigned resources.

For telephone numbers, in addition:

5. When a change of active numbers is imposed by the NPM, the users of these active numbers should have the right to have the disruption minimised. There should at least be a period of recorded announcements to callers of old numbers, preceded, if suitable, by a period of parallel running of the old and the new numbers. Both periods should be reasonable, e.g. half a year.

4.10 Conditions for secondary and tertiary assignment

It is obvious that secondary and tertiary assignment should comply with the national numbering plans. Not much extra is regulated in the field of secondary and tertiary assignment.

The prohibition of transfer is an exception. Rights and obligations regarding the second and third stages in the assignment process are left to market mechanisms as much as possible. It is generally accepted that some regulation is imposed to minimise disruption of the user because of number changes and misdialling. Number changes should be guided by the parallel running of old and new telephone numbers and recorded announcements to callers of old telephone numbers. Frequently dialled numbers should be replaced.

Therefore, ETO proposes that the following be included in the numbering conventions:

1. Secondary and tertiary assignment should comply with the national numbering plans.
2. The following usage conditions for primary assignment should also apply to secondary and tertiary assignment:
 - Assignment should not imply transfer of ownership but should only imply the granting of the rights of use of numbers.
 - The assignee should not transfer or trade assigned numbers without the sanction of the assigning body so long as no appropriate regulatory framework for trading has been put in place. An exception may be made for mergers, acquisitions and joint ventures.

For telephone numbers, in addition:

3. If the assignee is a user, then he should have the right of use of numbers that are not frequently misdialed.

For telephone numbers, in addition:

4. When a change of active numbers is imposed by the assigning body, the users of these active numbers should have the right to have the disruption minimised. There should at least be a period of recorded announcements to callers of old numbers, preceded, if suitable, by a period of parallel running of the old and the new numbers.

4.11 Items for further study

The general nature of the structure of the preceding part of this chapter provides a basis for further study on numbering conventions for other types of numbers, names and addresses and elaboration of certain aspects. Three areas concerning the harmonisation of national numbering conventions have been identified for further study:

- X.400 and Internet names were already included in the questionnaire on the numbering conventions but have been excluded from the present proposals because of priority reasons. As a follow-up of the present study, X.400 and Internet naming and their interrelation should be addressed with high priority. X.500 directories are expected to become more important in the near future. It seems appropriate to include the impact of X.400 and Internet naming on X.500 naming in further studies.
- National Signalling Point Codes (NSPCs), Issuer Identifier Numbers (IINs), Mobile Network Codes (MNCs), Network Service Access Point (NSAP) addresses were already included in the questionnaire on the numbering conventions.
- Transfer of assigned numbers or names without the intervention of the NPM is generally prohibited at present. However, as the economic value of certain numbers and names gets increasingly recognised and the rights of use of these numbers and names by the users are increasingly made independent of service providers (portability), the possibility of transfer and trade would have to be reconsidered. Trading of Internet names is already practised today. The transfer issue will require further study to acquire a clear understanding of the constraints and of the conditions needed. The discussions in Australia regarding this issue could be taken into account.

Therefore, ETO proposes further studies in the areas noted below:

1. Harmonised national naming conventions for X.400 names and for Internet names, their interrelation and their impact on X.500 naming (high priority).
2. Harmonised national naming conventions for NSPCs, IINs, MNCs and NSAP addresses.

3. The possibilities of trading of numbers, names and addresses, its constraints and the required conditions.

Annexes

Annex A Work order

1. Subject: European Numbering Conventions

2. Purpose

This work requirement covers the work that the European Telecommunications Office (ETO) will conduct on behalf of ECTRA for the European Commission in the area of numbering of telecommunication services. This Annex defines the terms of reference for a study on European Numbering Conventions. Numbering Conventions are a set of rules and principles related to the use and management of national numbers within European countries. The main objective of this study is to prepare a comprehensive proposal for European Numbering Conventions that all CEPT countries could implement.

3. Justification

At present the rules and principles of number use differ from one European country to another. In most European countries no written rules exist which clarify the rights and responsibilities of the administrator, operator, service provider and user. Assignment, reassignment and withdrawal of numbers differ from one country to another and they are usually carried out according to the policy of the network operator in question. Rules on the modification of numbering plans, on number pricing and on number trading differ from country to country. In a competitive environment, in order to guarantee non-discriminatory and transparent access to numbering resources, it is important to define the basic rights of users, service providers, network operators and administrators. Establishing European Numbering Conventions creates a framework for minimum rights of market participants throughout Europe but does not prevent administrations, network operators and service providers from developing their customer services if they so wish.

4. Work requirement

- (1) to study current rules and principles of telephone number use in European countries
- (2) to study current rules and principles on the use of DNIC, X.400, and Internet addresses, Signalling point codes and Issuer Identifier numbers for the international telecommunication charge card in European countries.
- (3) to define issues to be included in European Numbering Conventions and to propose a structure for these Conventions
- (4) to prepare a detailed proposal for European Numbering Conventions.

5. Execution

Work will be carried out in close co-operation with the CEC, the ECTRA PT on Numbering and the European Numbering Forum.

The final report of the study shall be delivered to the CEC not later than 28 February 1997.

6. Deliverables

Two interim reports and one final report shall be delivered.

The first interim report shall be delivered during the course of the work, containing a review of current rules and principles of number use in European countries and a proposal for a structure of European Numbering Conventions.

The second interim report shall contain the draft findings and proposals as they will be submitted to CEPT/ECTRA for approval.

The final report shall contain the findings and proposals, as approved by CEPT/ECTRA and will include any comments individual CEPT/ECTRA members have on implementation in their respective national regimes.

All reports shall be made available in draft form one month before a liaison meeting at which results will be discussed and approval can be given for their release.

The Commission shall receive three copies of the interim reports, while the approved final report shall be made available in 15 bound copies, one unbound copy and one copy on floppy disk in Word for Windows V2.0 format. Graphics shall be made available on separate hard copies.

7. Manpower

It is expected that this task can be accomplished in 4 man-months at expert level including possible subcontracting.

8. Subcontracting

Subcontracts - totalling 1 man-month - may be given to external experts for the execution of parts of this contract.

Annex B EU regulation

According to Article 12 of the Directive 97/33/EC of the European Parliament and of the Council:

“Member States shall ensure the provision of adequate numbers and numbering ranges for all publicly available telecommunications services.”

“Member States shall ensure that national telecommunications numbering plans are controlled by the national regulatory authority, in order to guarantee independence from organizations providing telecommunications networks or telecommunications services and facilitate number portability. In order to ensure effective competition, national regulatory authorities shall ensure that the procedures for allocating individual numbers and/or numbering ranges are transparent, equitable and timely and the allocation is carried out in an objective, transparent and non-discriminatory manner. National regulatory authorities may lay down conditions for the use of certain prefixes or certain short codes, in particular where these are used for services of general public interest (e.g. freephone services, kiosk billing services, directory services, emergency services), or to ensure equal access.”

“National regulatory authorities shall ensure that the main elements of the national numbering plans, and all subsequent additions or amendments to them, are published in accordance with Article 14 (1), subject only to limitations imposed on the grounds of national security.”

According to Article 14 (1), “... national regulatory authorities shall ensure that up-to-date information is published in an appropriate manner in order to provide easy access to that information for interested parties. Reference shall be made in the national Official Gazette of the Member State concerned to the manner in which the information is published.”

“National regulatory authorities shall ensure that numbering plans and procedures are applied in a manner that gives fair and equal treatment to all providers of publicly available telecommunications services. In particular, Member States shall ensure that an organization allocated a range of numbers shall avoid undue discrimination in the number sequences used to give access to the services of other telecommunications operators.”

According to Commission Directives 90/388/EEC and its amendment 96/19/EC:

“Member States shall ensure ... that adequate numbers are available for all telecommunications services. They shall ensure that numbers are allocated in an objective, non-discriminatory, proportionate and transparent manner, in particular on the basis of individual application procedures.”

“Member States shall ensure that ... the assignment of ... numbers, as well as the surveillance of usage conditions are carried out by a body independent of the telecommunications organisations.”

Annex C Former recommendations to the Commission

OVUM

The English consultants Ovum has already made a number of recommendations to the Commission concerning numbering conventions in its report 'A Study on a Telecommunications Numbering Policy for the European Community' of June 1992. The study was conducted for the Commission. Some of these recommendations have been taken into account in present EU Directives. In the Ovum report, numbering mainly refers to telephony and to a lesser extent also to data services and telex.

Some of the relevant main points regarding telephone numbers are summarised below:

- There are certain functions which should not be delegated if the NRA is to control the NNS properly in the best interests of the state. These functions are:
 - decisions on principles underlying major revisions to the NNS
 - developing a vision of how the NNS will evolve long term, with due regard to international co-ordination
 - continuing the protection of end users and especially consumer interests in numbering, e.g. by ensuring adequate notice of number changes
 - resolution of numbering disputes between competitors.
- Functions concerning overall numbering plan management:
 - maintenance and publication of the up-to-date NNS
 - ensuring that minor NNS changes are planned and implemented in a manner acceptable to the public (e.g. with suitable notice before changes and recorded announcements after them)
 - forecasting demands for numbering space
 - periodic review of the NNS, ensuring timely action to expand capacity when necessary (deciding how best to proceed is likely to be a complex issue and to involve widespread consultation with industry and users).
- Member states should ensure that there is a mechanism for appeal against the decision of the NRA.
NRAs should ensure that mechanisms for appeal against the ruling of the allocator exist.
- Certain spaces of the NNS (such as the freephone numbers) will have considerable commercial value. NRAs will need to pay special attention to the rules used for allocating number blocks from within such spaces in order to ensure equal access for all relevant operators.

- Secondary assignment should be the responsibility of the operators concerned. The role of the NRA should be restricted to overseeing the process. Within this overall framework there are two key issues to consider: the price of golden numbers and number trading mechanisms whereby users exchange numbers. The operators should be free to organise the market for golden numbers and to offer number trading mechanisms to their subscribers.

Some of the relevant main points regarding DNICs are summarised below:

- DNICs should be allocated:
 - to data networks that (plan to) offer public data communication services between two or more users, and communications via other public data networks that have DNICs
 - to other types of public networks that are accessed through gateways from data networks with DNICs
 - to large private networks (establishment of criteria requires further study).
- To make the most efficient use of DNICs within Europe, the use of a DNIC should not be restricted to the country identified by the DCC. However, national administrations should not be obliged to allocate DNICs to networks that do not operate nodes within their country.

Some of the relevant main points regarding X.400 names are summarised below:

- Any organisation should be allowed to run an ADMD if:
 - providing or intending to provide a MHS service (MHS = Message Handling System) involving the operation of an MTA (Message Transfer Agent) in conformance to the X.400 series of ITU-T Recommendations
 - offering, or intending to offer, communication with other ADMDs and their subscribers.
- To facilitate the establishment of pan-European MHS and to enable users to use the name of their own country within their address, ADMD names should be unique throughout Europe and valid in combination with any Country Name in Europe so that they may operate in any European country.
- To facilitate competition between ADMDs and to enable the Single Space Convention to be adopted nationally if required, PRMD names that are used with national Country Names should be registered nationally, not with individual ADMDs.

Regarding NSAP addresses only the following was noted:

No action is needed for the address forms that are based on existing address structures because their assignment and registration methods are already established. However, there is a need to establish national registration authorities for the Data Country Code (DCC) format (as far as this has not happened already).

There could be an advantage in accelerating their establishment and linking this function to the duties of the NRAs.

ETO

ETO undertook a study for the Commission on 'Non-discriminatory access to Numbering Resources'. In its final report of 15 July 1996, ETO has already touched upon the topic of numbering conventions, in particular number ownership, number trading, assignment of telephony numbers and assignment of DNICs.

A few relevant main points are summarised below:

- Numbers should be regarded as a public resource to be administered for the common good by the State or the regulatory authority.
- Numbers should be considered as non-proprietary data to which no particular organisation, institution or individual can claim any ownership.
- Regulatory action is preferred to prevent possible abuses concerning rights of use of numbers. Subscribers should be informed about their rights of use. The easiest and most logical solution is to consider numbers as a public resource and to define precise terms and conditions for rights of use of numbers for all parties involved. An appeal procedure in case of complaints should be devised.
- Number pricing in relation to the assignment of numbers is recommended in order to cover costs of number administration and to regulate the use of scarce resources, in particular short numbers.
However, pricing should be left to the NRAs to decide upon.
- NRAs should have the right to refuse DNICs to applicants unless there is a clear technical benefit or no other reasonable alternative exists.

Annex D Non-European sources

Five non-European sources for aspects of numbering conventions for telephony have been considered:

- regulations of three countries: USA, Japan and Australia
- an OECD study on world-wide developments in regulation of numbering
- ITU Recommendation E.169 concerning the Universal International Freephone Numbers (UIFNs).

Developments that possibly occurred during this year have not been included.
The focus is on some remarkable aspects which could be interesting for the European case.

1 UNITED STATES OF AMERICA (USA)

The following information has been extracted from the ETO report on Non-discriminatory Access to Numbering Resources.

Numbering administration body

The North American Numbering Plan (NANP) covers the USA, Canada, Bermuda and 18 Caribbean nations.

The administrator of NANP is responsible for the assignment of numbers, pursuant to an application procedure on the part of operators, which is based on 'industry consensus procedures'. These procedures are demonstrated by the role of inter-industry groups, such as the Industry Numbering Committee and the Future of Numbering Forum, in determining numbering policy.

The responsibility for central number administration was given to Bellcore known in the industry as NANPA, short for NANP Administration. Bellcore (Bell Communications Research) is an entity wholly owned by the RBOCs (Regional Bell Operating Companies). NANPA assigns many of the resources under its control using industry-consensus assignment guidelines developed by the Industry Numbering Committee (INC), a standing committee of the Industry Carriers Compatibility Forum.

The Federal Communications Commission (FCC) has asserted plenary jurisdiction in numbering and maintains a strong interest in numbering issues. Since 1992, the FCC has carried out a public inquiry as to the future of the NANP, since ultimate regulatory authority over US telephone numbers rests in the hands of the FCC. In the meantime, Bellcore has indicated that it no longer wishes to administer the NANP. The FCC has, however, indicated that given the efficiency advantages of the internationally integrated numbering system, it

prefers to leave the NANP's administration, to the greatest extent possible, in the hands of a non-governmental entity, avoiding possible conflicts between national regulatory authorities.

Assignment

According to the present legislation, it is not legal to trade numbers.
There does not seem to be any systematic practice for the reassignment of numbers.

2 JAPAN

The following information has been extracted from the ETO report on Non-discriminatory Access to Numbering Resources.

Numbering administration body

The Ministry of Posts and Telecommunication (MPT) is the regulatory authority which administers Japanese telephone number assignment.

Primary assignment

Telephone numbers are divided into several segments, the first one or two of which indicate geographic, carrier and/or service codes. MPT administers the assignment of these codes to operators, who then assign numbers corresponding to the final number segment to subscribers. Assignment to service providers is generally based on each service provider's market share. Although NTT indicates that there is, in principle, a notion of transparency in the means of MTP assignment, no law is in force.

Secondary assignment

The assignment of numbers is carried out via secondary assignment by service providers to subscribers. NTT indicates that there is an element of subscriber choice involved in the assignment of numbers to subscribers. Three various choices are proposed to the subscriber for the final four digits (which indicate the individual subscriber rather than applicable technical codes).

Reassignment of numbers

Generally, numbers are not reallocated to subscribers by NTT until at least six months after their deactivation.
Service providers are not required to allow previous subscribers to oppose the reassignment of their deactivated number(s) and no relevant policy exists at NTT regarding this issue.

Modification of numbers by the allocator

Modifications of numbers allocated to operators must be decided upon by the MTP and operators acting together. It has been indicated that due to unused numbers and congestion in certain areas, discussions are currently taking place regarding an up-coming numbering system modification. Notice prior to number modification is set at between one and a half year and three years. This was reported in the Numbering Study Group Report, 16 May 1995.

Trading of numbers

The trading of numbers does not exist, as numbers are universally considered to be ‘common property’.

3 AUSTRALIA

The following information has been extracted mainly from the ETO report on Non-discriminatory Access to Numbering Resources. The final section is based on the OECD study which is further addressed in the next chapter.

Numbering administration body

AUSTEL (Australian Telecommunications Authority) is responsible for numbering issues in Australia.

Assignment

Austel has a legal responsibility to administer number assignment. Telecommunications numbers are regarded as a national resource and are not in any sense owned by any party to whom they are allocated. Operators, service providers and users who receive the numbers through the assignment process are deemed as holding rights of use.

There are three levels of assignment in Australia: Primary, secondary and tertiary assignment. Numbers are allocated to subscribers either via secondary or tertiary assignment. Assignment is carried out according to the internal policies of the operators and service providers. The three stages in the assignment process are as follows:

- *Primary assignment*
Numbers are first assigned by AUSTEL to individual operators and service providers.
- *Secondary assignment*
Numbers are allocated by operators and service providers to their subscribers from within their own allocated blocks.
- *Tertiary assignment*
Numbers may be allocated to subscribers by individuals or organisations having received

them through a secondary level assignment. For example, this would appear to be the case for value added service providers who make advantageous commercial arrangements with the operators that have received numbers by primary assignment. This would, most likely, interest small businesses that may not be eligible for being allocated blocks of numbers directly from AUSTEL. Some limitations exist regarding the manner in which allocated numbers may be used.

Reassignment

In Australia, there is generally a minimum of six months between the recovery and reassignment of a number. The period may be shorter in certain exceptions. In some instances, the number may immediately be reallocated to a new customer who, from that moment on, holds the rights of use to the number.

Subscribers must approve the reassignment of a number before the end of the six month period after the return of the number.

Withdrawal or modification

Allocators (including AUSTEL, operators and service providers) may only reclaim numbers which they have allocated for specific and limited reasons.

AUSTEL may recover numbers for the following reasons:

- under-utilisation of numbers allocated
- an assignment of numbers which is inconsistent with the National Numbering Plan
- a breach of the condition of assignment
- the carrier or service provider agrees to AUSTEL's recuperation of previously allocated numbers
- AUSTEL automatically recovers numbers when a service provider or carrier ceases operation.

Operators and service providers may only modify a number allocated to a subscriber under the following conditions:

- the National Numbering Plan prescribes a change of number
- the number modification avoids a problem of costly equipment replacement
- a number was allocated erroneously and may cause significant technical or administrative difficulties
- the subscriber requests a number change
- the operator or service provider demonstrates to AUSTEL an acceptable justification for the number change.

When operators and service providers change or recover numbers from subscribers, they are required to provide a notice period which is at least equivalent to the length of time the subscriber has used the number, but not necessarily longer than one year. Shorter notice periods may be provided in the following circumstances:

- the number is not in use
- an erroneous assignment was made
- the customer requests a number change
- the customer breaches the contractual terms for the use of the number or provision of telecommunication service

- the operator or service provider ceases to offer the category of service for which the National Numbering Plan prescribes the use of the number
- the customer does not subscribe within a reasonable period of time to the service for which the number was allocated
- a temporary assignment was made
- the operator or service provider demonstrates to AUSTEL that a shorter notice should be offered.

Operators and service providers are required to provide the subscriber with a transition period in which he/she shall have access to both the old and new numbers while the number is being modified, except where the modification was requested by the subscriber or where such access would involve unreasonable technical or financial costs.

Trading of numbers

There is currently no formal number trading system in Australia (October 1992)³. AUSTEL's belief is that trading of numbers requires:

- well-defined rights of use of numbers
- clear number portability rules
- a clear understanding of the technical and operational constraints that may exist, relating to the use of traded numbers.

Pressure is likely to be strongest in the area of premium/special numbers. However, there may be some demand for the trading of even "ordinary" numbers because of an organisation's or individual's attraction to a certain number.

If trading in numbers is accepted in principle, a number of issues may arise:

- what restrictions, if any, should be imposed on number ranges that can be open to trading
- what administrative support structures need to be implemented to support trading
- who should maintain these administrative systems
- who should pay for them?

AUSTEL says that to allow trading without an administrative support structure which identifies the rights of use of numbers would lead to chaos. An administrative system could introduce a form of certified title which would ensure that trading activities were not open to fraud.

In Australia, the tradability concept was addressed in a call for public comments. However, no regulations were proposed in the final draft of the national numbering policy. It is recommended that where the transfer of a number between organisations or individuals is planned, the affected organisations or individuals should obtain prior advice from the relevant operator or service provider implementing the transfer; transferability is possible according to the policies of operators and service providers, but it is not an automatic right of the subscriber.

³ Austel: Australia's Telephone Number Plan. A discussion paper on numbering administration issues, October 1992

Fee for assignment

The NRA in Australia in charge of the numbering plan, AUSTEL, has been considering the option of introducing market mechanisms in number assignment since 1992. If a charging mechanism is considered, then important questions arise: should the charge depend on the type of service these numbers are used for and should the charge depend on the type of user? Basic telephony services are not included but most other services using E.164 numbers are. AUSTEL's policy applies to secondary (and tertiary) allocators, that is to operators and service providers who make individual assignments to their customers, and gives them the right to decide the level and method of charges. It is also considered to exempt non-commercial users from charges or to have them pay a nominal fee only.

4 OECD

OECD has prepared a world-wide review of economic and regulatory aspects of telecommunication numbering, with particular attention to telephone numbering. The review signals that the rise of new services and the advent of competition have given a significant economic dimension to telecommunication numbers.

The following has been extracted from the OECD study⁴

Numbering administration body and consultation body

The establishment of a consultative body that would represent all 'users' of numbering resources - that is, industry, network operators, service providers, major user groups and government agencies - is seen as a prerequisite. Its establishment could compensate for both the need for long-term planning of numbering resources and the fact that numbering should be treated as a national resource and, thus, wider consultation from all parties concerned is necessary.

A mixture of wider public consensus on numbering issues, with a more centralised administration provided by a state agency, seems the most appropriate method for a fair and equitable organisation of numbering space. The state, being the owner of the resource, could perform co-ordinating and regulatory functions such as number assignment and provision of rights of use of numbers, while a separate consultative body could undertake all the planning and management functions.

⁴ The Economic and Regulatory Aspects of Telecommunication Numbering. Committee for Information, Computer and Communications Policy, OECD

Economic value of numbers

Numbers have commercial value, in particular for corporate users of telecommunications services and for the providers of these services and network operators. Telecommunication numbers are increasingly being used as primary marketing tools, as the rise of freephone and premium rate services show us. Alphanumeric dialling will further add to the value of particular numbers. Apart from the particular number, the value of a number will also depend on the type of service for which it is used.

Easily memorable numbers and numbers with particular significance to users are a scarce resource.

At the same time, there are no charging mechanisms to recover the intrinsic value of the so-called golden numbers or special numbers. The above mentioned raises concerns about whether establishing a market for certain numbers or number ranges would be useful in raising awareness of the economic value of these numbers and promoting efficient use of numbers.

Fees for assignment

The regulatory and management functions regarding numbering resources involve considerable administrative costs that should be shared equitably by all users of numbers. Several methods may be proposed for cost recovery. Cost-based fees are preferred. Market-based methods such as a tender process or a public auction should not represent the best option to follow, since increase in Government revenues is not the objective. Moreover, the introduction of financial criteria in the assignment of ordinary numbers addressed to the wider public is contradictory to the idea of numbers being a public resource.

For the long term, it would be logical to consider a system of market-based assignment of golden numbers, the benefits of which would be better management and more efficient assignment of this resource. Such market mechanisms could be a tender process, an auction or a lottery. In a tender process it is expected that the regulator defines the parameters to be respected by the candidates and awards the contract to the bidder that complies best with the pre-defined specifications. In an auction system, golden numbers would be allocated to those who can afford and are willing to pay the highest price.

Lotteries do not necessarily lead to revenues for the State. They may however contribute to the creation of a secondary market where substantial capital gains could be derived from number trading between ‘winners’ and ‘losers’.

Irrespective of the method chosen, any market-based approach should be accompanied by a proper regulatory framework. Yet, many matters still need to be clarified.

5 ITU

A special case is the assignment of individual Universal International Freephone Numbers (UIFNs) by the Telecommunication Standardisation Bureau (TSB) of ITU-T. TSB acts as a registrar. The assignment process has been laid down in ITU-T Recommendation E.169. It concerns a single-stage process.

The relevant items are described in the following section.

Numbering administration and publishing

The TSB is administering a single pool of UIFNs in a single database. The database requirements include an entry for each UIFN, the status of the UIFN and, if applicable, the IFS customer name and the applicant. Only the number status can be viewed on-line by applicants. A list of allocated UIFNs is published.

Eligibility for application

Each service provider being a Recognised Operating Agency (ROA) can apply for a UIFN on behalf of his IFS customer. A 'ROA' is defined in the Annex of the ITU Constitution (Geneva 1992) and is actually subject to authorisation by national administrations. National administrations may, as a national matter, choose to co-ordinate applications from their ROAs, or to be the applicant on behalf of the ROA's IFS customers.

Handling of applications

The IFS customer should use the International Freephone Service (IFS) in two or more countries.

The customer is given the freedom to choose the digits to form a particular UIFN that suits his purpose.

Each application for one UIFN may contain a list of up to 10 specified UIFNs in order of priority to indicate the preferences of the customer.

UIFNs are reserved on a first-come-first-served basis. Response is within two working days of receipt of the application.

The ageing period is six months, which means that a previously allocated UIFN remains idle for a period of six months before being reallocated.

UIFNs can only be allocated to IFS customers committed to implement the UIFN within 90 days of reservation. UIFNs are reserved until the applicant notifies TSB that the UIFN has been implemented (90 days maximum).

Start-up Phase

In the start-up phase, the acceptance of applications should be announced 90 days in advance. The reservation should start 60 days after starting acceptance of applications. Applications received during these first 60 days should be considered to have been received simultaneously. When more than one applicant applies for the same UIFN at the same time, priority is given to the IFS customer embedding the entire subscriber number of his existing national freephone number in the requested UIFN. In case two duplicate applications both concern the embedding mentioned, priority is given to the national freephone number that has been in use from before 1 December 1994.

Assignment conditions

UIFNs are allocated under the following conditions:

- use of UIFNs must be in conformance with E.169
- UIFNs should be portable, giving the IFS customers the ability to retain their UIFNs when changing service provider
- UIFNs may not be sold, licensed or traded, nor may they be transferred except in the case of a merger, acquisition or joint venture
- the assignment does not create an ownership interest, right or claim to the UIFN
- IFS between two countries
- any change in the information originally provided with the application, should be notified to the TSB.
- payment of initial fee of 200 Swiss Francs per UIFN to cover administration costs.

Withdrawal

Any violation of the assignment conditions by the IFS customer or IFS service provider of a UIFN will result in the TSB reclaiming the allocated UIFN.

Annex E List of definitions

The following definitions are for use in this report only:

- Activation: Activation is the implementation of numbers by network operators and service providers so that the concerned telecommunications service is fully supported. In other words: putting into service.
- Administration: Administration of the national numbering plan is the establishment and change of numbering conventions. It entails the regulatory activities on the higher level (policy making).
- Allocation: Allocation is the granting of the rights of use of numbers from designated number ranges to individual network operators, service providers or users.
Allocation does not imply granting of ownership. Numbers can never be owned by any party as they are considered a public resource.
An individual allocation may be preceded by a reservation of numbers for the allocation.
Allocation generally refers to an activity but could incidentally indicate the allocated set of numbers and the attached conditions itself.
- Assignment: Assignment is the total of allocation and preceding reservation of numbers for allocation.
If no reservation is made, assignment is equivalent to allocation.
Assignment generally refers to an activity but could incidentally indicate the assigned set of numbers and the attached conditions itself.
- Designation: Designation of number ranges is the defining of the structure and the type of usage of these number ranges. These number ranges comprise area codes for certain geographic areas, service access codes for types of non-geographic services and special codes.
Designation makes the number ranges available for assignment.
Designation is extensively made for telephone numbers but is straightforward for other types of numbers, names and addresses.
Designation generally refers to an activity but could incidentally indicate the designated number ranges and the attached conditions itself.
- Management: Management of the national numbering plan consists of:
- assignment of numbers from designated number ranges
- surveillance of usage of assigned numbers
- withdrawal of assigned numbers.
It entails the regulatory activities on the lower level (executing the established policy).

National numbering plan:

The national numbering plan is a scheme based on a common global numbering plan containing information regarding at least the following aspects:

- the structure of the national numbers, i.e. the possible subdivisions of the numbers and the length of each subdivision
- the division into geographical numbers, non-geographical numbers and short codes
- the categories of services or geographic areas for which the first digit of the national numbers has been designated
- the dialling plan, i.e. the numbers that may be dialled to reach a destination that is identified by a national number.

The plan may also contain more detailed information such as a list of designated number ranges, e.g. service access codes with the associated types of geographic services, area codes with the associated geographic areas and special codes.

This extensive definition is mainly applicable to telephone numbers. The national numbering plan for other types of numbers, names and addresses is straightforward.

An equivalent term is ‘national numbering scheme’.

NPM:

The NPM (Numbering Plan Manager) is a national body that carries out the national numbering plan management.

The NPM can only be called an NRA if formally recognised as an independent body by the state.

NRA:

The NRA (National Regulatory Authority) is an independent national body that has formally been recognised as such by the state and that could regulate or perform tasks regarding numbering.

Numbering conventions:

Numbering conventions consist of:

- national numbering plans
- types of usage for designated number ranges
- rules for administration
- rules for management.

Primary assignment:

Primary assignment is the assignment of numbers by the NPM to individual network operators, service providers or users.

Secondary assignment:

Secondary assignment is assignment of numbers by market parties to their customers following primary allocation of these numbers.

Tertiary assignment:

Tertiary assignment is assignment of numbers by market parties to their customers following secondary allocation of these numbers.

Annex F List of abbreviations

CEPT	European Conference of Postal and telecommunications Administrations
DNIC	Data Network Identification Codes
ECTRA	European Committee on Telecommunications Regulatory Affairs
ECTRA/PTN	ECTRA Project Team on Numbering
ECU	European Currency Unit
ENF	European Numbering Forum
ETO	European Telecommunications Office
ETSI	European Telecommunication Standardisation Institute
ETSI/NA	ETSI Numbering, Naming and Addressing
EU	European Union
IIN	Issuer Identifier Number
ISPC	International Signalling Point Code
ITU	International Telecommunication Union
ITU-T	ITU Standardisation Sector
MNC	Mobile Network Codes
NPM	Numbering Plan Manager
NRA	National Regulatory Authority
NSAP	Network Service Access Point
NSPC	National Signalling Point Code
OECD	Organisation for Economic Co-operation and Development
SANC	Signalling Area/Network Codes

Annex G Bibliography

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- 4) Final Report on Non-discriminatory Access to Numbering Resources. ETO, Copenhagen, 15 July 1996.
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- 7) The Economic and Regulatory Aspects of Telecommunication Numbering. Committee for Information, Computer and Communications Policy, Organisation for Economic Co-operation and Development (OECD), Paris, 1995 (OCDE/GD(95)117).
- 8) ITU-T Recommendation E.164: The International Public Telecommunication Numbering Plan. Draft approved by ITU-T SG2 on 30 May 1997.
- 9) ITU-T Recommendation X.121: International Numbering Plan for Public Data networks, (09/92), Geneva, 1993. (At that time ITU-T was still named CCITT.)
- 10) ITU-T Recommendation Q.708: Specifications of Signalling System No. 7 (03/93), Geneva, 1994.

Annex H Information required for ISPC assignment

Additional information that may be required by the NPM for ISPC assignment:

- Contact person
- Nature of use in the network (tick 'O' for one or more functions):
 - STP (Q.704) (Signalling Transfer Point)
 - SEP (SP without STP function) (Q.700) (Signalling End Point)
 - SCCP relay (Q.714) (Signalling Connection Control Part)
 - ISC (International Switching Centre)
 - GMSC (Gateway Mobile Switching Centre)
 - LR (Location Register)
 - OMC (Operation & Maintenance Centre)
 - SCP (Service Control Point)
 - SSP (Service Switching Point)
- Signalling point manufacturer/type
- Physical address of the signalling point
- Date of "in-service" of the signalling point (month.year)
- Identify at least one planned signalling relationship
 - name and address of distant signalling point operator
 - location of distant signalling point
 - ISPC of distant signalling point, if known

Annex I Comments from ENF members