



Electronic Communications Committee (ECC)  
within the European Conference of Postal and Telecommunications Administrations (CEPT)

## **PRINCIPLES RELATED TO NUMBERING PLANS FOR SMS SHORT CODES**

**Vienna, March 2006**

## EXECUTIVE SUMMARY

Short Message System (SMS) is a messaging system available in mobile networks and increasingly also in fixed networks. SMS is a standardised service which allows the transmission of messages. In the initial stages of development of the messaging market, text messages were sent exclusively between mobile phone subscribers, and between the internet and mobile phone subscribers, using public mobile numbers (E.164 numbers) from national numbering plans. In subsequent stages, businesses started to offer value-added services based on SMS to end users, usually at a higher charge than normal SMS (VAS SMS). The most popular VAS SMS applications include downloading of ringing tones, voting, and sports information. M-commerce applications – for example, paying a parking meter – have also started to emerge using SMS. In addition to subscription services there are premium rate SMS services where the user pays for the outgoing SMS message.

This report assesses the need for the creation of a transparent and equitable (regulatory) framework for the management of short codes used for SMS services and especially for VAS SMS codes, and guidelines for such numbering policies. Guidelines will have the form of an ECC Recommendation.

The report found that the main problems in the current VAS SMS market situation are:

- 1) the unequal access for third party content providers to enter the (national) VAS SMS market and
- 2) a generally inadequate level of consumer protection.

In order to solve the above mentioned problems, the following is recommended:

1. NRAs should have the final responsibility over the SMS numbering plan;
2. Consumer protection should be taken into account where short codes are used for VAS SMS services. NRAs should consider in cooperation with all stakeholders defining a national SMS numbering plan for SMS short codes;
3. NRAs to consider whether part of the administration, management and assignment of the SMS resources is delegated to network operators or to a neutral body distinct from the NRA or to a separate body where all market parties are represented;
4. NRAs to consider, whether a part of the number range(s) included in a numbering plan is allocated to network specific services and if so to consider appropriate restrictions to the use of these codes;
5. NRAs to consider a structure of such numbering plan that serves consumer protection, suited to their respective national situations, including:
  - a. the creation, in cooperation with market parties, of a mechanism for tariff announcements, based on legislation or self-regulation;
  - b. the creation, in cooperation with market parties, of a mechanism for adequate and flexible barring of incoming and outgoing messages, based on legislation or self-regulation;
  - c. possible inclusion in a numbering plan of tariff and/or content information, based on the leading digit(s) in these numbering ranges, which may facilitate barring of SMS messages;
6. NRAs to consider the stimulation of access, interconnectivity and interoperability regarding SMS services between networks using resources from a national numbering plan not allocated to network specific services;
7. NRAs to consider, in applicable situations, the stimulation of the portability of short codes for SMS services using resources from a national numbering plan not allocated to network specific services.

## INDEX TABLE

<b>1</b>	<b>INTRODUCTION.....</b>	<b>5</b>
<b>2</b>	<b>AIM AND STRUCTURE OF THIS DOCUMENT.....</b>	<b>6</b>
<b>3</b>	<b>LEGAL AND POLICY BASE FOR NRA INVOLVEMENT .....</b>	<b>7</b>
3.1	EU DIRECTIVES .....	7
3.2	IRG MMWG DOCUMENT: A STUDY ON VAS SMS.....	7
3.3	ETO: HARMONISATION OF SHORT CODES IN EUROPE (1998).....	8
3.4	ETO: HARMONISED NATIONAL CONVENTIONS FOR NAMING AND ADDRESSING (1999).....	8
3.5	CONCLUSIONS.....	9
<b>4</b>	<b>RISKS AND POSSIBLE TYPES OF PROBLEMS.....</b>	<b>9</b>
4.1	ACCESS, INTEROPERABILITY OF SERVICES AND NUMBER PORTABILITY .....	9
4.1.1	<i>Concept of interoperability.....</i>	<i>9</i>
4.1.2	<i>Unequal access for third party content providers.....</i>	<i>11</i>
4.1.3	<i>Need of multiple arrangements by service providers.....</i>	<i>11</i>
4.1.4	<i>Routing/billing .....</i>	<i>12</i>
4.1.5	<i>Number portability.....</i>	<i>12</i>
4.2	NON-DISCRIMINATORY ACCESS TO VAS SMS RESOURCES .....	12
4.3	GENERAL ISSUES RELATED TO ADMINISTRATION OF VAS SMS NUMBERING RESOURCES .....	12
4.3.1	<i>Protection and management of scarce resources .....</i>	<i>13</i>
4.3.2	<i>Misdialling .....</i>	<i>13</i>
4.3.3	<i>Transparency of number assignment.....</i>	<i>13</i>
4.3.4	<i>Possible future harmonisation at a European level.....</i>	<i>13</i>
4.4	CONSUMER PROTECTION.....	13
4.4.1	<i>Tariff transparency .....</i>	<i>13</i>
4.4.2	<i>Prevention abuse.....</i>	<i>14</i>
4.4.3	<i>Protection against certain types of content (only for subscription services).....</i>	<i>14</i>
4.4.4	<i>Access to services (only for subscription services).....</i>	<i>14</i>
4.4.5	<i>Complaint handling and consumer redress.....</i>	<i>14</i>
<b>5</b>	<b>NOTES ON CURRENT STATE OF IDENTIFIED PROBLEMS .....</b>	<b>14</b>
5.1	IRG: A STUDY ON VAS SMS .....	14
5.2	MARKET VIEWS ON CURRENT PROBLEMS .....	15
5.2.1	<i>Interoperability of VAS SMS services and number portability.....</i>	<i>15</i>
5.2.2	<i>Non-discrimination in assignment of VAS SMS codes.....</i>	<i>15</i>
5.2.3	<i>Administration of VAS SMS numbering resources.....</i>	<i>15</i>
5.2.4	<i>Consumer protection.....</i>	<i>15</i>
5.3	CONCLUSIONS.....	16
<b>6</b>	<b>THE ROLE OF A NUMBERING PLAN.....</b>	<b>16</b>
6.1	MAIN POLICY OPTIONS AND THEIR MUTUAL RELATIONS .....	16
6.2	CONCLUSIONS ABOUT THE ROLE OF A NUMBERING PLAN.....	17
<b>7</b>	<b>FRAMEWORK FOR A VAS SMS NUMBERING POLICY .....</b>	<b>17</b>
7.1	THE LEVEL TO WHICH NRAS SHOULD HAVE CONTROL OVER VAS SMS NUMBERING RESOURCES .....	17
7.2	A BASIC STRUCTURE OF A NUMBERING PLAN .....	18
<b>8</b>	<b>ACCESS AND INTEROPERABILITY .....</b>	<b>19</b>
8.1	NEED FOR NRA ACTION ON INTEROPERABILITY .....	19
8.2	LEGAL ENFORCEMENT OF INTEROPERABILITY.....	20
8.3	CONCLUSIONS.....	21
<b>9</b>	<b>NUMBER PORTABILITY.....</b>	<b>21</b>
<b>10</b>	<b>CONSUMER PROTECTION .....</b>	<b>22</b>
10.1	POSSIBLE MEASURES.....	22

<b>10.1.1</b>	<i>Tariff transparency</i> .....	22
<b>10.1.2</b>	<i>The protection against certain types of content</i> .....	23
<b>10.1.3</b>	<i>Barring facilities</i> .....	23
<b>10.2</b>	CONCLUSIONS .....	23
<b>11</b>	CONCLUSIONS AND RECOMMENDATIONS .....	24
<b>11.1</b>	CONCLUSIONS .....	24
<b>11.2</b>	RECOMMENDATIONS .....	24
<b>12</b>	GLOSSARY AND LIST OF ABBREVIATIONS .....	25
	ANNEX A: TECHNICAL OVERVIEW SMS AND MMS .....	27
	ANNEX B: SUMMARY ON COUNTRY SPECIFIC INFORMATION FOR NUMBERING FOR SMS SC .....	28

## Principles Related to Numbering Plans for SMS Short Codes

### 1 INTRODUCTION

The Project Team on Short Codes (PT SC) of the Working Group of Numbering, Naming and Addressing (WG NNA) of the ECC, established at the September 2003 NNA meeting, focuses on the topic of short codes<sup>1</sup> that are used with telecommunication services. It investigates existing arrangements to manage the numbering and addressing resources used for SMS services such as Value Added Service Short Message Service (VAS SMS), the Multimedia Messaging Service (MMS), services based on unstructured supplementary service data (USSD), and resources used within international inbound roaming services. These services have in common that they can be accessed by short codes. In this context the code is short if it is up to 6 digits long.

The background of this activity forms the fact that consumer-related problems tend to occur in more and more European countries because of a lack of coordination of the management of the short numbers used for the concerned services between different operators or between countries. Another aspect is that competition issues give rise to concerns as the involvement of third party service providers – requiring access to the market via access to networks – who offer services on these platforms is growing. The mentioned issues are examples and more issues are involved.

From the services which fall within the scope of PT SC, VAS SMS is an application where the mentioned issues are most visible at the moment. Several CEPT countries have expressed an urgent need on guidelines for any NRA involvement regarding the numbering of SMS.

SMS, and its future successor the MMS<sup>2</sup>, are messaging systems available in mobile networks and possibly in the near future also in fixed networks (an increasing number of fixed network operators are also starting to offer basic SMS communication services to their customers). SMS is a standardised service which allows the transmission of messages. In the initial stages of development of the messaging market, text messages were sent exclusively between mobile phone subscribers, and between the internet and mobile phone subscribers, using public mobile numbers from national numbering plans. In subsequent stages, businesses started to offer value-added services based on SMS to end users, usually at a higher charge than normal SMS (VAS SMS). VAS SMS comprise: a) electronic communication services of which price per message of these services normally exceeds the basic SMS tariffs, and b) non-electronic communication services provided in combination with a SMS service, offered by third parties that are normally billed by a network operator. The information provided by these services is supplied on request or periodically as part of a subscription. The most popular applications include downloading of ringing tones, voting, and sports information. M-commerce applications – for example, paying a parking meter – have also started to emerge using SMS. In addition to subscription services there are premium rate SMS services where the user pays for the outgoing SMS message. An example of the latter is voting services.

In many European countries SMS numbering is not part of national numbering policy. A consequence is that in many cases operators have created their own network-specific numbering plan for SMS codes. The length of these codes is most commonly 3-5 digits. Initially, operators assigned these numbers to content providers independently of each other while the scope of the use of these codes remained network-specific. In some countries operators tend to coordinate the use of SMS number resources more, but these initiatives are limited. Insufficient coordination between different operators leads to a situation in which a single SMS content provider may not be accessible from each SMS platform or, if he is, not from all platforms with the same number. In many countries, therefore, a need has been identified for coordination of the assignment of these codes in order to prevent different network-specific numbers being assigned by different operators for the same service.

This report tries to assess in an objective way – from the viewpoints of all actors involved – the need for the creation of a transparent and equitable (regulatory) framework for the management of short codes used for SMS, and, if so, guidelines for such numbering policies. It reflects work of the PT SC up to now, incorporating the information gathered during 2003 and 2004 from field research and consultations. One of its pillars is an extensive ECC market consultation carried out in 2004 among all kinds of actors involved in the market for SMS.

Already in some European countries – e.g. Finland and Ireland – the use of SMS short codes is regulated in a formal way by the NRA. In Ireland this was the result of such request from both service providers and network operators. In other

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<sup>1</sup> Although the term "code" is preferred, also the term "number" may sometimes be used in this report. Both terms are, in the context of this report, synonyms.

<sup>2</sup> See Annex A for a technical overview of SMS and MMS.

European countries, existing SMS numbering arrangements were introduced without any consultation or explicit authorisation from NRAs. A common European approach seems therefore now opportune.

## 2 AIM AND STRUCTURE OF THIS DOCUMENT

This report tries to assess in an objective way the need for the creation of a transparent and equitable (regulatory) framework for the management of short codes used for VAS SMS codes, and, if so, guidelines for such numbering policies. Guidelines will have the form of an ECC Recommendation.

In this context the code is short if it is up to 6 digits long, following ECC Decision 04-07. That decision particularly refers to diallable numbers but there is no reason to make a distinction in this respect between voice services and messaging services.

Where in this report the term VAS SMS numbering resources is used, short codes are meant. More explicitly, conclusions and recommendations in this report are not applicable to cases in which other numbering ranges (like E.164 numbers) than short numbers are used for VAS SMS (e.g. in Austria). The reason for this is that in such cases the (problem) issues identified for the use of VAS SMS short codes are not the same or are less severe. Normally in such cases the regulatory regime for E.164 numbers applies also to VAS SMS.

The scope of the report is restricted to SMS and does not include MMS numbering. The naming and addressing schemes for MMS applications differ significantly from SMS numbering. A VAS SMS service is accessed by a number (either an E.164 number or a network specific number e.g. a short code). A MMS service can be accessed either by a E.164 number but probably also by other types of identifiers. There is at the moment, uncertainty about what kind of numbering scheme will be used when the service further develops. Nevertheless, the same kind of issues identified for VAS SMS numbering are valid for MMS numbering. Therefore MMS numbering will be monitored and will possibly subsequently addressed by NNA.

The structure of this report is as follows:

First of all, the report takes a look at the title for NRAs to be involved in SMS numbering, both from a legal and policy perspective (chapter 3).

Then in chapter 4 an analysis is provided of potential problems that (may) occur when VAS SMS numbering resources are not coordinated properly. Four main potential problem areas that impact on the various players in the VAS SMS market are identified, and these form the basis for the structure of the remaining part of the report:

- a) Interoperability of VAS SMS services and number portability;
- b) Non-discriminatory access to VAS SMS resources;
- c) General issues related to administration of VAS SMS numbers;
- d) Consumer related problems.

Subsequently, in chapter 5 a look is taken at current practice and it is investigated to which extent the identified problem areas are occurring at the moment. Views of market parties are taken into account.

Then the report turns in chapter 6 and further chapters to policy options as an answer to the issues identified. In chapter 6 it is investigated which main options are feasible in this context and how they relate to each other; the focus here is what the role of a numbering plan would be. The term “numbering plan” which is often used in this report, refers to the situation that (part of) the numbering resources used for VAS SMS are nationally coordinated, either by an NRA, by a neutral body distinct from the NRA or by market parties themselves, directly or via a separate body where those parties are represented.

In the chapters thereafter, these main options, related to respectively the administration of VAS SMS short codes, interoperability and number portability, and consumer protection, are discussed in more detail. For each of these policy options cost and benefit elements are put in place.

The final chapter includes the main conclusions.

### 3 LEGAL AND POLICY BASE FOR NRA INVOLVEMENT

#### 3.1 EU Directives

Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a *common regulatory framework for electronic communications networks and services* (Framework Directive) is strongly relevant for the numbering of VAS SMS. Consideration 20 states that access to numbering resources on the basis of transparent, objective and non-discriminatory criteria is essential for undertakings to compete in the electronic communications sector and that all elements of national numbering plans should be managed by national regulatory authorities. According to Article 10.1, Member States must ensure that:

- NRAs control the assignment of all national numbering resources and the management of the national numbering plans;
- Adequate numbers and numbering ranges are provided for all publicly available electronic communications services;
- NRAs establish objective, transparent and non-discriminatory assigning procedures for national numbering resources.

National numbering resources are the domain of Member States. VAS SMS numbering resources can be regarded as national numbering resources, even if they are used for access to services that are not provided through all electronic communication networks in a country but through a smaller number of networks or one network only. Therefore Article 10.1 gives a strong basis for NRAs to take (co)responsibility of the coordination of VAS SMS numbering. The fact that VAS SMS is not a pre-defined relevant market by the European Commission, does not prevent that normal competition rules can be applied.

In addition to the Framework Directive, also the Authorisation Directive and the Access Directive may be of relevance but this is restricted to interoperability issues that are related to the policy options mentioned in this report.

#### 3.2 IRG MMWG Document: A study on VAS SMS

The report presents *A study on Value Added SMS* (VAS SMS) carried out by the IRG Mobile Market Working Group (MMWG) in March/April 2003 by means of a questionnaire (IRG = Independent Regulators' Group). The study was broadly focused on:

- The VAS SMS Market
- VAS SMS end-user practices
- The VAS SMS numbering framework
- Revenue sharing agreements between players in the VAS SMS market

Some relevant conclusions on the SMS market are:

- No legal definition for VAS SMS exists across Europe.
- Many governmental bodies can be involved in the regulation of VAS SMS services. These range from consumer interest bodies to competition authorities.
- The regulation of VAS SMS numbers is varied.
- The management of VAS SMS number ranges is done by mobile network operators (MNO) in many countries. In some countries MNOs and other relevant parties coordinate the usage of VAS SMS numbers.
- SMS services (not VAS SMS) on the fixed network are offered in some countries.

The IRG study recommends that NRAs continue to promote end-user practices that increase:

- Transparency of the VAS SMS service to the end-user, e.g. code of practice, agreed tariff structure, advertising and promoting standards
- Protect end-users, e.g. by advertising and promoting standards, complaint handling procedures, code of practice, the availability of VAS SMS barring etc.

In order to increase the transparency of VAS SMS services to end-users the following widely-used practices are recommended:

- End-user mobile telephony numbers should be differentiated from end-user numbers used for VAS SMS services. VAS SMS services should be offered via a unique 4-5 digit number range or premium rate numbers.
- Adult entertainment type services should be separated into own number range.

- VAS SMS numbering should be coordinated by NRAs or other bodies responsible for numbering administration in each country, for example in the national numbering plan. Tariff transparency in particular should be addressed in such co-ordinated plans.

It is recommended that NRAs encourage practices between MNOs and other players in the VAS SMS market that promote increased services and competition in the VAS SMS market.

- Increased transparency of MNOs standard terms and agreements for content suppliers should make it easier for content suppliers to assess their business case and make decisions regarding entry into the VAS SMS market. A few MNOs have made these agreements publicly available on the internet.
- Interoperability between mobile operators should be encouraged by NRAs. This would enable content suppliers to offer their VAS SMS services behind one number for users of all MNOs, thus increasing transparency for end-users.

### 3.3 ETO: Harmonisation of Short Codes in Europe (1998)

The European Telecommunications Office (ETO) finalised the study on *Harmonisation of Short Codes in Europe*, carried out for the European Commission, on 25 September 1998.

The study focuses on harmonisation across European countries of short codes that are in the national telephone numbering and dialling plans. The study addressed short codes as these are of (growing) considerable significance in telephone numbering and dialling plans. Short codes were defined in this study as codes consisting of digits only, not more than five digits, in exceptional cases six digits. Three types of short codes were identified:

- short numbers which are short telephone numbers;
- prefixes, which are always followed by a telephone number;
- access codes, which are always the first part of a telephone number or a prefix.

It must be noticed that this ETO study concentrated basically on (harmonisation of) diallable numbers whether they were short numbers, prefixes or access codes. VAS SMS codes are not diallable numbers. The work of WG NNA Project Team on Harmonised European Short Codes (HESC) has a stronger relation with this work of ETO than the present report. Nevertheless, there are parallels with the motivation and reasoning behind this study; both initiatives investigate the impacts of a more central coordination of the use of short codes.

### 3.4 ETO: Harmonised National Conventions for Naming and Addressing (1999)

ETO finalised the study on *Harmonised National Conventions for Naming and Addressing* on 3 December 1999. The study has been commissioned by the European Commission.

The study included a proposal for a framework of harmonised national numbering conventions for CEPT countries. It was concluded that in a competitive environment, a clearly defined regulatory framework on numbering (numbering conventions) is needed in order to facilitate non-discriminatory and transparent access to numbering resources. 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.

The main outcome of this study is that the national naming and addressing plans (also covering numbering plans) should be adequately controlled by an NRA. Their administration and management should be carried out by an NRA or another national body independent of telecommunications organisations. The management should be carried out by a so-called Name and Address Plan Manager (NAPM) in an objective, non-discriminatory, equitable, proportionate, expeditious and transparent manner.

It is envisaged that the different types of numbering, naming and addressing resources may require different levels of involvement of NRAs. One approach is that NRAs are involved only as far as market mechanisms or non-NRAs fail to manage resources in transparent and non-discriminatory manner. This implies that the involvement of NRAs may change over time as the situation develops.

### 3.5 Conclusions

There is a strong legal base for NRAs of European Union member states to enlarge their control over VAS SMS numbering resources. The need of such initiatives, looking at current practices, has been stressed once again by the IRG. The importance of adequate control of NRAs in the area of VAS SMS, as these are to be seen as national numbering resources, is also derived from previous ETO studies, which affects all European countries.

The possible future extension of SMS information services to fixed (national) networks once more underlines that these services must be seen as publicly available services that need a national numbering plan.

Furthermore, the fact that in most cases short codes are used for VAS SMS even enlarges the need for more NRA control. As ETO already stated in 1998, short codes are of growing significance in telephone numbering and dialling plans and developments in recent years confirm this. The interest of involved market players in such codes has grown. Inadequate coordination and intransparent management of VAS SMS short codes imply therefore growing market imperfections.

Enlargement of the control of NRAs over VAS SMS short code resources can take multiple forms. For example, an NRA may take administrative control with the possibility to delegate the management of these numbers to network operators.

## 4 RISKS AND POSSIBLE TYPES OF PROBLEMS

NNA has identified four potential areas of concerns related to the use of short codes for SMS services. Some of these concerns are directly related to numbering, other concerns are at least indirectly related to numbering. These issues are:

- a) Interoperability of VAS SMS services and number portability;
- b) Non-discriminatory access to VAS SMS resources;
- c) General issues related to administration of VAS SMS numbers;
- d) Consumer related problems.

Moreover, the lack of control or influence by National Regulatory Authorities over these numbering and addressing resources severely restricts the possibilities of intervention in cases of inappropriate resource management or market failure.

There are several kinds of service providers involved in the supply of VAS SMS content. The following types of providers are distinguished:

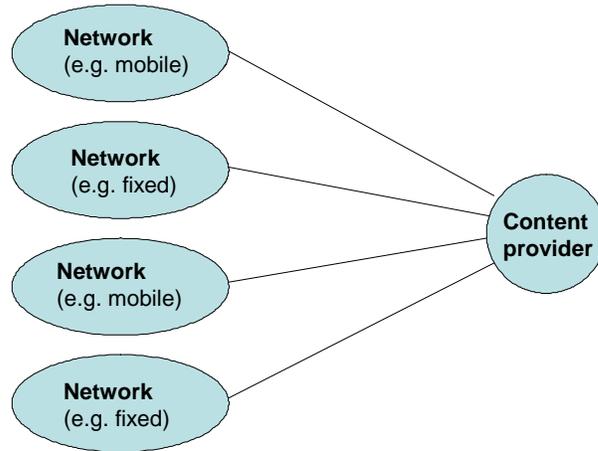
1. Network operators, both mobile and fixed;
2. Intermediate providers offering electronic communication services (e.g. content aggregators);
3. Intermediate providers not offering electronic communication services (e.g. brokers);
4. Content providers (note that further on in the report, the term "service provider" basically refers to this category).

In this chapter potential problems related to the four above mentioned issues are described.

### 4.1 Access, interoperability of services and number portability

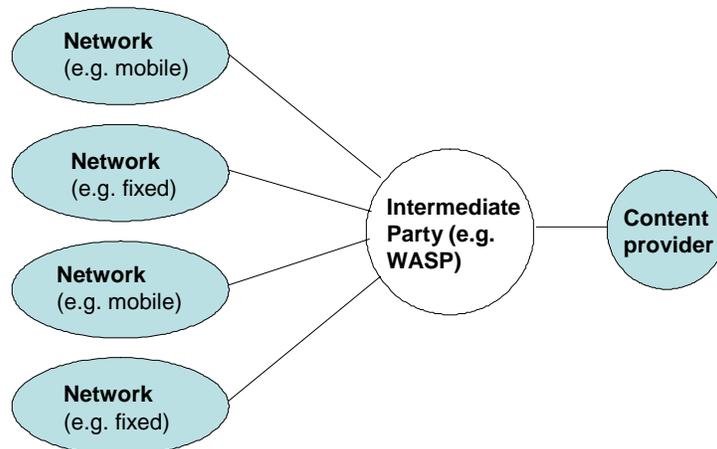
#### 4.1.1 Concept of interoperability

The principle of interoperability of services requires that a given service is accessible irrespective of the network to which an end user is connected. However, some market conditions or technical implementations may hinder or prevent the achievement of such interoperability. An obligation for operators to ensure interoperability of services based on SMS does not exist in most European countries. It is possible that the absence of such an obligation discourages genuine competition in the market for these services. This scenario (VAS SMS Network Access Model A) is illustrated in Figure 1.



**Figure 1: VAS SMS Network Access Model A. Content service interconnected separately with each access network & assigned separate numbers for each network**

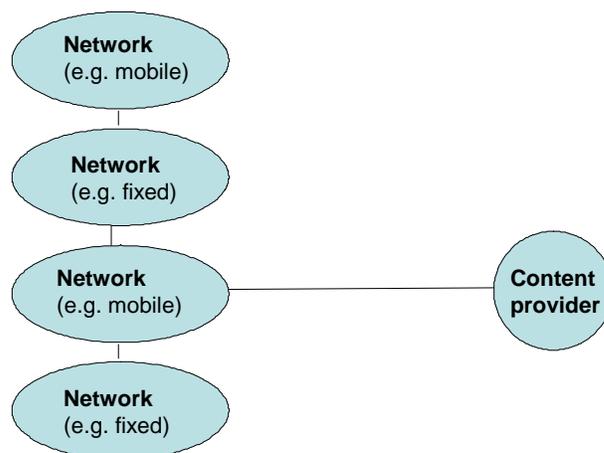
A variant of this scenario is depicted in Figure 2. In this situation an intermediate service provider like a Wireless Access Service Provider (WASP) provides interconnectivity between the content provider and all networks. This reduces the need for content providers themselves to negotiate separately with network operators. There are economies of scale, but also in this situation remain concerns. The strength of the role of the intermediate service provider is - in the EU - stronger when he is a network operator himself (see chapter 8). Even when he is, separate negotiations might still have to be made with each originating operator.



**Figure 2: VAS SMS Network Access Model B with an intermediate party**

The described network access models do not say anything about the way in which VAS SMS numbering resources are managed. For example in network access example A there might be a situation in which separate codes are used for each network by the same content provider for the same content service, but there might also be a situation where a singular code is used.

An alternative implementation of services based on SMS would allow a third party content provider to interconnect with one operator only, but have access to its services from any access network in a given country. This approach would mean that the network with which a third party content provider is connected would use its interconnection arrangements with other national access networks to ensure the content provider's services are generally accessible (full inter-network interoperability). This scenario is illustrated in figure 3 (VAS SMS Network Access Model C). A version of this scenario is planned for implementation in at least one European country.



**Figure 3: VAS SMS Network Access Model C. Content service interconnected with only 1 access network & assigned only 1 number**

This third scenario requires a synchronised approach to numbering of services based on SMS. This may be achieved by:

- a) Operators sharing information on their assignments of numbers for these services, and refraining from assigning numbers on their networks that are identical to numbers assigned on other operators' networks; or
- b) Operators actively coordinating their respective assignments of numbers for these services; or
- c) A body independent of operators (the National Regulatory Authority or another independent body) assigning numbers either to operators or directly to content providers.

#### **4.1.2 Unequal access for third party content providers**

One consequence of the missing of interoperability is that, in order to protect their own VAS SMS markets, operators can be tempted to make access to third-party services difficult or unduly expensive, or even to block access.

#### **4.1.3 Need of multiple arrangements by service providers**

When there is no interoperability, the service providers need to make multiple arrangements with different network operators in order to reach as large customer base as possible. This may lead to different agreements with different network operators resulting more work for service providers and obviously in some cases less income for the services they provide. Some network operators may be reluctant to reach an agreement as they may have similar service of their own. With each agreement, the operator's tariff conditions, and possibly the use of a separate number might form additional barriers.

If their service providers are connected to the market leader operator's network, they most likely have a critical mass of customers possibly accessing to their services. In this case it does not matter in which way numbering resources are managed. If the services are connected with a smaller operator's network or the network operators' market shares are quite equal, the service provider would benefit to get customers also from outside "own" network operator. This scenario would either demand multiple service agreements and/or service interoperability. From the service marketing point of view it would be beneficial to be assigned the same number for the service independent of the access network.

#### **4.1.4 Routing/billing**

Some of the services based on SMS may become quite popular. If this kind of popular service, when publicly advertised, cannot be generally accessed (= lack of interoperability) there may be service requests by users from other network operators' network that do not result the wanted service. It is the nature of SMS that at least a normal SMS tariff is charged once the message reaches the SMSC even if the message cannot be successfully sent further on from the SMSC (like a telephone call to a wrong number – this is charged as well if the call is answered).

#### **4.1.5 Number portability**

While there is a general ability to keep the mobile telephone number when changing from service provider (mobile number portability) in Europe, no obligation to provide VAS SMS number portability exists in any European country. As VAS SMS numbers are nowadays network specific numbers, it is possible that different operators have allocated the same number for a different service within their own networks. This obstructs number portability. The absence of number portability may result in customer lock-in for third content providers which rely on these services.

## **4.2 Non-discriminatory access to VAS SMS resources**

Current practice is to assign numbering resources for services based on VAS SMS to content providers by:

- a) Each operator acting independently of all other operators; this approach is incompatible with support for interoperability of content services across all access networks
- b) Each operator coordinating its actions with other operators so that, for example, the same number is automatically assigned to a content provider across all access networks or, at a minimum, cannot be assigned for another purpose on other networks.

The main risk under the first approach is that operators will be tempted to reserve the most attractive resources ("golden" numbers) to themselves, and restrict or discourage (e.g. by higher pricing levels) the assignment of numbering resources to competing content providers and thereby hinder the latter in offering services on their networks.

Moreover, an independent content provider that wishes a service to be accessible on multiple networks is obliged to obtain numbers separately from each operator. It is unlikely that a content provider would be able to obtain the same number on all networks for a given service.

Anti-discrimination provisions in general competition law may, in part, reduce these risks, but would do little to eliminate structural problems associated with the management and assignment of numbering resources for services based on SMS.

The main risk under the second approach is that there may be no incentives on operators to ensure that synchronisation or coordination of assignments of numbering resources is implemented in a reliable and timely manner, nor any sanctions if the synchronisation or coordination process fails. It may also be difficult to ensure a transparent process under this approach. However, countries in which operators have a history of cooperating on operational processes and procedures may find that such risks are low.

## **4.3 General issues related to administration of VAS SMS numbering resources**

A basic principle of the administration of numbering and addressing resources is that the interests of all parties involved must be taken into account. Amongst these parties are not only operators, but also intermediate service providers like content aggregators, and above all the users. This principle implies that access to numbering and addressing resources is open to any entitled applicant in a non-discriminatory manner, which has been discussed in the previous section.

Other implications of the mentioned principle are:

- Protection and management of scarce resources
- Misdialling
- Transparency of number assignment
- Possible future harmonisation at a European level.

#### **4.3.1 Protection and management of scarce resources**

Numbers in telecommunication are generally accepted to be scarce resource independent of their usage: whether they are traditionally used as names, addresses and tariff indicators or some of previously mentioned. This applies especially with short codes because of natural reasons. It is also generally accepted that harmonisation of certain degree of numbering resources is necessary within the same economical or geographical area.

Directive 2002/21/EC (Framework Directive) Article 10 discusses numbering, naming and addressing related issues. According to the Directive the NRAs shall control all national numbering resources and the management of the national numbering plans. Not all SMS numbers are “national” numbers (E.164 numbers), but rather network specific numbers.

At least in one European country this problem has been solved by allowing part of the short codes numbering space to remain at operator’s management mean while “a harmonised” part of this numbering space (i.e. same numbering resources from all operators) have been taken into the centralised management.

#### **4.3.2 Misdialling**

The uncoordinated use of short SMS codes may enlarge risks of misdialling with short telephone numbers.

Misdialling may occur where a short number for a voice service is the same as the VAS SMS code, although the services are different. This may become an issue in the future.

#### **4.3.3 Transparency of number assignment**

Uncoordinated assignment of VAS SMS codes usually implies that longer-term interests of particular number applicants may be affected negatively because of a lack of transparency. This is caused by uncertainty among potential applicants about available codes, about the use of particular numbers or about the pricing associated with these codes.

#### **4.3.4 Possible future harmonisation at a European level**

A lack of harmonisation at national level makes any future harmonisation at pan-European level very difficult. This may lead to customer lock-in.

### **4.4 Consumer protection**

Consumer protection issues are not only purely numbering related, but are also related to other aspects of VAS SMS services. We can identify the following main issues which are of specific relevance to VAS SMS services and that have, to a lower or higher extent, relations with numbering:

- Tariff transparency
- Prevention of misuse
- Protection against certain types of content
- Access to subscription services
- Consumer redress.

#### **4.4.1 Tariff transparency**

Tariffs of VAS SMS services show in general, large fluctuations and high prices, compared with voice communications occur. This may imply risks for consumers if these are not well informed. These risks are enlarged by the fact that for some kinds of subscription services, these services are reversely billed. Arrangements to ensure transparency of prices for premium rate telephony services – which have many features in common with services based on SMS – are well established and rigorously applied in many European countries, e.g. by using tariff dependent numbering ranges. Because services based on SMS are relatively new, equivalent price transparency arrangements do not always exist. The absence of price transparency arrangements may be a consequence of the NRA’s lack of influence over the numbering resources for services based on SMS where these numbering resources are controlled by operators. If appropriate arrangements for services based on SMS do not exist, and no satisfactory arrangement has voluntarily been implemented by the relevant

market parties, the prices for services based on SMS may be difficult to determine, leaving users confused and, in some cases, exposed to (unexpected) high costs.

#### **4.4.2 Prevention abuse**

The potential abuse is a growing risk related to VAS SMS services, i.e. where deceit occurs (expected content is not offered while the operators bill for the service). This risk is highlighted in various countries where abuse tends to shift across various technologies (compare the shift of abuse of premium rate numbers from domestic to foreign (international) numbers). SMS short numbers have the potential, without being regulated, to offer value added content services. As a consequence possible abuse may occur. If NRAs control the assignment of numbers, number assignment of VAS SMS codes may be an instrument for the prevention or repression of abuse (screening of number applicants, withdrawal of numbers).

#### **4.4.3 Protection against certain types of content (only for subscription services)**

The above mentioned problems regarding price transparency also hold for content classification and regulation (e.g. the protection of minors against adult content services). If appropriate arrangements for services based on SMS do not exist, and no satisfactory arrangement has voluntarily been implemented by the relevant market parties, it may be possible to easily access content, which would normally be subject to regulations. For example, it would be possible to have a “general social service” in one network and an “adult service” in the other network with the same number. With mobile number portability and the easy step-over to another mobile operator, this scenario raises additional concerns about content protection.

Service barring (opt-out/opt-in) e.g. for adult oriented services is a tool for protection. Such barring is (technically) facilitated by using separate number ranges for separate types of services.

#### **4.4.4 Access to services (only for subscription services)**

Third party SMS services are normally activated and deactivated via the use of keywords embedded in a short message; for example, the keyword “on mail” may be used to activate an SMS-based mail notification service. These keywords are not broadly standardised, although in some cases a voluntarily code of practice addresses this issue at the national level. So generally there is still considerable inconvenience – and expense – to users, for example if they wish to deactivate a service but are unable to determine or obtain the appropriate keyword.

#### **4.4.5 Complaint handling and consumer redress**

Current practice regarding premium rate service numbers shows that consumers need better possibilities for alternative dispute resolution (ADR) than provided in most countries. It is therefore to be expected that complaint handling and consumer redress are issues which will become more relevant in the future also with VAS SMS (and later, MMS). Clear obligations for each party involved (network operator, content provider), e.g. regarding tariff transparency, may improve possibilities to create effective ADR systems. One important factor to be solved is that in many cases (small) providers hide behind other providers and/or carry out short-term activities that makes it difficult for NRAs and consumers to address such parties after abuse or fraud.

## **5 NOTES ON CURRENT STATE OF IDENTIFIED PROBLEMS**

This chapter summarizes views on the extent to which the potential problems identified in the previous part of this report occur nowadays in practice. There are contrasting opinions between NRAs and network operators. Both opinions are, at a global level, described.

Because the IRG study on VAS SMS is the main existing document reflecting the opinion of NRAs on level to which the potential problems identified in previous chapter occur in practice its main conclusions are incorporated in this chapter.

### **5.1 IRG: A study on VAS SMS**

Globally, this study confirms that most of the identified problem areas (interoperability, non-discriminatory access to content providers, consumer related problems) occur nowadays in practice. This observation is based on empirical information.

In more detail, the study confirms:

- Lack of interoperability of VAS SMS services; at the moment VAS SMS suppliers are not able to offer their VAS SMS services behind one number for users of all MNOs.
- Lack of price transparency and need for consumer protection tools related to adult entertainment type services.
- Many end-user complaints especially with VAS SMS subscription services.
- Need for stimulating the availability of barring tools, as in general barring of VAS SMS services is not available.
- Need for additional protection of end-users, e.g. by complaint handling procedures, code of practice, etc.

## **5.2 Market views on current problems**

This section summarizes the views of network operators and other involved parties on the problems identified. These views are derived from the responses to the ECC consultation on numbering for services based on SMS, MMS, USSD, and international inbound roaming service from 2004.

### **5.2.1 Interoperability of VAS SMS services and number portability**

*Interoperability:* Most operators state that there is a sufficient level of interoperability. The reason for this statement seems to be of commercial nature.

*Need of multiple arrangements by service providers:* Operators argue that mobile network operators in some European countries have established arrangements to coordinate their short code numbering resources to ensure that the same short code is allocated for the same service on each network in a given country. That would reduce any need of multiple arrangements by a single service provider. However, not every country such arrangements exist while there are also variations in the degree of participation by operators.

*Lack of portability:* Operators state that number portability is not an important issue, as number portability is already offered in the existing situation in most cases by content aggregators to content providers moving from one content aggregator to another. Nevertheless, signals keep on arriving from independent content providers showing a need for better number portability options.

### **5.2.2 Non-discrimination in assignment of VAS SMS codes**

Many respondents claim that although the operators themselves are responsible for assigning numbering resources for services based on SMS, the rules are in the existing situation transparent and non-discriminatory. In many cases also rules and procedures for reclaiming these resources exist. However, no or little coordination within these resources implies that assignment rules vary largely from operator to operator which also creates intransparency.

Proper competition, according to network operators, exists already with as proof the existence of multiple MNOs and service providers generally in each country. But NRAs are of the opinion that in this situation VAS SMS short codes are still being used as competition instrument between those parties. Proper competition seems therefore to exist within the group of MNOs and service providers, but not between MNOs/service providers and content providers.

### **5.2.3 Administration of VAS SMS numbering resources**

Currently, most network operators manage their short code resources themselves and in most cases no numbering plans exist. This gives some power to operators who – quite naturally – are not keen in changing the situation. On the other hand, other respondents but operators find centralised administration of short code resources with proper numbering plans necessary and also helpful in solving some of the existing problems within the market.

### **5.2.4 Consumer protection**

Generally, according to operators, consumer protection is an important issue for the whole industry. The methods for protecting consumers vary very much from country to country from single operator's own rules of practice to self-regulatory bodies with written code of conducts.

In most cases it is not possible for consumers to protect themselves from unwanted contents, e.g. adult oriented contents. Network operators in general find it not necessary to establish mechanisms for selective barring of services.

### 5.3 Conclusions

Opinions of operators regarding the occurrence of problems seem to be not well funded and merely commercially driven. Content providers may have contrasting views but this could not be revealed adequately by the underlying survey. Persistent signals reaching NRAs that problems occur show that, although there are variations between different countries, there is a general need to address these problems by NRAs in countries where the identified problems occur.

The heart of the issues leading to problems in the current VAS SMS market situation is:

- 1) the unequal access for third party content providers to enter the (national) VAS SMS market and
- 2) a generally inadequate level of consumer protection.

From the issues identified in earlier sections, these two issues derive priority and should form the main goals of any regulatory framework.

## 6 THE ROLE OF A NUMBERING PLAN

### 6.1 Main policy options and their mutual relations

There are multiple policy options that may help in addressing the issues identified in the previous sections. These policy options may to a lesser or higher extent be related to numbering policy. In this section it will be argued which (combination of) policy options have the potential to be most effective and what the role of a numbering plan would be. The term “numbering plan” refers to the situation that (part of) the numbering resources used for VAS SMS are nationally coordinated, either by an NRA, by a neutral body distinct from the NRA or by market parties themselves, directly or via a separate body where those parties are represented.

The following set of main policy options have in common that somehow they are related to numbering policy:

- Numbering plan (under control of NRA and/or operators);
- Stimulation/enforcement of interoperability;
- Stimulation/enforcement of number portability;
- Consumer protection measures (that are indirectly related to numbering).

More equal access to the VAS SMS market for third parties, one of the main goals of a regulatory framework for VAS SMS, may be achieved in all VAS SMS Network Access models described in Section 4.1.1.

A centrally managed numbering plan (either managed by NRA or by network operators) is a minimum condition for improving access (in terms of both more equal and easier access) for third parties in all VAS SMS Network Access models. For VAS SMS Network Access Models A and B, a numbering plan might be sufficient as a stimulating instrument for improving this access. For VAS SMS Network Access Model C, (technical) inter-network interoperability is foreseen and might also need to be stimulated or enforced.

Number portability is a different issue than (technical) interoperability. Number portability requires technical capabilities to be offered. If no central numbering coordination or a formal national numbering plan exists, this would be a too large technical obstacle. Furthermore number portability is only of use when interoperability of services is ensured. Thus the enforcement or stimulation of number portability of SMS short codes is justified only if at least a part of these resources is centrally managed and the interoperability of services is ensured.

Concerning consumer protection, the use of numbering plans for e.g. premium rate numbers have proven their usability already. Therefore it is to be expected that a numbering plan in the field of VAS SMS is an effective instrument also for basic consumer protection. This can be brought into practice, for example, by using content or tariff dependent numbering ranges. A numbering plan may facilitate the (technical) implementation of blocking mechanisms.

## 6.2 Conclusions about the role of a numbering plan

A centrally managed numbering plan seems to be both:

- 1) A minimum requirement for creating equal access for all parties to the VAS SMS market;
- 2) An important tool for achieving full interoperability (a numbering plan could reduce the need to take additional separate policy measures to achieve interoperability).

Via the stimulation of interoperability, a numbering plan also facilitates (and is a prerequisite for) number portability.

Furthermore, a numbering plan will also be supportive for creating a basic level of consumer protection (tariff/content transparency).

Therefore a centrally managed VAS SMS numbering plan (managed by NRAs and/or network operators) is, seen in context with other main policy instruments, a requirement for an effective legal framework for VAS SMS numbering resources. A numbering plan has strong mutual relations with other types of policy measures. This feature of a numbering plan for VAS SMS gives this policy option a merit and a VAS SMS numbering plan should therefore be the core of a policy framework for VAS SMS numbering. Note that this conclusion does not apply to the use of E.164 numbers for VAS SMS services.

In the next chapters a numbering plan and other policy options are elaborated on.

## 7 FRAMEWORK FOR A VAS SMS NUMBERING POLICY

In chapter 3 it was made clear that NRAs have a strong legal base for stimulating or enforcing national coordination of VAS SMS short codes and in chapter 6 it was argued that a numbering plan should form the basis of a policy framework for VAS SMS numbering. This chapter elaborates on some aspects of a VAS SMS numbering plan:

- The level to which NRAs should have control;
- A basic structure of a numbering plan.

### 7.1 The level to which NRAs should have control over VAS SMS numbering resources

The degree to which NRAs may have control over VAS SMS short codes may vary, as shown by existing national policies. In some cases the influence of the NRA is restricted to setting general rules to the use of VAS SMS short codes, leaving a part of the administration and the full management of VAS SMS short codes to the industry (e.g. outside Europe/CEPT, Australia where number allocation is delegated to the industry with the motive that it creates easier single number allocation). In other cases the NRA has created a formal numbering plan in legislation, with fully or partly leaving the assignment of these codes to operators. Some of these countries have chosen for direct assignment by the NRA to content providers (e.g. Ireland, Finland). These current cases show that any of these approaches may lead to satisfactory results.

Which approach is likely to fit best in a national environment depends on the national situation and the attitude of the operators and service providers. Only in general terms a common guideline can be given.

The following aspects, applicable where NRAs take in some way control of numbering resources, are relevant to NRAs that are considering a specific policy in this respect. These aspects reflect the opinions of both the industry and NRAs.

Pros

- There seems to be support from VAS SMS content providers for NRA involvement. Fragmented signals are received on a frequent basis from this part of the sector, showing needs for NRA involvement in VAS SMS numbering. However, this argument must be taken into account with caution. The general attitude of the VAS SMS content providers is difficult to reveal. NNA suspects that one of the reasons is the fact that the content industry basically is a heterogeneous market, reflecting a large number of economic sectors taken from the non-telecommunication environment. The resulting complexity is expected to make adequate representation of this sector as a whole difficult.
- Equal treatment of applicants of VAS SMS short codes by assigning entities taking into account certainty of objective, transparent and non-discriminatory assigning procedures.

- National numbering plans including number ranges for VAS SMS services, and all subsequent additions or amendments thereto, are published.
- Certainty of availability of adequate numbers and retention of scarce resources. Although in the current situation no shortage of VAS SMS short codes exist, it is likely that in the future this may become more relevant.
- Support of harmonisation of numbering resources where that is necessary.

#### Cons

- A general support of network operators and service providers for NRA involvement in the coordination of VAS SMS numbering is lacking. There are exceptions: in some countries network operators stimulated the creation of national SMS numbering plans (like in Ireland). In the present majority of countries however network operators have a strong preference to keep to the existing situation, in which full self-regulation dominates the SMS numbering environment.
- NRA involvement could create additional costs to market parties. Current practice of NRA assignment of numbers in other areas shows that such costs could be marginal.
- There may be slower responses to requests for shorts codes and changes in assigned codes. Operators state e.g. that typical VAS SMS applications with a temporary character are difficult to be managed by NRAs. However, NRAs have existing experience with such applications using PRS numbers and it is therefore not likely that there will be problems in this respect when NRAs also manage VAS SMS codes. The trend among European NRAs towards electronic processing of applications for resources may further reduce the disadvantages of this approach.
- A formal numbering plan managed by an NRA would bring more complexity as more actors become involved.
- Operators state that the supply of VAS SMS services is more complex than the supply of traditional PSTN services and that the further (rapid) development of VAS SMS services could be constrained with NRA involvement. However, the view of NRAs is here that there is no relationship between numbering and technical implementation of these services.
- Operators state that the direct control over numbering resources gives them better possibilities to enforce content and tariff transparency. However this view is not shared by NRAs as appropriate interference of NRAs would not have to lead to delays. Furthermore, number management is only one set of possible instruments to be applied in cases of abuse.
- Operators emphasize that the future use of names/tags could lead to decreasing use of separate specific numbering resources for VAS SMS. However, at this moment it is rather unsure how this will develop in the near future. Therefore it is doubtful whether this development can be taken as a basis for policy at this moment.

Based on the arguments brought forward by operators and intermediate service providers, negative effects of more NRA control and a centrally managed numbering plan seem to be mainly related to the position of intermediate parties that nowadays use VAS SMS shorts codes as a competitive instrument. Overall, the advantages of any NRA control seem to outweigh the risks but there may be exceptions in national situations. The situations of countries like Ireland and Finland, where already VAS SMS numbering plans have been introduced without resistance of network operators (in Ireland both network operators and a number of service providers have expressed needs for a centrally coordinated numbering plan), prove that basically there are net benefits to reach for the whole sector.

## 7.2 A basic structure of a numbering plan

The main issue to be considered here is the creation of a “public” VAS SMS short code numbering space and its relation to other (network specific) numbering ranges in which VAS SMS may be offered.

If in a country there is market demand for short codes for providing VAS SMS services that are accessible from different networks:

- a) One or more numbering ranges should be created consisting of numbers that allow a VAS SMS service to be uniquely identified (“public number range”);
- b) When these numbering ranges are structured according to e.g. tariff or content classes this structuring finds place by the leading digit(s) in these numbering ranges;
- c) Assigned numbers in this range are made either accessible or are reserved by the network operators in the respective country.

The administration of these ranges may be in the hands of NRAs and/or network operators. Where necessary, the existing use of VAS SMS codes should be phased out within a reasonable period of time.

With this public VAS SMS numbering range, NRAs may leave room for network operators to operate short codes for VAS SMS services accessible in an individual network only. However there is a risk that this still might lead to an unbalanced

competitive environment, if these services can be overlapping with service types to be provided through national short codes. Thus certain restrictions to the services provided through network specific short codes are necessary.

Criteria for the separation of national and network specific allowed services may be:

- 1) Maximum tariff for network specific services. The disadvantage of such an approach is that certain types of content in lower price levels may still be provided. Therefore the number of countries in which such an approach would be effective, will be limited.
- 2) Restrict content that is allowed to be provided on individual networks. The most practical approach here is to define allowed content (versus the exclusion of types of content). For example, network specific VAS SMS services may only consist of services that support the telecommunication service.

The most practical criteria will differ for each country. A logical way would be to follow the same regime that is used to restrict the use of short telephone numbers for network-specific services. The ongoing convergence between voice and messaging services strengthens such an approach.

If network specific VAS SMS services are restricted properly, no additional measures should be necessary like different number length between national and network specific services.

The following additional aspects are relevant when considering a structure for a VAS SMS numbering plan:

- Number length, including possible different requirements of fixed and mobile networks
- Single use versus dual use (use of single number for both voice and data/SMS service)
- Tariff dependent number ranges
- Content dependent number ranges
- Allocation principles (e.g. number of codes per applicant)
- Assignment mechanism.

These issues are to be seen as characteristics of VAS SMS public numbering ranges and are sensitive to national market and regulatory situations. Guidelines how to manage these issues may be derived from current national policy practices which are included in Annex B of this report. For tariff and content dependent number ranges, see also the topic of consumer protection.

## **8 ACCESS AND INTEROPERABILITY**

Given that VAS SMS numbering resources are centrally managed, a next question is whether there is a need for additional policy measures aimed at a better access for a VAS SMS service provider to a network (all VAS SMS Network Access models) and full (technical) interoperability of VAS SMS services between networks (only VAS SMS Network Access model C). Also the question whether NRAs have legal possibilities for enforcing access and interoperability to network operators, needs to be answered.

### **8.1 Need for NRA action on interoperability**

Generally, the following pros and cons related to the stimulation or enforcement of interoperability may be considered:

Pros

- VAS SMS content providers are of the opinion that - looking at the current situation - NRA involvement is necessary for improving operability (fragmented signals from this sector showing this position are received on a frequent basis);
- Interoperability encourages full genuine competition in the market for these services at a national level, by both more equal and more easy access among network operators and third party content providers;
- Content providers may contract to only one network, reducing costs;
- Innovative content may develop faster (earlier on wider scales), and inter-operator traffic levels may increase (thus benefiting operators also).

## Cons

- There is generally lack of support from network operators and service providers for enforcing or stimulating better interoperability by NRAs;
- Network operators state that within their own sector, large operators would benefit from interoperability, disadvantaging smaller operators. This argument however is not well funded. NRAs are of the opinion that interoperability will bring a better overall level playing field, where also smaller parties might benefit from;
- ETSI GSM standards do not (yet) fully support interoperability of VAS SMS services, so a proprietary solution would, at least for the moment be needed for routing SMS traffic. This would not be in line with open network principles and the current legal framework, and it would therefore create extra costs for operators and content providers.
- Implementation of full technical interoperability may require substantial investments in network infrastructure and billing processes, whether proprietary solutions are needed or not.

Based on these factors, whether there would be a net benefit from implementing full technical interoperability would largely depend on the associated investment costs. It is expected that there is a net benefit for all the parties involved. This net benefit also holds when the effects of a centrally managed numbering plan are incorporated. Also marginally to a numbering plan there is a net benefit because interoperability further improves easier access for third party content providers.

A numbering plan will stimulate the interoperability of services on commercial grounds. With a separation between the use of public codes and network specific codes, and an adequate restriction to the type of content provided via the latter, the interest of network operators in protecting their own markets against third party providers will be limited. In fact they can benefit, if interoperability is established, from possibly higher traffic volumes.

This leads to the conclusion that although interoperability is desirable, there would be no need – at this time – to enforce interoperability.

## 8.2 Legal enforcement of interoperability

Within the EU the Access Directive has some relevance for the possibility of EU member states to enforce the interoperability of VAS SMS services to network operators.

- a) Article 5 of the Access Directive states that NRAs shall *encourage* and where appropriate ensure adequate access and interconnection, and interoperability of services, exercising their responsibility in a way that promotes efficiency, sustainable competition, and gives the maximum benefit to end-users. Thereby shall NRAs be able to impose to the extent that is necessary to ensure end-to-end connectivity, obligations on undertakings (not only SMP) that control access to end-users, including in justified cases *the obligation to interconnect their networks* where this is not already the case.

This article has a general nature and the conditions under which this article would apply to certain markets, e.g. the VAS SMS market, are not more precisely determined.

- b) According to Article 4 of the Access Directive, operators of public communications networks have a right and, when requested by other undertakings so authorised, an obligation to negotiate interconnection with each other for the purpose of providing publicly available electronic communications services, in order to ensure provision and interoperability of services. The functioning of these provisions is supported by additional competence of NRAs to enforce such negotiations (under C).

In the VAS SMS market, content providers are not electronic communication network providers and do not have any rights based on article 4. This also likely holds for a number of intermediate service providers like content aggregators, brokers etc. This makes the scope of Article 4 (too) restricted for the purpose of enforcing VAS SMS access and interoperability in all desired situations.

- c) On the basis of Article 16 of the Framework Directive the VAS SMS originating market might be seen as a specific market in which significant market power occurs. On the basis of Article 8 of the Access Directive, in such situation the NRA is entitled to impose access and interoperability for third parties to network operators having significant market power. This takes form in Article 12; an NRA may impose obligations on SMP

operators to meet reasonable requests for access to, and use of, specific network elements and associated facilities, inter alia in situations where the NRA considers that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user's interest.

Until now, the Commission has not positioned the VAS SMS market accordingly. Even if the VAS SMS market was positioned as such, this would only deal with the position of SMP network operators. It can be questioned whether all relevant (also smaller) network operators would be entitled to be SMP operator. If not, then also these articles do not provide sufficient legal grounds for NRAs to enforce interoperability in an effective and covering way because also small operators tend to protect their own VAS SMS market.

The conclusion is that, as far EU member states are concerned, the Access Directive (Article 5) in principle provides a certain basis for any enforcement of access and interoperability to NRAs. Note that this does not include full inter-network interoperability but only refers to the access to one network in both VAS SMS Network Access scenarios A and B.

An alternative route would be to enforce interoperability via Article 6 of the Authorization Directive. It might be possible, within certain additional measures for ensuring proportionality, to create an interoperability condition to the use of a number from a public VAS SMS number range. This might further be explored.

It should be noted that in a single European country (Austria), where VAS SMS numbers consist of E.164 numbers, the interoperability of VAS SMS is assured via the existing regime for E.164 numbers.

### 8.3 Conclusions

Access to networks for SMS content providers and interoperability of SMS services is desirable as it would generate a net benefit to the sector and to the end-users. However, when VAS SMS numbers are centrally coordinated, there would be probably no need to take specific additional measures to enforce interoperability as commercial factors will stimulate interoperability already. NRAs may stimulate this development in an active way.

Nevertheless, NRAs may decide to speed up such process by enforcing interoperability. EU member countries may find support in the Access Directive (Article 5) that in principle provides a certain basis for any enforcement of interoperability to NRAs. Note that this does not include full inter-network interoperability but only refers to the access to one network in all SMS Network Access models in 4.1.1.

It must be noted that in those countries where SMS numbering plans have been introduced (Ireland, Finland and (outside Europe/CEPT) Australia) no legal obligations have been put in place and NRA actions have been limited to stimulating interoperability.

If NRAs actively stimulate interoperability, it is recommended (as current practice shows satisfactory results) to follow a phased implementation of interoperability after a numbering plan has been introduced, and with the support from network operators.

## 9 NUMBER PORTABILITY

Although SMS codes are not E.164 numbers, number portability is considered in this chapter.

Number portability in the context of VAS SMS means a service provider's ability to change network operators and keep the same VAS SMS short code. Number portability is applicable only with centrally managed VAS SMS numbers, i.e. with VAS SMS Network Access model C.

The reason why number portability is not applicable without centrally managed VAS SMS numbering plan is that a service provider wanting to change network operators and keep its VAS SMS number may face number clashing with another network operator. The centrally managed VAS SMS numbering plan makes sure that a VAS SMS number only exists once within all the network operators.

When number portability is used, all network operators need to allocate their routing tables for this VAS SMS number in order to comply with the new (recipient) network operators terminating addresses.

Given that number portability is needed as specific instrument, it further enhances an easier access for third party content providers to this market by lowering the thresholds for VAS SMS content providers to step over to another service provider offering access to his service. For the introducing of number portability for VAS SMS, the same arguments would apply as number portability for premium rate numbers.

In contrast to premium rate numbers, Article 30 of the Directive 2002/22/EC (Universal Service Directive) does not provide a legal basis for number portability for VAS SMS numbers. VAS SMS number portability is therefore merely part of national policy of EU member states.

Based on the above arguments, at a minimum, as soon as interoperability in Network Access model C with centrally managed VAS SMS numbering plan would be established, NRAs should actively promote VAS SMS number portability.

## **10 CONSUMER PROTECTION**

### **10.1 Possible measures**

Consumer protection is, next to more equal access for VAS SMS content providers, another main goal of a regulatory regime for VAS SMS. Protection against typical consumer risks associated with VAS SMS may consist of:

- a) Measures within the field of numbering policy;
- b) Protection measures that are related with numbering;
- c) Existing national (regulatory) framework of general consumer protection.

The scope of this report is restricted to categories A and B although it has to be noted that a clear distinction between those categories and general consumer protection is difficult to make. It can be argued that tariff and content policies (e.g. tariff announcements and blocking facilities) are in some way related to numbering via the possible structure of a numbering plan.

Any consumer protection measures related to numbering must in any case be brought in harmony with more general consumer policy and existing regulatory frameworks. That means that NRAs should bring their possible actions regarding VAS SMS in line with national consumer protection authorities, e.g. in the area of ethic and moral issues.

According to the market consultation, neither network operators nor service providers or content providers seem to be keen on measures regarding consumer protection. General (European) consumer interest organisations however have given signals in this consultation that on this area more NRA involvement would be needed. From those signals, the aspects of tariff and content transparency and blocking facilities deserve most attention.

#### **10.1.1 Tariff transparency**

In the field of VAS SMS generally more accurate tariff transparency is needed provided by offline tariff announcements (in promotions etc).

The technology of VAS SMS (messages) has in principle possibilities for service providers to present tariff announcements. However, for a number of applications these possibilities are lacking due to the nature of these applications. That means that one must rely on offline tariff announcements. Secondly there must be some flexibility to operators, e.g. where extra fees for mobile termination do not have to be specified in promotion texts (see the Irish case).

A numbering plan may provide basic tariff information on number ranges and can complement tariff announcement systems, where these latter are difficult to implement. The use of a numbering plan for tariff transparency has well been proven for premium rate numbers in a significant number of countries.

In countries where consumer problems occur, caused by a lack of tariff transparency in tariff announcements or numbering plans, either via regulations or self-regulations (codes of practice), should remedy such situation. An appropriate combination of the use of both instruments (tariff announcements and numbering plan) should be considered.

### **10.1.2 The protection against certain types of content**

Basically policies regarding content provided via electronic communications services is not the core business of NRAs, as shown in many European national electronic communications policies. However the regulation of content is a different issue than the classification (ordering) of content. Like tariff transparency, a numbering plan may be an important instrument to protect consumers against certain types of content by creating awareness of the type of content provided by a certain VAS SMS code that can be expected. Also this feature of a numbering plan has proven its use already for premium rate numbers in a number of European countries. The importance of this feature of a numbering plan may be more diverse across different countries as cultural differences have a large influence on this aspect.

In countries where consumer problems show a need for better protection against certain types of content, NRAs should consider to classify content categories in a VAS SMS numbering plan.

### **10.1.3 Barring facilities**

NRAs are of the opinion that, in addition to transparency of tariffs and content, it is in specific countries desirable - but strongly dependent on national situations - consumers have more adequate facilities to bar incoming and outgoing VAS SMS messages. Consumer interest organisations subscribe this need for barring facilities. Such a form of barring is not included in the technical standardised call barring feature set for mobile services. It is unsure whether on a short term such facilities will be standardised. Technical standardization (e.g. of control strings to be used specifically for standardized SMS/MMS functions) at an international level, e.g. by ETSI, is not foreseen. In few countries the (non-technical) standardisation of keywords to block services have been initiatives of the industry. The success of such initiatives however is under pressure because they require commitment of all individual service providers which is sometimes difficult to fulfil.

The EU Universal Service Directive provides a legal basis for the blocking of certain VAS SMS messages (Annex A, part b). However, this is restricted to outgoing VAS SMS messages and only applies to network operators having universal service obligations. However NRAs are free to implement national policies.

An important aspect of an adequate tariff or content classification within a numbering plan is that it facilitates a barring system to be implemented by the industry in which there is user flexibility regarding certain categories of tariffs or content. The benefits may then outweigh the costs of implementing barring facilities, even when there are no broadly existing technical standards. Another advantage is that it forms a solution to a lack of awareness of (specific) keywords, as in a decentralised number management setting, barring services may differ from each other.

One European country (Finland) requires network operators to provide barring mechanisms that are able to bar specified VAS SMS number categories. In a significant number of European countries (like France, Romania) adequate self-regulation exists and/or there are no significant consumer problems in this field.

Only if national situations require so, NRAs should consider to stimulate the availability of VAS SMS barring facilities, and if so, these facilities should be offered with acceptable costs to the end-user.

## **10.2 Conclusions**

Tariff and content transparency and blocking facilities to VAS SMS services are to be seen as minimum consumer protection measures.

Lack of tariff transparency may result in many user complaints about VAS SMS services. A strong parallel can be drawn with premium rate numbers. Insufficient levels of protection of consumers against certain types of content might generate complaints on a smaller scale, but is nevertheless an important issue in a significant number of European national policies due to cultural factors. In some countries consumer problems are severed by a general lack of adequate barring facilities.

Therefore, NRAs should ensure adequate consumer protection. More specifically, in those countries where significant consumer problems in these fields occur:

- 1) NRAs should consider improving tariff transparency, looking at an appropriate combination of the use of tariff announcements and tariff information taken up in a VAS SMS numbering plan;
- 2) NRAs should consider classifying content categories in a VAS SMS numbering plan;
- 3) NRAs should consider stimulating the provision of adequate barring facilities in advance of any future technical standardisation of such facilities.

Dependent on the national experience with self-regulation, such NRA measures could take form via legislation or via stimulation of self-regulation (e.g. codes of practice). It has to be noted that many European countries experience that self-regulatory regimes in the field of premium rate numbers, a sector with a similar supplier chain and billing structure, do not satisfactory function against hazards caused by individual providers. NRAs should therefore, where is relied on existing self-regulation, be able to continue consumer protection when existing self-regulation might fail in future cases.

Especially in the field of complaint handling, there would be benefits to the end-user if clear legislative responsibilities for each category of providers exist, like tariff announcement obligations. Such legislative framework would facilitate effective and powerful alternative dispute resolution programmes.

## **11 CONCLUSIONS AND RECOMMENDATIONS**

### **11.1 Conclusions**

The VAS SMS market is becoming more and more mature with increasing competition possibilities. The typical billing systems used, characterized by network operators who bill for services of third parties (content providers) and by reverse billing methods, facilitate the further development of a variety of services.

This report has identified a series of potential and yet existing problems, related to numbering aspects, with the provision of VAS SMS services accessed via short codes that are administered on individual networks.

One important information base for the assessment of problems occurring at this moment, has been a European wide market consultation on the issues concerned. It has to be taken into account that the results of this market consultation are biased as the visions of network operators form a very large part of the response to this consultation. Therefore relatively more weight is given to the revealed viewpoints of content providers and consumer interest parties, than quantitative reflected in the responses.

Persistent signals reaching NRAs that problems occur show that, although there are variations between different countries, there is a general need for NRAs to address some specific problems occurring in several countries.

The hearts of the issues leading to problems in the current VAS SMS market situation are:

- 1) the unequal access for third party content providers to enter the (national) VAS SMS market and
- 2) a generally inadequate level of consumer protection.

The EU, IRG and ETO recommend that numbers for publicly available telecommunication services are controlled by NRAs. A centrally administered numbering plan, either managed by NRAs or by the industry, forms the core basis for an effective legal framework for VAS SMS short code numbering resources. A numbering plan for short codes has strong mutual relations with other types of policy measures.

### **11.2 Recommendations**

The following recommendations can be derived from this report:

1. NRAs should have the final responsibility over the SMS numbering plan;
2. Consumer protection should be taken into account where short codes are used for VAS SMS services. NRAs should consider in cooperation with all stakeholders defining a national SMS numbering plan for SMS short codes;
3. NRAs to consider whether part of the administration, management and assignment of the SMS resources is delegated to network operators or to a neutral body distinct from the NRA or to a separate body where all market parties are represented;
4. NRAs to consider, whether a part of the number range(s) included in a numbering plan is allocated to network specific services and if so to consider appropriate restrictions to the use of these codes;
5. NRAs to consider a structure of such numbering plan that serves consumer protection, suited to their respective national situations, including:
  - a. the creation, in cooperation with market parties, of a mechanism for tariff announcements, based on legislation or self-regulation;
  - b. the creation, in cooperation with market parties, of a mechanism for adequate and flexible barring of incoming and outgoing messages, based on legislation or self-regulation;

- c. possible inclusion in a numbering plan of tariff and/or content information, based on the leading digit(s) in these numbering ranges, which may facilitate barring of SMS messages;
6. NRAs to consider the stimulation of access, interconnectivity and interoperability regarding SMS services between networks using resources from a national numbering plan not allocated to network specific services;
7. NRAs to consider, in applicable situations, the stimulation of the portability of short codes for SMS services using resources from a national numbering plan not allocated to network specific services.

## 12 GLOSSARY AND LIST OF ABBREVIATIONS

List of abbreviations used in this document.

Abbreviation	“Opening” of the abbreviation	Description
3GPP	3rd Generation (mobile) Partnership Project	
ADR	Alternative Dispute Resolution	
CEPT	Conférence Européenne des Administrations des Postes et des Télécommunications	European Conference of Postal and Telecommunication Administrations
CS	Carrier Selection	
CSD	Circuit Switched Data	
EC	European Commission	
ECC	Electronic Communications Committee	A committee within CEPT dealing with telecommunications and Radiocommunications questions.
ERO	European Radiocommunications Office	
ETO	European Telecommunications Office	The former “sister” organisation of ERO
ETSI	European Telecommunications Standards Institute	
EU	European Union	
GPRS	General Packet Radio Service	
GSM	Global System for Mobile communications	The second generation digital technology originally developed for Europe but which now has in excess of 71 % of the world market. Initially developed for operation in the 900 MHz band and subsequently modified for the 850, 1800 and 1900 MHz bands. GSM originally stood for Groupe Speciale Mobile, the CEPT committee which began the GSM standardisation process.
HESC	Harmonised European Short Codes	An initiative to harmonise European services behind national number plans starting with digits 116
IRG	Independent Regulators’ Group	
ISDN	Integrated Services Digital Network	
MM4	Intra-MMSC-protocol	
MMS	Multimedia Messaging Service	
MMWG	Mobile Market Working Group	A group within IRG
MNO	Mobile Network Operator	
MSISDN	Mobile Station International ISDN Number	
NAPM	Name and Address Plan Manager	
NRA	National Regulatory Authority	
NUSC	Network-Use Short Codes	
ONP	Open Network Provision	
PRN	Premium Rate Numbers	
PRS	Premium Rate Services	
PSTN	Public Switched Telephone Network	

<b>Abbreviation</b>	<b>“Opening” of the abbreviation</b>	<b>Description</b>
PT SC	Project Team on Short Codes	Project Team within WG NNA
SMS	Short Message Service	
SMSC	SMS Service Centre	
USSD	Unstructured Supplementary Service Data	
UK	United Kingdom	
VAS SMS	Value Added SMS	
VHE	Virtual Home Environment	
WAP	Wireless Application Protocol	
WASP	Wireless Access Service Provider	
WG NNA	Working Group of Numbering, Naming and Addressing	A working group within the CEPT/ECC

## ANNEX A: TECHNICAL OVERVIEW SMS AND MMS

### SMS

The Short Message Service (SMS) is the ability to send and receive text messages to and from mobile telephones. The text can comprise of words or numbers or an alphanumeric combination. SMS was created as part of the GSM Phase 1 standard. The first short message is believed to have been sent in December 1992 from a Personal Computer (PC) to a mobile phone on the Vodafone GSM network in the UK. Each short message is up to 160 characters in length when Latin alphabets are used, and 70 characters in length when non-Latin alphabets such as Arabic and Chinese are used.

SMS is based on numbers, which are either E.164 numbers and/or network specific numbers which can be short codes. The SMS service centre (SMSC) is always addressed with the E.164 number taken from the number space of the SMSC owner's network operator. SMS messages are always – also in case of roaming – sent via the sender's SMSC.

More information about SMS and source of this chapter: <http://www.gsmworld.com/technology/sms/intro.shtml>

### MMS

Multimedia Messaging Service (MMS) is a store and forward messaging service that allows mobile subscribers to exchange multimedia messages with other mobile subscribers. As such it can be seen as an evolution of SMS, with MMS supporting the transmission of additional media types:

- text
- picture
- audio
- video
- combinations of the above

ECC Report 62 – *MMS-Multi Media Messaging and MMS-Interconnection* (November 2004) gives a good overview on what MMS is, how it works and how compares to other forms of messaging. It also includes information on the arrangements for interconnection and on the current state of development of the service. Text of this chapter is taken from the ECC Report 62.

While the user-interface is intended to be very similar to SMS, the technical implementation is quite different. While SMS uses the signalling network (SS7) for transport of messages, MMS is based on the wireless application protocol (WAP), which runs over either packet switched data (GPRS/3GPP) or circuit switched data (CSD) bearers. Today GPRS is mostly used.

The current implementations of GPRS only allow the mobile terminal (and not the network) to activate a new context (session). In order to allow a mobile also to receive MMS, the network sends a SMS indicating a new MMS to the mobile. The mobile then activates a GPRS context and receives the MMS.

MMS supports the use of Internet e-mail addresses (RFC 2822) or MSISDN (E.164) or both to address the recipient of a multimedia message. In the case of e-mail addresses standard internet message routing is used. If MSISDN addressing is used, the recipient can either be on the own mobile network or a different service provider's domain. In latter case the MM4 protocol is used to transfer the message from one MMS Relay/Server to another.

In contrast to the SMS scenario, where the message is always sent via the “home” network SMSC of the sender to the recipient terminal (this is valid also in case of roaming), multimedia messages are always delivered through the “home” network MMSC of the recipient. This implies the necessity of an intra-MMSC-protocol MM4. Due to the higher number of network elements involved, MMS interworking is considerably more complex than SMS interworking.

More information about MMS: <http://www.gsmworld.com/technology/mms/index.shtml>

**ANNEX B: SUMMARY ON COUNTRY SPECIFIC INFORMATION FOR NUMBERING FOR SMS SC**

**Background**

This Annex provides a summary on country specific information for numbering for SMS short codes. Information, at this point in time, has been collected from countries participating the PT SC (+Australia). A set of questions has been sent to the countries given below.

**Countries with existing VAS SMS numbering plans**

The following countries have sent information on their premium rate SMS:

- (Outside Europe/CEPT) Australia
- Austria
- Finland
- France
- Ireland
- Switzerland
- Turkey

1. Are there also, in addition to VAS SMS numbering range(s) used for cross-network services, a range of codes that are allowed to be used for network-specific services (by each operator)?

Country	Response	Note
Australia	No	
Austria	Yes. Short Codes can only be used for services at the rate of a normal SMS. It is not possible to use short codes for Premium Rate SMS services.	
Finland	Yes	
France	Yes, but not regulated	
Ireland	Yes	
Switzerland	Each individual SMS short code can be used for network specific services. This has to be coordinated among all operators.	
Turkey	There is no special range of code allocated by the Authority for network-specific use. For the services provided through SMS, GSM operators use short numbers internal to their networks from the numbering range allocated to them with the concession granted and such SMS numbers are not necessarily accessible from other networks.	

2. Are there any restrictions to network-specific number ranges?

If so, what are these restrictions?

Country	Response	Note
Australia	In practice, yes. Under the Australian telecommunications law, numbers used for any service that is used for communication between 2 end-users, each of whom is unconnected with the supplier of the service, must be specified in the national numbering plan. It would be possible to specify network-specific numbers in the national numbering plan, but this has only been done for some "internal network" (not diallable) numbers.	
Austria	Yes. Short Codes can only be used for services at the rate of a normal SMS. It is not possible to use short codes for Premium Rate SMS services.	
Finland	Yes: Adult entertainment services are not allowed.	
France	In practice there are network-specific number ranges on mobile networks who are restricted to choose only codes that do not clash with the national numbering plan. As long as CS (Carrier Selection) is not available on mobile networks, the clash risk is not a big constraint.	
Ireland	Yes. They must be used for services directly related to the network, its performance and its user-friendliness.	
Switzerland	No	
Turkey	Operators should obey the rules depicted in the Numbering Ordinance. Accordingly, they can not use numbers which will collide with the numbers in the national numbering plan.	

## 3. Until what extent is the NRA involved and what is possibly delegated to the industry.

Country	Response	Note
Australia	Allocation of all VAS SMS numbers, together with allocation of freephone and shared cost numbers, has been delegated to a not-for-profit company that is owned and managed by the major telcos but is independent of any one of them. The allocation of numbers by this company is completely automated, operating according to detailed rules that have been represented in software.	
Austria	Numbers for PR services are assigned by the Austrian NRA. Network specific Short Codes are not assigned by the NRA but can be used by any (mobile) operator by himself.	
Finland	According to the NRA's SMS-numbering plan, NRA assigns the individual harmonized SMS-numbers and each telecom operator assigns their own individual network-specific SMS-numbers.	
France	The NRA is very little involved, however in 2005, we have made mobile operators give up their own network-specific numbers for Directory Enquiry services and move to 118xyz	
Ireland	ComReg must be notified of the intention to open access to a new service using any Network-Use Short Codes (NUSC), at least 14 days prior to service implementation. The number length is also defined by ComReg.  VAS SMS codes are allocated by ComReg. Content regulation is handled by RegTel ( <a href="http://www.regtel.ie">www.regtel.ie</a> ).	
Switzerland	Assignment and management of VAS SMS short codes are delegated to telecom operators. Telecom operators who want to offer VAS SMS by mean of short codes have first to apply for an authorization to the regulator. Authorized operators must coordinate assignment and management of short codes among themselves. If coordination fails, the regulator can issue some guidance.	
Turkey	There are no special rules for VAS SMS.	

4. What is the basic number structure and number length(s)?

Country	Response	Note
Australia	There are 2 sets of numbers: 1 contains numbers of 6 digits in length and another of numbers 8 digits in length. One range in each group is reserved for age-restricted (adult) content).	
Austria	Number ranges for PRS in Austria in detail: 118xx(x), (0)810xxxxxx(xxx), (0)820xxxxxx(xxx), (0)821xxxxxx(xxx), (0)900xxxxxx(xxx), (0)901xxxxxx(xxx), (0)930xxxxxx(xxx), (0)931xxxxxx(xxx), (0)939xxxxxx(xxx). Network specific Short Codes in Austria consists of maximum 5 digits. The first digit is either 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9.	
Finland	The SMS-numbers begin with 1 and are 5 to 6 digits in length. The second or third digit defines the service group or "tariff class" (see point 2.6).	
France	P xxxx where P is the Price digit (3 = free, 4 to 8 indicate increasing charge rates)	
Ireland	The numbers available are 171, 172, 173 and 174X. VAS SMS codes are of the form 5AXXX, where A denotes the tariff band.	
Switzerland	VAS SMS short codes are defined as being 3 to 5-digit numbers beginning with digit 1 to 9.	
Turkey	Currently, numbers used for SMS in mobile networks are 4 digit length	

## 5. Is dual use allowed?

(Dual use is when a number is used for both voice and SMS service. In such a system, e.g. existing number ranges can be used like freephone numbers or PRN).

Country	Response	Note
Australia	Dual use is not prohibited or restricted, but I am not aware of it having been used.	
Austria	Yes	
Finland	No	
France		
Ireland	Dual use is not addressed in the current regulations around NUSCs. However a comprehensive framework for SMS short codes is in operation and it is likely that any SMS based service would be operated on one of those codes.	
Switzerland	Yes. Dual use is allowed in the sense that assignees of short numbers used for voice services have the possibility to use the corresponding VAS SMS short code to offer SMS services. Some restrictions apply on the use of the SMS VAS short code range 1XX(Y(Z)) which correspond to the range dedicated to short numbers for voice services: VAS SMS short codes of the range 1XX(Y(Z)) are primarily reserved to assignees of the corresponding short numbers used for voice services.	
Turkey	Dual use is not defined in the regulation but in practice, if the service is intended to be reached from other networks, operator providing such service may use numbers in the national format.	

6. Are there tariff classes?

What is the reasoning for this? Is there a parallel with the numbering of voice premium rate numbers?

Country	Response	Note																																
Australia	There are no tariff classes prescribed by regulation for either VAS SMS or voice premium rate. The Australian regulatory framework does not permit the specification of tariff classes.																																	
Austria	<p>Tariff classes exist in the number range (0)901 and (0)931 (see Table below). The application of tariff classes enable the user to be informed about the tariff of a service by the number:</p> <table border="1"> <tbody> <tr> <td>(0)9x1 01 x xxx</td> <td>EUR 0,10 per call / per SMS</td> </tr> <tr> <td>(0)9x1 02 x xxx</td> <td>EUR 0,20 per call / per SMS</td> </tr> <tr> <td>:</td> <td>:</td> </tr> <tr> <td>(0)9x1 09 x xxx</td> <td>EUR 0,90 per call / per SMS</td> </tr> <tr> <td>(0)9x1 10 x xxx</td> <td>EUR 1,00 per call / per SMS</td> </tr> <tr> <td>(0)9x1 20 x xxx</td> <td>EUR 2,00 per call / per SMS</td> </tr> <tr> <td>:</td> <td>:</td> </tr> <tr> <td>(0)9x1 90 x xxx</td> <td>EUR 9,00 per call / per SMS</td> </tr> </tbody> </table> <p>The maximum tariff for the PRS number range in detail:</p> <table border="1"> <thead> <tr> <th>Range</th> <th>Tariff</th> </tr> </thead> <tbody> <tr> <td>118</td> <td>Max. €3,64 per minute or €10,00 per call</td> </tr> <tr> <td>(0)810</td> <td>Max. €0,10 per minute / per SMS</td> </tr> <tr> <td>(0)820</td> <td>Max. €0,20 per minute / per SMS</td> </tr> <tr> <td>(0)821</td> <td>Max. €0,20 per call / per SMS</td> </tr> <tr> <td>(0)900</td> <td>Max. €3,64 per minute or €10,00 per SMS</td> </tr> <tr> <td>(0)930</td> <td>Max. €3,64 per minute or €10,00 per SMS</td> </tr> <tr> <td>(0)939</td> <td>Max. €3,64 per minute</td> </tr> </tbody> </table>	(0)9x1 01 x xxx	EUR 0,10 per call / per SMS	(0)9x1 02 x xxx	EUR 0,20 per call / per SMS	:	:	(0)9x1 09 x xxx	EUR 0,90 per call / per SMS	(0)9x1 10 x xxx	EUR 1,00 per call / per SMS	(0)9x1 20 x xxx	EUR 2,00 per call / per SMS	:	:	(0)9x1 90 x xxx	EUR 9,00 per call / per SMS	Range	Tariff	118	Max. €3,64 per minute or €10,00 per call	(0)810	Max. €0,10 per minute / per SMS	(0)820	Max. €0,20 per minute / per SMS	(0)821	Max. €0,20 per call / per SMS	(0)900	Max. €3,64 per minute or €10,00 per SMS	(0)930	Max. €3,64 per minute or €10,00 per SMS	(0)939	Max. €3,64 per minute	
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(0)939	Max. €3,64 per minute																																	
Finland	There are three "tariff" classes: Freephone numbers, Universal access numbers (=normal tariff) and Premium rate numbers (tariffs not regulated or classified).																																	
France	Yes (see number structure)																																	
Ireland	<p>The tariff to call an NUSC from a fixed phone shall not exceed the cost of a local call on the same network. From a mobile phone, the tariff shall not exceed the cost of a mobile-to-mobile call on the same network.</p> <p>For VAS, there are 5 tariff bands, with a maximum retail tariff ceiling, rather than a specific price point. These tariff bands are 50XXX (Free), 51XXX (standard rate text, &lt;€0.16 inc VAT), 53XXX (Basic Premium, &lt;€0.80 inc VAT, 57XXX (High Premium, &gt;€0.80 inc VAT) and 59XXX (Adult services, Variable tariffs)</p>																																	
Switzerland	No tariff classes are prescribed by the regulation and none has been defined by the operators.																																	
Turkey	No																																	

## 7. Are there content classes?

What is the reasoning for this? Is there a parallel with the numbering of voice premium rate numbers?

Country	Response	Note
Australia	In practice, there are content classes. This is because separate content regulation applying to VAS SMS (and also to mobile portal content) requires that age-restricted content is only available to users who have requested access and only after their age has been confirmed as 18 or more.	
Austria	In general no, but it is not allowed to use the number ranges (0)900 and (0)901 for adult services. The number range 118 is only allowed to be used for telephone directory inquiry services.	
Finland	Yes, a parallel with the voice services. The content classes are: general services, consulting and ordering, entertainment, adult entertainment.	
France	No	
Ireland	For VAS SMS, adult content is restricted to the 59XXX band.	
Switzerland	Yes. The regulation prescribes that adult entertainment services must be grouped within specific number ranges exclusively dedicated to such offerings. Telecom operators have decided to reserve the number range 6XX(Y(Z)) for this content class. Users can ask their operator for barring access to this content class only or to all VAS SMS services.	
Turkey	No	

8. What are the basic allocation principles and what are the reasons?

E.g. direct (to content providers) or indirect (to operators/intermediate service providers).

Country	Response	Note
Australia	Numbers are allocated individually to "carriage service providers" (approximately equivalent to providers of electronic communications services, as defined in the Framework Directive). In practice, most content aggregators (companies which aggregate content from multiple sources, and provide a platform for hosting and payment for content) are regarded as carriage service providers. Consequently, both mobile operators and content aggregators are allocated VAS SMS numbers.	
Austria	PRS numbers are directly allocated to both service providers and content providers.  Network specific Short Codes are not assigned by the NRA but can be used by any (mobile) operator by himself.	
Finland	Numbers are assigned directly and individually to service producers (end users). The reason is that the technically feasible number length did not allow block assignments.	
France	The SMSplus association directly assign numbers to content providers. The assignee shall contact at least one of the mobile operators to contract with it.	
Ireland	Numbers are directly allocated to both mobile network operators and service providers (including content aggregators).	
Switzerland	Telecom operators assign VAS SMS short codes directly to content providers or content aggregators.	
Turkey	Numbers are allocated to network operators	

## 9. How many numbers per applicant are allowed? Why?

Country	Response	Note
Australia	There is no restriction on the quantity of numbers per applicant, but there is both an application fee and an annual charge for numbers. The annual fee was €5,875 per 6-digit number and €59 per 8-digit number in 2005.	
Austria	No restriction. But a service provider has to proof the demand for numbers if he applies for more than 5000 numbers in the number ranges (0)900, (0)930 or (0)939 or he applies for more than 300 numbers in the number ranges (0)901 or (0)931. A content provider has to proof the demand for numbers if he applies for more than 100 numbers in the number ranges (0)900, (0)930 or (0)939 or he applies for more than 10 numbers in the number ranges (0)901 or (0)931.	
Finland	There are no restrictions but there is a numbering fee (80 or 120 eur/a) and the assignee is required to bring the assigned number into use in 6 months. In practice the most number applications include 1 to 2 numbers.	
France		
Ireland	Currently there is a restriction of a maximum of 30 codes per service provider.	
Switzerland	No restriction.	
Turkey	No restriction through regulation.	

10. What is the basic assignment mechanism and what is the reason?

E.g. lottery, auction.

Country	Response	Note
Australia	Assignment of VAS SMS numbers is administrative -- that is "first in, first served".	
Austria	PRS numbers are assigned on a first come first served principle.	
Finland	Administrative, "first in, first served".	
France	First come first served	
Ireland	There are various bands within the framework that are reserved for numbering management reasons (e.g. future expansion), but those that are available for allocation are allocated on a first come, first served basis.	
Switzerland	VAS SMS short codes are assigned on a first come, first served basis.	
Turkey	For allocation of numbers "first come first served" is applied.	

## 11. Has any evaluation of the VAS SMS numbering policy taken place?

Is the policy satisfactory/what are the results (details are welcome!).

Country	Response	Note
Australia	There has been no evaluation of the policy. I understand that the policy is generally regarded as satisfactory.	
Austria	No	
Finland	There has been no evaluation of the policy. We understand that the policy is generally regarded as satisfactory.	
France	The policy is generally regarded as satisfactory.	
Ireland	There has been no specific evaluation of the VAS SMS framework, but the National Numbering Conventions (ComReg 05/62) (in which the general numbering framework is set out) was consulted on in 2005 and there were no changes to the SMS framework as a result of this.	
Switzerland	The current regulation entered into force quite recently (on October 1 <sup>st</sup> , 2005) and no evaluation took place so far. However, a significant reduction of the customer complaints could be noticed since then.	
Turkey	There has been no specific evaluation for VAS SMS.	