



# Telephone Numbering

Safeguarding the future of numbers

Consultation

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# Foreword

Telephone numbers are something which, understandably, people and businesses mostly take for granted. But numbers are an essential part of how residential consumers and businesses obtain and pay for their telecommunications services. Telephone numbers are an important national resource. In the past, changes to the way this resource has been managed have tended to be made on a case by case basis. Convergence and increasing competition from multiple suppliers for new services produces a need for a long-term framework for managing this resource effectively to ensure that consumers, business and residential, get the maximum benefits; and so that communications providers and users of numbers can continue to innovate with some planning certainty.

The traditional means of allocating numbers, designed in the days of a monopoly provider and slow-moving technology, is essentially inefficient in its use of numbers. In the past this has led to shortages of geographic numbers (i.e., those with an 01 or 02 prefix), particularly in the larger towns and cities, and then to large scale enforced number changes. Consumers and businesses rightly resent the consequent disruption. The hundreds of new services and substantial rise in the number of providers, that competition and technology change have made possible, bring many benefits but continue to put the geographic numbering system under strain.

A key proposal in this document therefore is for more efficient mechanisms for allocating numbers, which we believe will remove the need for such large-scale enforced number changes now and in the future.

Alongside the location-specific, geographic, number-ranges there is a series of non-geographic number ranges: 080 for Freephone and 07 for mobile phones are probably the best understood. But in general consumer awareness is low about the meaning of these number ranges and hence of the prices they can expect to pay for calling such numbers.

We are therefore proposing to make these ranges of numbers more systematic, more accessible and easily understood. A key proposal is the creation of a new Country-wide number range – 03. This will give public services and businesses the advantage of a single number nationwide and the routing advantages of, for example, being able to direct calls to whichever call centre has the lightest traffic at that time, minimising the time customers have to wait. For consumers the benefit will be that prices will be closely tied to their provider's geographic rates and will mean that, if their provider provides inclusive or low-cost call packages, calls to 03 numbers can be included in those packages.

The other specific proposal is the use of the 06 number range for personalised number services. In the short term these will be for “follow-me-anywhere” services but in the longer term could be allocated direct to the individual in the way, for example, that personalised number plates are.

For the 08 and 09 chargeable and premium rate services ranges we propose to band new numbers by price and type of service with the straightforward message: the lower the number that follows 08 or 09 the lower the price in that range. It will also allow, for example, parents to bar access to certain types of chargeable services that









they do not wish their children to call, while allowing the family to continue to have access to others, such as charity donation lines.

Finally, we are also proposing to introduce a consumer protection test when allocating telephone numbers. In the past numbers were allocated purely on the basis of need. But a small minority of unscrupulous communications and premium rate service providers have abused those numbers to cause harm to consumers. The consumer protection test would allow us to cut off the supply of numbers to such providers who might persistently and seriously misuse them.

Taken together we believe that these proposals will improve the management of the numbering system; and will, as the table below illustrates, provide a framework for the future which increases consumer awareness, enhances consumer protection and allows for greater innovation and more new services.

**Stephen A. Carter, Chief Executive**

**Ofcom’s proposed future Numbering Plan**

Numbers starting:	Service provided:
	<p><b>Geographic numbers</b></p>
	<p><b>Countrywide numbers</b></p>
	<p><b>For future use</b></p>
	<p><b>Personalised numbers</b></p>
	<p><b>Mobile numbers</b></p>
	<p><b>Freephone</b></p>
	<p><b>Chargeable services</b></p>
	<p><b>Premium rate services</b></p>

## Section 1

# Summary

### The purpose of this document









- 1.1 Telephone numbers are a critical national resource. They are a key part of how UK households and businesses access and pay for £34 billion worth of services each year<sup>1</sup>, from basic local calls to services such as help desks and chat lines. They are fundamental to effective business operations. They are also key to the communication requirements of citizens, as they allow access to many essential public services.
- 1.2 Telephone numbers must be managed effectively, so that they are available on demand, do not need to be changed, and mean something to those who call them. This is Ofcom's responsibility. This consultation document considers how telephone numbers are used now, how they will be used in the future, and how Ofcom intends to manage them so that consumers get the maximum possible benefits.
- 1.3 Importantly, this document does not propose changes to the geographic telephone numbers traditionally used by most households and businesses. Indeed, the fundamental aim of our proposals for these numbers is to reduce the risk of such changes, now and in the future. We propose to achieve this by putting in place new mechanisms to manage the allocation and use of telephone numbers.
- 1.4 We are proposing some changes to simplify the non-geographic numbers used by certain business and public services. This will seek to strengthen consumer confidence in these numbers, and will take into account work already underway by Ofcom to address consumer concerns about them. Our proposals have been designed so as to minimise any disruption caused by these changes.
- 1.5 The long-term plan for telephone numbering which we set out in this document is based on a set of strategic principles that will apply to all numbering policy decisions. These principles are designed to ensure that our numbering decisions always consider the interests of consumers and businesses. Consumers do not generally care about the more technical aspects of numbering policy, but they do care about the continuity of their own number, and they do want to be able to dial other numbers with confidence.
- 1.6 We are making a number of specific proposals to benefit consumers:
  - using a consumer protection test when allocating telephone numbers, which will permit us to cut off the supply of telephone numbers to those communications providers that persistently and/or seriously abuse consumers;

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<sup>1</sup> UK spending on telecoms, excluding broadband and corporate internet

- restructuring the way in which we allocate geographic numbers (numbers starting with '01' or '02') in order to increase the efficiency with which they are used by communications providers, and thereby avoid number changes;
  - creating a new type of number – starting with '03' - for those business and public services who require a national presence, but who do not wish to charge consumers a premium for contacting them. Charges for calls to these numbers would be tightly linked to the charges for calls to normal geographic numbers;
  - simplifying the meaning of those '08' and '09' numbers which are used to provide chargeable services to consumers, so that consumers can easily understand the price that they are paying and the service that they are receiving. We would achieve this over a period of time by managing growth in a manner that is consistent with a clear long-term approach. We propose to protect the strong existing brand of 'Freephone' services on '0800';
  - creating a new type of number – starting with '06' - for existing 'personal numbering' services, and perhaps in the future for 'individual numbers' which are allocated directly to consumers. We propose to protect against abuse of these numbers by applying a ceiling to call charges. We also propose to consolidate the use of '07' for mobile numbers, acknowledging the strong consumer recognition of mobile numbers; and
  - exploring whether the best means of promoting efficiency in the future might be through the use of market-based incentives, such as a modest charge made to communications providers for the numbers that they receive, rather than through the application of ever more complex regulatory rules and processes.
- 1.7 These proposals fit together to implement the strategic principles we have developed. Some proposals will be phased in, to minimise the costs involved for providers and, ultimately, for consumers. But over time, these proposals as a whole should produce a plan for UK telephone numbers which gives numbers clear and enduring meanings for consumers, which increases trust in certain number ranges, and which makes enough numbers available for current and future services.
- 1.8 If the various measures proposed here are successfully implemented, then the National Telephone Numbering Plan ('the Numbering Plan') in 2010 would look like Figure 1.1.

**Figure 1.1 Ofcom’s proposed future Numbering Plan**

Numbers starting:	Service provided:
	<p><b>Geographic numbers</b></p>
	<p><b>Countrywide numbers</b></p>
	<p><b>For future use</b></p>
	<p><b>Personalised numbers</b></p>
	<p><b>Mobile numbers</b></p>
	<p><b>Freephone</b></p>
	<p><b>Chargeable services</b></p>
	<p><b>Premium rate services</b></p>



## The need for this review

- 1.9 Twelve years after the management of numbering transferred from BT to the regulator, we face significant consumer concern about how certain numbers are being used, and possibly substantial technology-driven change in the future. Ofcom is therefore carrying out its first major review of how it manages telephone numbering. The aim is to provide immediate solutions to some current concerns, and to do so as part of a strategic framework that will also make sense in the future as technology and consumer behaviour evolve.
- 1.10 Ofcom is responsible for managing telephone numbers in the UK. In doing this it must ensure that enough numbers continue to be available to consumers, so that they can benefit from the services which numbers support. Ofcom must also ensure continued trust in the meaning provided by numbers, so that consumers can use them with confidence. Over the past few years we have seen these objectives come under pressure:
- availability is threatened by shortages of numbers in some geographic areas, a threat which is exacerbated by the prospect of market entry by many new competitors. There are also projected shortages for categories of non-geographic numbers (some of those beginning with 08 and 09), for which the usual response of opening extra number ranges could add to existing consumer concerns; and
  - consumer confidence is threatened by confusion about the prices and services associated with certain numbers. This has been a particular concern for services beginning with 08 and 09 numbers. Consumer confidence is also threatened by the misuse by some providers of certain types of numbers, which tends to bring all services offered on such numbers into disrepute.
- 1.11 At the same time, the role and use of numbers is expected to shift dramatically over the next few years. Of particular importance is the emergence of 'Voice over IP' (VoIP) as a mature technology. This fundamentally changes the way in which calls are routed by telephone networks, and therefore fundamentally changes the role of telephone numbers. A variety of new communications providers are using VoIP technology to enter the market for voice calls, whilst those communications providers already active in this market are investing in Internet Protocol (IP)-based 'Next Generation Networks' ('NGNs'). These developments will reduce the pressure on numbering capacity, support exciting new services and enable greater consumer choice, but may also allow new forms of abuse and exploitation.

## Numbering principles

- 1.12 In this document we set out the standard approach that we will take whenever we look at numbering policy issues. These principles are intended consistently to promote the interests of citizens and consumers, by ensuring that:
- the numbers consumers want are available when they are needed;
  - the numbers consumers currently use are not changed if this is avoidable;
  - the meaning which numbers provide to consumers is protected;

- number allocation processes support competition and innovation; and
  - consumers are not unnecessarily exposed to abuse.
- 1.13 This approach recognises that consumer interests are, in general, best served by promoting effective competition; telephone numbers have an important role in this. However, it also recognises the direct consumer interests related to the misuse of numbers, and the broader citizen interest associated with continuity and availability of certain numbers.

## Policy proposals

- 1.14 This review draws on a significant evidence base developed by Ofcom in 2005. We have carried out market research into consumer attitudes to and use of numbers. We have carried out a detailed analysis of current demand for numbers, and technical research into how this may change. We have reviewed the legal framework underpinning Ofcom's role in managing numbers, and carried out economic analysis of the potential role for market-based mechanisms. As a result of this analysis we have developed a number of policy options, which are discussed in more detail throughout this document. The following paragraphs summarise the key elements of our current policy proposals.

### We propose to use consumer protection tests to deny allocations of numbers to providers who persistently and/or seriously abuse consumers

- 1.15 We aim to increase trust in UK numbering as a whole by establishing one or more consumer protection tests that would permit Ofcom to deny allocations of numbers to providers that persistently and/or seriously abuse consumers. Such tests would need to be applied in an objective, transparent, non-discriminatory and proportionate manner, and on a case-by-case basis. We consult in this document on the principle of such tests and the general approach that we might take in order to meet these criteria.
- 1.16 We also consult in this document on a specific example of such a test, covering the allocation of numbers. Ofcom proposes to consider refusing future allocations of numbers in cases where a provider has breached specific consumer protection standards more than once within the previous year. Such a test could substantially reduce current levels of misuse of numbers.

### We propose to take steps now to minimise the chance of consumers having to change their geographic number in the future

- 1.17 Geographic numbers are widely recognised and trusted by consumers. Our consumer research emphasises that consumers highly value continuity in their geographic numbers, and this is also apparent from the public hostility that has historically been associated with major number changes.
- 1.18 Geographic numbers are also in high demand by communications providers. This is not because underlying consumer demand is growing in the UK as a whole. Instead, it is because the numbers that have been allocated are not well-utilised, because the total pool of numbers is spread across many geographic areas and an increasing number of communications providers.

- 1.19 Ofcom proposes to maintain the continuity and availability of geographic numbers to consumers by allocating some geographic numbers to providers in smaller-sized blocks. At present we normally allocate geographic numbers in blocks of 10,000 numbers. In those areas where numbers are in imminent danger of running out, we allocate blocks of 1,000 numbers. We now propose to allocate in blocks of 1,000 numbers in all geographic areas that are at risk of exhaustion within five years.
- 1.20 This approach is only required for the next five years or so, as in the longer term the deployment of VoIP technology in general, and NGNs in particular should allow the allocated numbers to be better-utilised. This is because these networks will no longer use telephone numbers as the means of routing calls (they will use IP addresses instead), and this means that the network itself no longer constrains the size of number blocks. It will be possible to allocate telephone numbers in whatever block-size is most efficient from a numbering management perspective.
- 1.21 This proposal will improve the utilisation of these numbers, and substantially reduce the risk of number changes. A moderate improvement in utilisation rates, from the current average of 15 per cent of available numbers to about 30 per cent, would reduce the number of geographic areas currently at risk of number shortages from 34 to zero.
- 1.22 Ofcom has also considered contingency plans to make available additional numbers if numbers do become exhausted in a small number of specific areas. This might occur for unforeseen reasons such as substantial new housing development within a limited geographic area. Our view is that the most effective means of providing additional numbers in a targeted manner, to minimise consumer disruption, is to use 'overlay codes' (i.e., using a second area code for exactly the same geographic area that has run out of numbers). This view is supported by the successful introduction of '020 3' (similar to an overlay code) in London over the last year. We therefore propose to adopt overlay codes as a backstop measure where allocating numbers in smaller blocks is not sufficient.

**We propose to manage numbers more effectively by substituting market-based mechanisms for some administrative rules and processes**

- 1.23 Ofcom currently manages numbering using complex rules and processes that are designed, for example, to ensure that providers use numbers efficiently. But we have been considering whether some use of market-type mechanisms might be more effective and less intrusive.
- 1.24 Initially, we are considering charging communications providers (not consumers) a nominal sum for number allocation, sufficient to incentivise efficient use of the numbers that they are allocated. We consult in this document on the principles that would apply to any such charge.
- 1.25 Ofcom notes that it is unlikely to be possible to introduce any form of charge before 2007. Ofcom is aware that by signalling the possible introduction of such a charge, providers may apply early for numbers that they do not yet need in order to avoid future charges. Ofcom wishes to make clear that such behaviour will not be rewarded. For example, any charge which is introduced is likely to include an annual charge that would be applied to all allocated numbers.

**We propose to create a new type of number – starting with ‘03’ - for those business and public services who require a national presence, but who do not wish to charge consumers a premium for contacting them**

- 1.26 The original purpose of those non-geographic numbers starting with ‘08’ and ‘09’ was as a single point of contact for those businesses and public services which have a national presence. These numbers additionally permit businesses and public sector bodies that make services available to the public to charge for those services using a micro-payment mechanism known as ‘revenue share’; this capability is widely used.
- 1.27 However, consumers have a poor awareness of the absolute level of call charges for these numbers, and the nature of the micro-payment which is included in them. Additionally, a number of ‘scams’ have emerged which exploit this micro-payment mechanism. The result has been a substantial erosion of consumer trust. Some proposals to restore this trust have already been set out in separate consultations, which will be concluded separately<sup>2</sup>.
- 1.28 This review also notes that several key ‘08’ ranges are at risk of running out. This is due to strong growth in underlying demand, rather than poor utilisation of the allocated numbers, and so Ofcom will need to make available additional numbering capacity. This creates an opportunity to manage growth in a manner that is consistent with a long-term vision intended to deliver further benefits to consumers.
- 1.29 Ofcom proposes immediately to create a new type of number – starting with ‘03’ - for those business and public services who require a national presence, but who do not wish to make an additional charge to consumers for contacting them. We would expect the new range to become trusted by consumers as covering clearly-understood services and price ranges. We would take several steps to build this trust:
- the new proposed ‘03’ range is numerically next to the existing ‘01’ and ‘02’ geographic ranges, and call tariffs would be the same as geographic rates. Consumers would therefore have a clear understanding of the price that they are paying for a call;
  - the use of revenue-sharing would be forbidden on this new range. Consumers calling these numbers could be confident that they were paying only for the call, and not for any additional services provided by the organisation being called; and
  - Ofcom would work with those UK communications providers responsible for managing international network interconnection, to try and ensure that the new range can be called from abroad.

**We propose to simplify the structure of the 08 and 09 number ranges**

- 1.30 Services which require small micro-payments would stay on the ‘08’ range, getting new number allocations as required by demand. The creation of the

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<sup>2</sup> *Number Translation Services: A way forward* ([http://www.ofcom.org.uk/consult/condocs/nts\\_forward/](http://www.ofcom.org.uk/consult/condocs/nts_forward/)) *Providing citizens and consumers with improved information about Number Translation Services and Premium Rate Services* ([http://www.ofcom.org.uk/consult/condocs/nts\\_info/#content](http://www.ofcom.org.uk/consult/condocs/nts_info/#content)), *Conditions regulating Premium Rate Services* (<http://www.ofcom.org.uk/consult/condocs/prsconditions/prs.pdf>)

new 03 range would, however, both give Ofcom more flexibility in managing the 08 range in the short- to medium-term, and make it possible over a longer period to simplify the public description of numbers within the 08 range.

- 1.31 Our long-term approach to the 08 range is that services would be described at the 2-digit level (e.g., 080, 081, 082) rather than the current 3-digit level (e.g., 0844, 0845). This would increase the capacity of each range by a factor of 10, so ensuring number availability for each service for the foreseeable future. Services would be allocated number ranges in order of price, from 080 to 089 (e.g., 080 is free, 084 is 5ppm or less, 087 is 10ppm or less). This should significantly increase transparency for consumers.
- 1.32 Ofcom proposes to leave current 0800 Freephone service numbers unchanged. This is the one type of 08 number that is well-recognised and trusted by consumers. The same number generally is used for Freephone services internationally, which may contribute to high consumer awareness. And there is no current danger of these numbers being exhausted.
- 1.33 Ofcom has also considered a variety of options for simplifying the public description of '09'. We would prefer a similar approach to that proposed for '08', by associating a clearly defined service category with specific 2-digit ranges. For example, '092' might be allocated to 'charity fund-raising', and '098' to 'adult content'. The aim would be to try and establish a clear identity for each number range, in the interest of both consumers and service providers.
- 1.34 Ofcom recognises that the proposals for 08 and 09 would leave existing services in place on certain 3-digit numbers that are inconsistent with the long-term approach. We are not proposing here forced migration of such services, as that raises a number of complex issues about migration costs on which we have consulted separately<sup>3</sup>. We note however that the proposals described here are designed so as to create a strong and positive brand for the new numbers which are made available, in the expectation that this will encourage voluntary migration over a period of time to the new structure. If this proves to be successful, then it may be appropriate to return to the issue of forced migration of remaining legacy services. The trigger for such a re-evaluation would be a level of voluntary migration which materially reduced the residual costs associated with forced migration.

**We propose to take immediate steps to increase consumer protection for 070 personal numbers, allowing '07' to be wholly identified as a mobile range**

- 1.35 Personal Numbering Services are provided on one specific part of the 07 range (070). Ofcom has several concerns about these services. There is very limited consumer awareness of 'Personal Numbers' as a concept, and legitimate personal numbering services have had relatively little market impact. At the same time there have been a number of cases where providers have exploited the poor awareness of this range, and the lack of call charge ceilings, to run 'scams'.

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<sup>3</sup> *Number Translation Services: A way forward*  
([http://www.ofcom.org.uk/consult/condocs/nts\\_forward/](http://www.ofcom.org.uk/consult/condocs/nts_forward/))

- 1.36 There has been a previous attempt to restore trust in personal numbers, by removing the ability of 070 providers to use revenue-sharing, but continuing consumer abuse suggest that this was not sufficient. Ofcom therefore now proposes to introduce a charge ceiling on calls to personal numbers, to close the 070 range to new applicants and to allow current 070 services to migrate to a new range within perhaps three years.
- 1.37 Consumers primarily associate the 07 range with mobile services, and this provides a valuable degree of tariff transparency, making clear when consumers are paying a premium for a mobile service. The migration of personal numbers from 070 will permit Ofcom to consolidate this recognition, by formally designating the entire 07 range as being for mobile services. It might be appropriate to reserve specific sub-ranges for new mobile multimedia services, which might have different tariff structures from existing voice services, and Ofcom is seeking views on ways in which this might be achieved.

### We propose to designate a new '06' range for existing personal numbering services and future individual numbering allocations

- 1.38 Ofcom proposes to open a completely new range – '06' – for 'follow-me' services such as personal numbers. Ofcom further proposes to open a specific sub-range - '065' - to accommodate those specific personal numbering services which are migrating from 070, and also to accommodate growth in such services. Ofcom would apply the same consumer protection conditions to '065' numbers as are proposed for '070'.
- 1.39 In the longer term Ofcom believes that there may be merit in considering extending the concept of 'personal numbers' to include 'individual numbers' allocated directly to end users. A number of issues would need to be resolved before such a scheme could be implemented, and Ofcom is seeking input on these issues. In the meantime, Ofcom provisionally proposes that '060' be used for such services.

### Next steps

- 1.40 This consultation runs until **4 May 2006**. Ofcom aims to publish conclusions in a statement in summer 2006 on geographic numbering, some non-geographic numbering (including 08 numbers) and the approach to 070 personal numbers. During this consultation period, Ofcom will also arrange consumer research to help develop straightforward descriptions and associated graphics for individual number ranges with the aim of promoting greater consumer awareness.
- 1.41 Ofcom will also need to conduct further consultation on the detailed steps necessary to implement these proposals, perhaps in a single consultation document in summer 2006. Ofcom also expects to consult further in summer 2006 on more detailed proposals concerning consumer protection tests, number charging, allocating numbers directly to end users, and numbering for premium rate services, with final conclusions being published by the end of 2006.

## Section 2

# Introduction

### The need for this review

- 2.1 Telephone numbers are a critical and at times scarce national resource. They are the means by which UK consumers access and pay for £34 billion worth of services each year; from basic local calls to value added services such as help desks and chat lines. They underpin the effective operation of most businesses. And they are fundamental to the communication requirements of citizens, enabling access to many important and some essential public services.
- 2.2 Since the management of numbering transferred from BT to an independent regulator in 1994 there has been rapid growth in new services (from three million global IP hosts in 1994 to three hundred million now, from three million UK mobile phones in 1994 to sixty million now) and a dramatic increase in the number of providers of those services (from seven providers using Inner London numbers to over 90 now). This has forced substantial and sometimes disruptive change in the way numbers are managed, including the opening up of new number ranges for new services, and the restructuring of existing geographic ranges.
- 2.3 We now face something of a crossroads in relation to numbering policy. We face some immediate challenges, in relation to the potential exhaustion of certain number ranges, and the erosion of trust in certain types of number. At the same time, the deployment of new technologies (notably NGNs and VoIP) provides us with increased flexibility as to how we respond to these challenges, but also the need to make certain choices.
- 2.4 For these reasons, a review of numbering is now required. In this consultation, we set out the broad context within which numbers are managed, and describe current concerns. We make a number of specific proposals, to provide immediate relief for those concerns, and do so as part of a strategic framework that anticipates evolving technology and consumer trends.

### Structure of this document

- 2.5 This consultation document has a large scope, covering broad strategic issues and detailed policy proposals. To give sufficient attention to both aspects whilst producing a readable document, much detailed analysis appears in annexes. In the main Sections:
  - Section 3 describes the broad context for numbering strategy and policy decisions, covering the legal framework, the strategic principles that Ofcom proposes should apply when considering numbering policy issues, consumer attitudes to numbering, and the impact of technological change;
  - Section 4 presents the current challenges to UK numbering, in terms of continued availability of numbers, transparency for consumers about what numbers mean, and consumer abuses that are associated with specific number ranges;

- Section 5 summarises Ofcom’s policy preferences for addressing current and future policy issues, and how today’s Numbering Plan would evolve into the new model.

2.6 The annexes mostly assess various options for detailed policy proposals:

- Annex 1 covers proposals on geographic numbering;
- Annex 2 covers non-geographic services whose numbers now begin with 08 or 09;
- Annex 3 covers proposals for mobile, personal and future individual numbering;
- Annex 4 discusses the potential use of market tools such as charging for numbers;
- Annex 5 proposes consumer protection measures to address specific issues and abuses;
- Annex 6 provides a glossary of technical terms used in this document; and
- Annexes 7-10 are standard ones on the consultation process, including a list of all consultation questions and details of how to send us your views.

### Research for this document

2.7 This consultation document draws on a significant evidence base developed by Ofcom in 2005, using both primary and secondary research. This evidence base includes:

- market research, both qualitative market research using 50 focus groups conducted in England, Scotland, Wales and Northern Ireland, and various quantitative market research of residential and business consumers<sup>4</sup>;
- technical research, on numbers’ technical role in network equipment and standards, their operational role (including billing, sales and marketing), developing numbering-related technologies, and the feasibility of allocating numbers in smaller blocks;
- demand analysis, based on information requests to communications providers to assess current number utilisation, and analysis of OSIS (the database in which BT stores information for directory enquiries) to see what numbers are allocated to communications providers but not utilised by consumers;
- economic analysis of number utilisation and the potential case for using market-based mechanisms such as charging for numbers;
- a review of the legislative framework underpinning Ofcom’s role in UK numbering policy and allocation; and
- a review of numbering systems in other countries.

2.8 The issues covered in this document are complex, and Ofcom would welcome stakeholders’ own evidence to inform both our decisions following this consultation and our thinking for those policy elements that will have a second stage of consultation.

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<sup>4</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/research>



## Section 3

# Strategic context

## Introduction

3.1 The UK’s numbering resource is structured and managed by Ofcom through the UK National Telephone Numbering Plan and supporting allocation and administration processes. The Numbering Plan is currently under pressure from a series of issues, as detailed in Section 4, which include distrust and abuse of numbers. At the same time, we are on the brink of a transformation in the way in which numbers are used, due to changes in services, technologies and consumer behaviour. These changes, together with the statutory duties and strategic principles which shape Ofcom’s role, form the strategic context for this Review and must inform our response to the current issues.

## The legislative framework

3.2 The legal framework within which Ofcom administers telephone numbers is established by a number of European Directives. The key elements of these are:

- Article 10 of the Framework Directive requires National Regulatory Authorities ("NRAs") to “control the assignment of all national numbering resources and the management of national numbering plans”, and requires Member States to “ensure that adequate numbers and numbering ranges are provided for all publicly available electronic communications services” and to “establish objective, transparent and non-discriminatory assigning procedures for national numbering resources”; and
- Article 6 and Annex C of the Authorisation Directive set out conditions that NRAs can attach to the use of numbers, including the ability to define the services for which a number can be used, and requirements linked to providing that service.

3.3 The Directives are implemented in UK law by the Communications Act 2003 (“the Act”). This establishes certain overarching duties which are relevant to all Ofcom’s activities, including numbering administration. Of particular relevance here is Ofcom’s principal duty, set out in section 3(1), which states:

“It shall be the principal duty of Ofcom, in carrying out their functions: (a) to further the interests of citizens in relation to communications matters; and (b) to further the interests of consumers in relevant markets, where appropriate by promoting competition”.

3.4 Section 63 of the Act sets out Ofcom’s general duty in relation to its telephone numbering functions. Ofcom is required by this duty:

“a) to secure that what appears to them to be the best use is made of the numbers that are appropriate for use as telephone numbers; and (b) to encourage efficiency and innovation for that purpose.”

- 3.5 Sections 56-62 of the Act set out a number of specific duties which Ofcom must discharge in relation to telephone numbers, as well as the powers which Ofcom has to discharge these duties. These include:
- publishing, reviewing and revising the National Telephone Numbering Plan;
  - keeping a day-to-day record of numbers allocated, i.e., the National Numbering Scheme ("the Scheme");
  - allocating numbers determined as available in the Numbering Plan within three weeks of application receipt and set restrictions in their adoption or other use;
  - withdrawing number allocations (in accordance with set procedure);
  - withdrawing and replacing allocations necessary for numbering reorganisations; and
  - setting General Conditions on the allocation, adoption and use of numbers.
- 3.6 Note that although the Act defines telephone numbers in rather general terms, this should not be interpreted to mean that Ofcom is responsible for internet addresses or domain names. These are excluded from treatment as telephone numbers by the Telephone Number Exclusion (Domain Names and Internet Addresses) Order 2003 issued by the Secretary of State under section 56(7) of the Act . This fact is of particular relevance to the discussion of new technologies from paragraph 3.25.

### **Ofcom's strategic principles - delivering the benefits of numbers to citizens and consumers**

- 3.7 The legislative framework defines Ofcom's statutory duties and these in turn shape our approach to numbering. In setting out our strategic principles, Ofcom must set the appropriate balance between our general duties to promote the interests of citizens and consumers, and our specific numbering duties, which because of their more technical nature tend to focus on industry. We must interpret our duty to ensure that the 'best use' is made of numbers not just as a matter of technical efficiency, but as a broader responsibility to ensure that citizens and consumers benefit from the national resource which is numbering.

### **Numbering policy and the consumer interest**

- 3.8 The manner in which Ofcom furthers the consumer interest is discussed in more detail in Ofcom's current consultation on consumer policy<sup>5</sup>, a central plank of which is that consumer interests can in general be best served by promoting effective competition. There are several ways in which numbering policy is relevant to the promotion of effective competition, in particular the following conditions are necessary for competition to be effective:

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<sup>5</sup> Ofcom's Consumer Policy, <http://www.ofcom.org.uk/consult/condocs/ocp/>

- there must be sufficient availability of numbers, so that scarcity of numbering resource does not create barriers to entry for new providers<sup>6</sup>;
- those numbers which are available must as far as practicable be allocated in a technology neutral manner, that does not unnecessarily favour one form of network or technology over another<sup>7</sup>;
- those numbers which are available must be allocated in a manner that does not discriminate between individual providers<sup>8</sup>; and
- numbers must be managed in such a manner that consumers can understand what service they are purchasing when they call a number, at what price, so that they can make informed choices<sup>9</sup>.

3.9 Alongside these duties in relation to the promotion of competition, Ofcom must also consider the potential harm to consumers caused by abuse of those measures which Ofcom has set in place to promote competition. This harm may take the form of financial loss, in the case of ‘scams’, but it may also take the form of annoyance or inconvenience, in the case of unsolicited communications. Section 3(4) of the Act sets out a number of further principles to which Ofcom must have regard in the context of furthering the interests of consumers, including the particular needs of vulnerable consumers and the desirability of preventing crime and disorder<sup>10</sup>.

3.10 Ofcom recognises that numbering is not the only, and may not be the principal, means of protecting consumers from harm in relation to telecommunications services. The rogue diallers scam is an example which illustrates what numbering can and cannot achieve. This scam uses software to transfer dial-up internet connections from low-cost or Freephone numbers to more expensive telephone numbers. The Numbering Plan can help reduce the damage caused by this scam, but it cannot be used to prevent rogue diallers being installed, nor can it provide redress for any resulting fraud.

3.11 A number of other agencies have responsibilities for protecting consumers from harm, including ICSTIS, the Office of the Information Commissioner and, in relation to criminal activities, the Crown Prosecution Service. Ofcom recognises the need to work closely with such agencies in cases of overlapping responsibility.

### **Numbering policy and the citizen interest**

3.12 Ofcom’s citizen-related policy is concerned with changing the outcome delivered by the communications market in order to meet a broader societal objective or interest. An example is the provision of universal service in order to protect against social exclusion. Using current technology, numbers are an essential requirement to access telecommunications services.

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<sup>6</sup> Section 63(1) of the Act states that it shall be the duty of Ofcom, in carrying out its telephone numbering functions, to secure what appears to be the best use is made of the numbers and to encourage efficiency and innovation for that purpose.

<sup>7</sup> see section 4(6) of the Act

<sup>8</sup> see section 60(2)(b) of the Act

<sup>9</sup> this relates to General Condition 10, which applies to all communications service providers and was set under section 45 of the Act

<sup>10</sup> see sections 3(4)(h) to 3(4)(j) of the Act

- 3.13 Telephone numbers are administered by Ofcom using a complex rules-based system. One aim of this approach is to ensure that a valuable national resource is easily available for all citizens upon request, and without discrimination, i.e., to ensure that numbers support the citizen interest. One effect of this quite intrusive regulatory intervention is to limit the extent to which a numbering ‘market’ might develop. As discussed in more detail in Annex 4, this has resulted in the absence of some of the benefits which a well-functioning market helps deliver, benefits such as the matching of supply with demand, information transparency and efficient use of resources. It is Ofcom’s view that a ‘free’ market in numbers is not appropriate because of the citizen interests at stake. One of the questions we consider in this review is whether the limited introduction of certain specific market mechanisms can help promote the consumer interest without detracting from the citizen interest.
- 3.14 There are other aspects of numbering policy which extend beyond the simple operation of the market. In particular, our consumer research shows that people attach a great deal of importance to the continuity of ‘their’ telephone number. They are very hostile to numbering changes, to an extent that goes well beyond the direct financial cost incurred by such changes. Research undertaken on behalf of Ofcom to gauge the cost and inconvenience to residential consumers found that they would pay an average of £6 to avoid a number change, but require a payment of £600 to agree to change their telephone number. These figures support the idea that many consumers view their telephone number as a clear ‘right’ which they do not consider that they should pay to keep, but which they value highly. Telephone numbers represent an important element of the personal identity of citizens, and underpin the manner in which they participate in society. This must be taken into consideration by Ofcom’s numbering policy.

### Strategic principles

- 3.15 The discussion above suggests that Ofcom’s policy approach to numbering might be guided by the following strategic principles:
- Ofcom will maintain the availability of telephone numbers to consumers, so that they can access the services that they value;
  - Ofcom will do so in a manner that maintains the continuity and meaning which is provided by numbers and which is valued by consumers;
  - Ofcom will allocate numbers in a manner that delivers the benefits of competition to consumers, and in particular that does not inappropriately discriminate between different providers, or the networks and technologies used by those providers; and
  - Ofcom will allocate and manage numbers in a manner that does not unnecessarily expose consumers to abuse.

*Question 1 What are your views on the strategic principles that Ofcom proposes to apply to its numbering policy decisions?*

## The consumer view

- 3.16 Before applying these principles to the development of specific policies, Ofcom must consider the extent to which they are demonstrated in the current numbering environment. Ofcom has commissioned significant market research to enable us to assess the consumer perspective on numbers<sup>11</sup>. The results can be broadly grouped around three main themes: numbering transparency, the significance and continuity of geographic numbers, and innovation.
- 3.17 On transparency, the strongest message from the consumer research is the general lack of awareness of number ranges and their costs, particularly outside the 01 and 02 (geographic) and 07 (mobile) number ranges. This is covered in more detail in Section 4 of this document but, in general terms, whilst consumers recognise broad relative cost differentials - for example, geographic numbers are seen as the cheapest and 09 numbers as the most expensive - there are also significant failings in their understanding:
- residential consumers over-estimate costs to call all number types, and are less likely to call numbers that they perceive to be more expensive to call and/or are unfamiliar to them; and
  - for many 08 services, little distinction is made between the cost to call different numbers.
- 3.18 Awareness is potentially limited by the fact that many consumers no longer think about the number they are calling. Ofcom's research suggests that most residential customers use a mobile phone handset as their primary means of storing telephone numbers, and 80 per cent of residential consumers with mobiles use the mobile's memory facility to store telephone numbers. Fixed line handsets are also used for this purpose by employees of just over half of business consumers.
- 3.19 Consumers would like the opportunity to improve their understanding of the Numbering Plan: about 90 per cent of residential consumers say they would use some type of information source about the cost of calling different types of numbers, were it available. The most popular potential source was the inside cover of the phone book, which almost two-thirds said they would realistically use.
- 3.20 The geographic significance of fixed line numbers to consumers matters because it suggests how far Ofcom should consider moving away from this plank of the current numbering system. Only slightly more of both residential and business consumers would be concerned rather than unconcerned if the ability to identify location from a number were to disappear. Of business consumers, 43 per cent would be concerned (39 per cent unconcerned) and of residential consumers, 46 per cent would be concerned (37 per cent unconcerned).
- 3.21 However, consumers feel much more strongly about keeping their own geographic number. Our research indicated that numbering changes were viewed as inconvenient and potentially costly. Businesses experiencing a number code change in 2000 estimated that they had incurred an average cost of around £5,000, with updating stationery and loss of business being

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<sup>11</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/research>

the highest cost elements. Paragraph 3.14 quotes research indicating that residential consumers view continuity of their telephone number as very important, with £600 being the average one-off payment that they said telephone companies would have to offer them before they would agree to change their phone number. Significantly, many residential consumers would view a local area code change as annoying (63 per cent) or stressful (40 per cent). Many participants in the qualitative research indicated, however, that changes may be tolerated if the reasons are clear and changes are well-communicated.

- 3.22 Residential and business consumers were also clearly concerned (69 per cent and 70 per cent respectively) to keep the ability to distinguish between fixed phone and mobile telephone numbers, mainly to identify call costs. Some had other reasons, such as wanting to know the type of phone they were calling, as they might behave differently when calling mobiles.
- 3.23 In terms of views on potential innovations in numbering, businesses showed more interest than residential consumers. The idea of a single personal telephone number for fixed and mobile phones appealed to 39 per cent of businesses and 31 per cent of residential consumers. Two-thirds of businesses also said that they were interested in having a permanent number for employees.
- 3.24 The clear message from the consumer research is the need for the Numbering Plan to be more transparent. It is also apparent that consumers overall are ambivalent about change, strongly resenting changes to geographic numbers but fairly evenly split in their attitude to geographic significance. Finally, the benefits of innovations must be evident and tangible to be of interest to consumers.

*Question 2 What do you think are consumers' key current views on numbering, how do you think those views will change, and how should Ofcom's current decisions take those changes into account?*

## Opportunities and challenges from disruptive technology

- 3.25 Ofcom must ensure that our approach delivers the benefits of numbers to consumers now and in the future. Over the next decade, a variety of potentially disruptive changes in technology are expected to drive change in how telephone numbers are used. These include:
- the transition from Public Switched Telephone Network ('PSTN') to NGN networks and the emergence of VoIP providers. These mean that telephone numbers will no longer be the underlying mechanism by which fixed networks route calls, which implies that policy can focus on numbers as they are seen and used by consumers rather than as part of network infrastructure;
  - the possible convergence of fixed and mobile communications. Over time this may erode the distinction between fixed and mobile networks and between fixed and mobile telephone numbers;
  - the availability of new service identifiers. This means that telephone numbers may not be used by consumers as a means of accessing some new communications services; and

- the availability of new mechanisms for managing service identifiers. This may change the way in which different identifiers relate to each other, and their visibility to consumers.
- 3.26 NGNs are IP-based networks with the capability to offer a greater range of services than traditional fixed networks, including voice, video and data, all across a single core network. A number of fixed network operators are migrating their existing PSTN networks to NGNs, to streamline their businesses and reduce operational expenses, as well as to enable the provision of new services.
- 3.27 In parallel with the migration from legacy PSTN to NGN networks, a new class of provider is emerging which delivers voice services over broadband using VoIP technologies, essentially exploiting the increasing uptake of broadband services.
- 3.28 IP addresses, rather than telephone numbers, are the underlying network addresses used by both NGN and VoIP networks. Consumers will still be able to dial a telephone number when they wish to make a telephone call, but their service provider will then translate this telephone number into an IP address in order to determine the correct destination of that call. The call will then be carried to that destination in the form of IP data (IP ‘packets’).
- 3.29 A key characteristic of both VoIP and NGN networks is that whilst consumers may still be able to use telephone numbers to make calls, these telephone numbers are no longer the mechanism by which calls are physically routed. This means that there will no longer be an intrinsic linkage between a telephone number and a specific physical location on the network.
- 3.30 The effect of this will inevitably be to erode the traditional relationship between telephone numbers and geography. Historically individual blocks of geographic numbers have tended to be mapped onto individual local exchanges. This has had the effect of underwriting the meaning provided by area codes, and it has also meant that the first two digits of a subscriber number commonly provide additional geographic information (all the residents of a particular village will tend to have similar numbers). This will no longer necessarily be the case.
- 3.31 This erosion of geographic meaning is likely to be further accelerated by fixed-mobile convergence. Hybrid telephone services are already being introduced which share some of the attributes of existing fixed and mobile services (e.g., BT Fusion, Vodafone Wireless Office). For such services the concept of geography is inevitably weaker than for a traditional fixed service. This trend is likely to continue.
- 3.32 The use of IP addresses rather than telephone numbers for routing purposes also has some more technical implications for numbering policy, for example:
- the reason that telephone numbers have historically been allocated in large blocks (typically 10,000 numbers per block) is that traditional PSTN networks have difficulty routing numbers with any greater granularity than this. This is due to the limited capacity of legacy PSTN switches, specifically the limited availability on such switches of a resource known as ‘decode’. The use of IP addresses to route calls eliminates this constraint, and will permit telephone numbers to be allocated in any block size; and

- the current implementation of number portability in the UK ('onward routing') relies on the exchange that hosted a number before it was ported continuing to receive calls after the number is ported, and then re-routing calls as appropriate. This has created a number of problems in the past, for example when exchanges have been withdrawn from service due to a communications provider ceasing to operate. The use of IP addresses to route calls will require a new implementation of number portability, and this should be more resilient than the current implementation.
- 3.33 As IP addresses are difficult to remember and do not provide any meaning in themselves, they will not normally be visible to consumers. As noted above, it is likely that telephone numbers will continue to be used by consumers wishing to make telephone calls. However, NGN and VoIP providers may use a variety of other identifiers to provide other services to consumers, and may even provide voice services using new forms of identifier. Other forms of identifier that are already familiar to consumers include e-mail addresses and World Wide Web addresses, and new identifiers are emerging (Session Initiation Protocol (SIP) identifiers, H.323 identifiers, .tel URIs).
- 3.34 New ways will be required to manage the range of identifiers used by NGN and VoIP providers. The IP Multimedia Subsystem (IMS), the Domain Name System (DNS), ENUM and the Universal Communications Identifier (UCI) all include ways to achieve this. The most important of these are probably IMS (a core NGN technology used to manage a variety of data about end users) and ENUM (a directory service used to manage various identifiers associated with a particular user).
- 3.35 Interestingly, although the role of telephone numbers is expected to change, services such as ENUM illustrate why telephone numbers are likely to have a continuing role. ENUM allows a variety of contact information for an end user (telephone numbers, e-mail addresses, etc.) to be contacted via a single directory entry. The primary means of accessing this directory entry is a telephone number, a decision which exploits the familiarity and ubiquity of such numbers. These attributes of telephone numbers continue to have value despite technological change.

*Question 3 What do you think are the main ways in which technological developments will change the focus of numbering policy decisions, and how should Ofcom's current decisions take these developments into account?*

- 3.36 In Annexes 1-5, the principles set out above are applied to specific policy issues, some more concerned with availability and some with consumer confidence issues. Some of those proposals are more fully developed than others, and even on the more fully developed ones, Ofcom presents a number of alternative approaches. However, Ofcom does have an overall working view of its preferred positions and therefore of a future Numbering Plan, and how to get there from the current Plan. This set of preferred proposals is presented in Section 5.



## Section 4

# Current challenges to the Numbering Plan

## Introduction

4.1 We noted at the start of Section 2 that telephone numbers are a critical national resource. There are however a number of current concerns which potentially undermine the value of that resource. These are summarised below, and discussed in more detail in the rest of this section.

**Figure 4.1 Concerns with the current UK Numbering Plan**

Range	Purpose	Concerns
01 and 02	Geographic numbers	<ul style="list-style-type: none"> <li>• Many ranges close to exhaustion</li> <li>• Potential for disruptive number changes</li> <li>• Erosion of geographic meaning</li> </ul>
03 and 04	Unused	
05	Various	<ul style="list-style-type: none"> <li>• Purpose unclear, utilisation low</li> </ul>
06	Unused	
07	Personal and mobile numbers	<ul style="list-style-type: none"> <li>• Personal numbers poorly understood, subject to scams</li> <li>• Mobile tariff transparency poor</li> </ul>
08	Non-geographic numbers (call charges <10ppm)	<ul style="list-style-type: none"> <li>• Consumer distrust of current plan</li> <li>• Industry concern re cost of migrating to anything new</li> <li>• Key ranges close to exhaustion, exacerbating the above</li> </ul>
09	Non-geographic numbers (Premium rate)	<ul style="list-style-type: none"> <li>• Strong consumer distrust</li> <li>• Some existing numbers ranges already exhausted</li> <li>• Overlapping nature of new ranges destroys transparency</li> </ul>

## Availability of numbering resource

4.2 The total supply of UK telephone numbers depends on the number of digits which are available for conveying information, which in turn depends on the agreed format for such numbers. This format of telephone numbers is set out in International Telecommunications Union (ITU) Recommendation E.164. This permits telephone numbers to have a maximum length of 15 digits, including the country code, which leaves 13 digits available for use within the UK. However, for historical reasons<sup>12</sup> and because of the uncertainty of routing capabilities in other countries, the UK Numbering Plan uses only ten digits.

4.3 The use of 10-digit numbers still means that the UK Numbering Plan can support a total of ten billion telephone numbers. With a UK population of 62

<sup>12</sup> In 1993, when the basic principles for the current UK numbering scheme were proposed (see *Numbering: Choices for the Future*, OfTel, June 1993), the maximum permitted length for telephone numbers was 12 digits, including the country code.

million this gives 161 telephone numbers for every man, woman and child in the country. One might think that this would suffice.

- 4.4 The situation is however made much more complex by the structure we impose on numbers, via the Numbering Plan and the associated allocation process, in order to provide meaningful identifiers to consumers:
- the Numbering Plan is structured into service categories (e.g., geographic, mobile, premium rate);
  - and further structured into service classes (e.g., geographic areas, premium rate services' price points);
  - and then allocated to individual providers in fixed-size number blocks.
- 4.5 This structure means that parts of the Numbering Plan are completely unused, whilst other parts of the Numbering Plan may provide insufficient capacity to meet demand. This gives rise to local scarcities, as discussed in more detail in paragraphs 4.7 to 4.19.
- 4.6 We have broadly two means of addressing such scarcities. We can increase supply, typically by changing the Numbering Plan to make additional numbers available for a particular service. However, this will generally require number changes, which can be costly and unpopular for consumers and communications providers. The alternative is to manage demand, for example by applying conservation measures. The preferred option will vary by service, as discussed in Section 5.

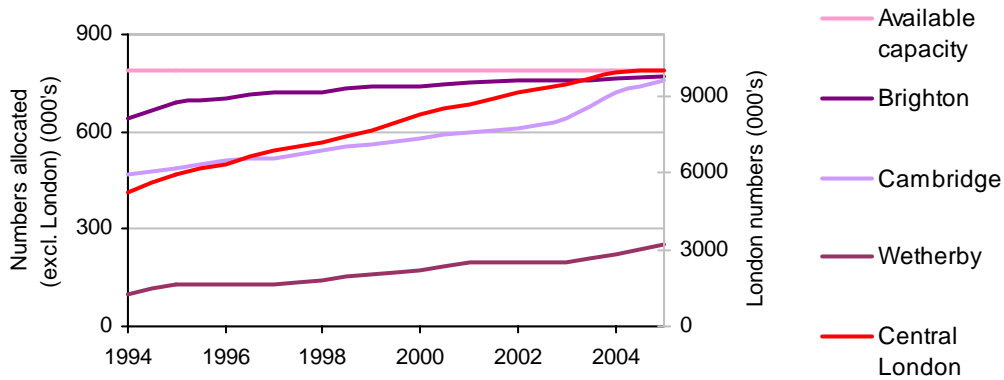
### Availability of geographic numbering resource

- 4.7 The administration of numbering resource came under regulatory control in 1994. Since then demand for geographic numbers has grown steadily. This is illustrated in Figure 4.2, which shows the growth in numbers allocated to communications providers in four areas:
- Brighton, which was designated as a type A conservation area<sup>13</sup> in 2002, even before numbers started to be allocated to VoIP providers;
  - Cambridge, which was designated as a type A conservation area in 2005, after geographic numbers started to be allocated to VoIP providers;
  - Central London (i.e., the 020 7 area), which experienced a code change in 2000 to increase the supply of numbers and therefore has not been designated as a conservation area, but whose numbering demands have recently required the introduction of a new sub-range (020 3); and
  - Wetherby, which is not a conservation area, and which has plenty of spare numbering capacity.
- 4.8 The available capacity within each of Brighton, Cambridge and Wetherby is 790,000 numbers. The available capacity in Central London (020 7) is ten million numbers. The data for London are plotted on a different scale, in order to facilitate comparison.

<sup>13</sup> Type A conservation areas are those which Ofcom believes are within two years of having less than ten spare 10k numbers blocks available for allocation. Numbers in Type A conservation areas are allocated in blocks of 1k.

4.9 It can be seen that several geographic areas are close to exhaustion. This is not, however, due to growth in underlying demand from end users. The total number of fixed exchange lines (a reasonable proxy for underlying demand) was 28.1M in 1994 and 33.8 million in 2004, implying annual growth of only 1.9 per cent<sup>14</sup>.

**Figure 4.2 Growth in geographic number allocations in selected areas**



4.10 Indeed, several areas were already close to exhaustion in 1994. For example, over 90 per cent of the available capacity in Brighton had already been allocated in 1994, 75 per cent of which was allocated to BT. This level of demand from BT in such areas was not due to underlying demand for numbers, but to the historic practice of allocating different 10,000-number blocks to different local exchanges, which results in low utilisation. There have been attempts to consolidate several exchanges onto a single 10,000-number block in order to improve utilisation, for example by allocating an ‘F digit’<sup>15</sup> to each exchange, but this has not always been possible.

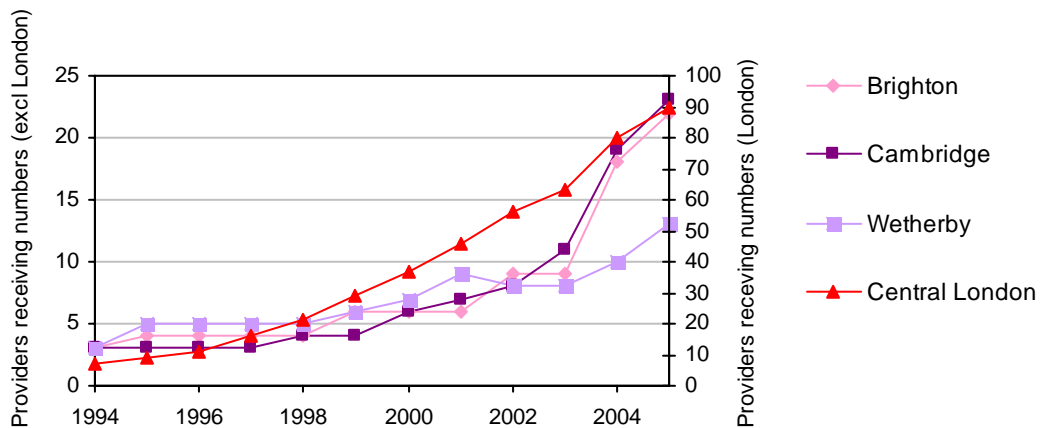
4.11 Growth in number allocations since 1994 has been driven mainly by growth in the number of providers. For example, the number of providers active in central London has grown from seven in 1994 to over 90 now. Each new provider requires a number block in each geographic area in which they are active. Growth in the number of providers to which numbers have been allocated is shown in Figure 4.3.

4.12 It is worth noting that there has been a sharp increase in the number of providers since 2003, an increase which is especially visible in Brighton and Cambridge. This is due to market entry by VoIP providers. However, it is also worth noting that whilst this has resulted in a sharp increase in numbers allocated within Cambridge, the same is not true of Brighton (see Figure 4.2). This is because conservation measures were in force in Brighton at this point of time, and this limited the impact of new market entry on number allocations.

<sup>14</sup> Ofcom market intelligence data

<sup>15</sup> Geographic numbers are typically of the form “01ABC DEFGHI”. Traditionally the ‘DE’ digits denoted the exchange to which a 10,000-number block was allocated, and were used to route calls to that exchange., The use of an ‘F digit’ for routing calls permits number blocks to be allocated to exchanges at the 1,000-number block level.

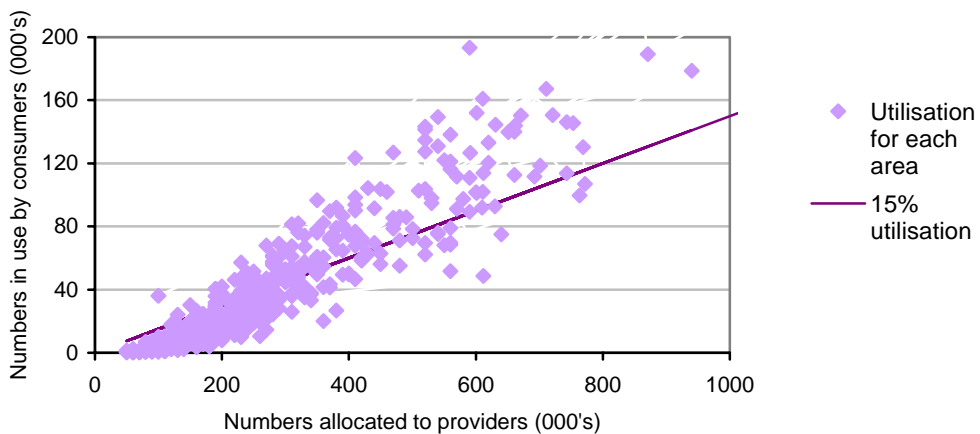
**Figure 4.3 Providers with geographic number allocations in selected areas**



4.13 The underlying message from this analysis is that whilst numbers in several geographic areas are close to exhaustion this is mainly due to fragmentation of the address space, across multiple geographic areas and multiple providers. It is this which results in low utilisation.

4.14 We have estimated the actual utilisation of numbers in different geographic areas by comparing the numbers allocated to providers with the numbers recorded in BT’s directory database as being allocated to end users. This directory database does include records for ex-directory numbers, but it does not include full Direct Dial-In (‘DDI’) ranges which have been allocated to end users, and we have increased the total by 20 per cent to correct for this. We conclude that the average utilisation is 15 per cent of the total numbers available in an area. The effects of fragmentation mean that this is worse for small geographic areas than for large areas, as illustrated in Figure 4.4.

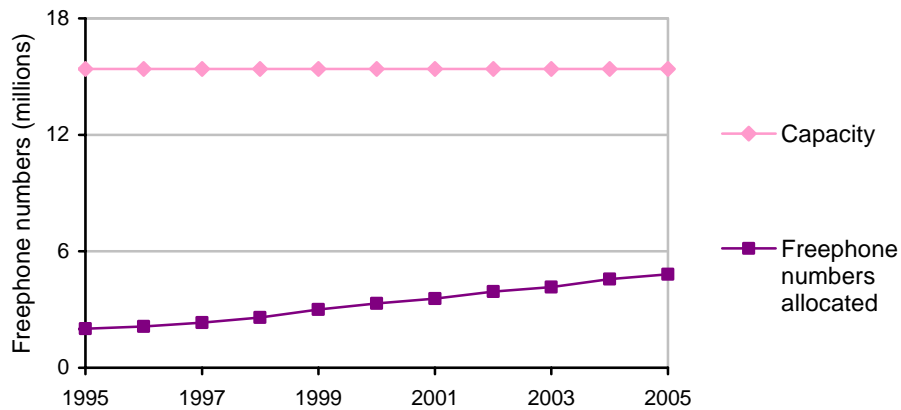
**Figure 4.4 Number utilisation by geographic area**



### Availability of non-geographic numbering resource

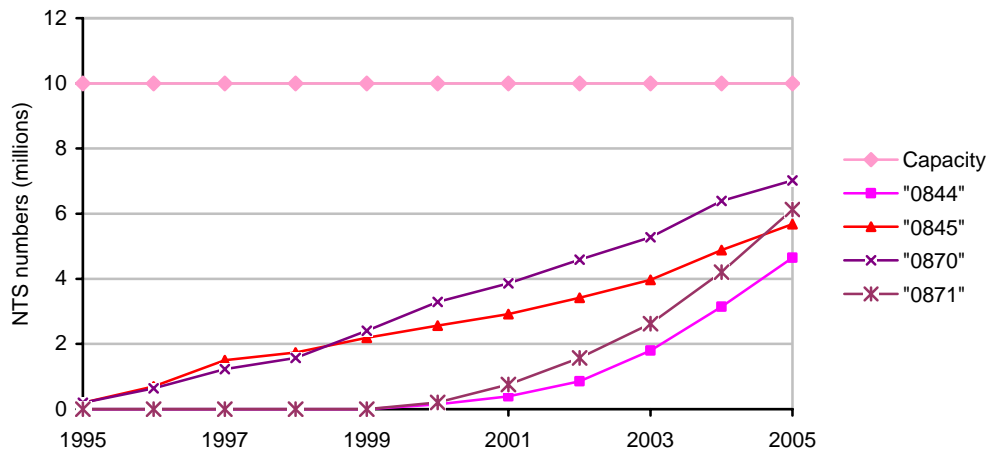
4.15 The historic growth of **Freephone numbers** (0800 and 0808) is illustrated in Figure 4.5. The available capacity for these combined ranges is equal to 15.4 million and this is also shown. Note that the total capacity might be expected to be 20 million numbers, since each 3-digit service code should now support a 7-digit address space, corresponding to ten million numbers, but this is reduced by one million due to the use of 08089 for internet-only services, and reduced by a further 3.6 million because of legacy 9-digit 0800 numbers still in use by BT. As can be seen, there is not a shortage of Freephone numbers. Action is in any case being taken to conserve them, by allocating in 1,000-number ('1k') blocks, and by gradually reclaiming legacy 9-digit blocks and converting them to 10 digits.

**Figure 4.5 Allocation of Freephone numbers**



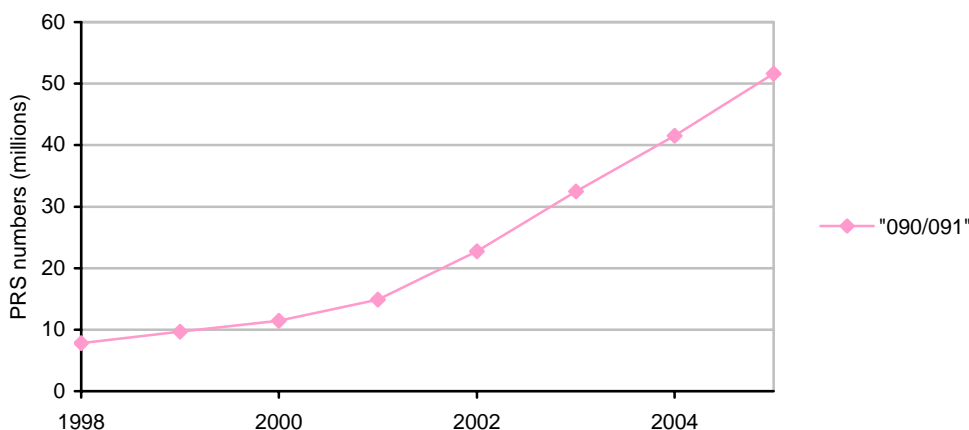
4.16 The historic growth in 08 “**Special Services**” numbers (0844, 0845, 0870, 0871) is illustrated in Figure 4.6. The available capacity in each of these 3-digit ranges is ten million subscriber numbers, and this is also shown.

**Figure 4.6 Allocation of “Special Services” 08 numbers**



- 4.17 Figure 4.6 suggests that existing 08 number ranges may all run out within five years. The historical trends for each number suggests that 0871 will become exhausted in 2007, 0870 and 0844 in 2008, and 0845 in 2011<sup>16</sup>. Of course, projecting historical trends into the future in this manner is subject to substantial forecast error, not least because of possible outcomes of a September 2005 Ofcom consultation on services from 08 numbers. In that consultation, Ofcom consulted on a variety of measures to restore trust in these services, which are commonly referred to in the communications sector as ‘number translation services’ (NTS). The proposals in that consultation (hereafter referred to in this document as ‘the NTS consultation’)<sup>17</sup>, such as changes to BT’s obligation to originate revenue-sharing calls from 0870 numbers, may affect growth on certain numbers. However, there is a clear prospect of having to use additional number ranges for current 08 services.
- 4.18 The historic growth in **Premium Rate Service (PRS) numbers** (090 or 091) is shown in Figure 4.7. No capacity constraint is shown, because although the capacity on individual 3-digit codes is constrained in the same way as for NTS, this has been dealt with in the past simply by opening up new ranges. For example, the service category “Special Services, open ended time dependent charge or fixed fee up to £1.50 for BT customers” was initially provided on “0906”, with subsequent growth being accommodated on “0905” and “0904”. The manner in which this has been done has diminished the meaning provided to consumers by these numbers, but it does mean that plenty of capacity is available. Most of 091 is still available, as are 092-099 numbers.

**Figure 4.7 Growth of demand for 09 numbers**



- 4.19 The historic growth in **Mobile numbers** (077-079) is illustrated in Figure 4.8. This shows the total number of active mobile subscribers<sup>18</sup> and the total of numbers allocated to mobile communications providers. It also shows the utilisation of the numbers allocated (i.e., the ratio of active subscribers to numbers allocated). The utilisation is fairly stable, at around 30 per cent. The

<sup>16</sup> This is based on fitting a second-order polynomial to the historical trends.

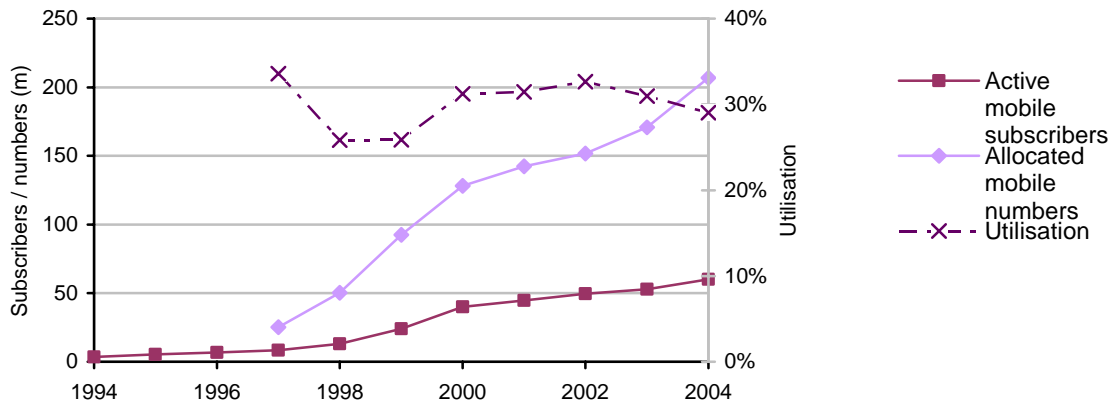
<sup>17</sup> *Number Translation Services: A way forward*

([http://www.ofcom.org.uk/consult/condocs/nts\\_forward/](http://www.ofcom.org.uk/consult/condocs/nts_forward/))

<sup>18</sup> Ofcom market intelligence data

availability of mobile numbers is not a current concern for Ofcom, despite strong underlying growth in demand for mobile numbers. Plenty of spare capacity exists, in that the 071-075 range is currently unused.

**Figure 4.8 Allocation and utilisation of mobile numbers**



### Transparency concerns

4.20 The strongest message from our consumer research is the lack of transparency associated with the current Numbering Plan, particularly the 08 and 09 ranges. By transparency, Ofcom means the ability of the Numbering Plan to communicate the key appropriate information that consumers need to make informed choices. For some services, notably those beginning with 08 and 09 numbers, consumers do not currently get a clear enough idea from the Numbering Plan of the services and pricing involved when they make a call. This can mean that consumers miss out because they use some services less than they might (and so those providing the services get less revenue). It also means that often consumers are not clear about the numbers they might want to avoid calling, or prevent their children from calling.

4.21 There are several reasons why numbers are only partially effective at conveying clear information about the calls being made. These include:

- tariff designations in the Numbering Plan relate only to calls from BT lines;
- the falling meaning of ‘local rate’ (0845) and ‘national rate’ (0870) numbers and their associated tariffs. Retail prices of 0845 and 0870 calls for BT customers have been linked to BT’s standard retail call charges, but that link has broken down because very few consumers now pay the standard rates for geographic calls. Most of BT’s residential customers, for example, are now on the BT Together Option 1 package, where geographic calls cost less than the standard rates. In practice, therefore, 0845 and 0870 calls cost more than local and national calls for these customers. Ofcom modified the designations of these ranges in 2004 to clarify the nature of the linkage to local and national call tariffs and signalled that the ‘local rate’ and ‘national rate’ terms might be misleading and should no longer be used. Never the

less these terms are still commonly used by businesses and communications providers;

- the variety of services provided on similar numbers. Both the 08 range and the 09 range are complex in terms of the variety of services and tariffs; and
- the provision of services on some numbers for which they were not intended. In many cases this is due to the service definitions in the Numbering Plan (which govern what number allocations can be used for) being insufficiently precise.

- 4.22 These uncertainties have contributed to a low level of consumer trust in 08 and 09 numbers. This is evident from the significant research that Ofcom has conducted with residential and business consumers on their perceptions and awareness of non-geographic numbers.
- 4.23 Whilst consumers mostly recognise 0800 as Freephone, recognition of 084X and 087X prefixes has been shown to be low. For example, only 15 per cent of residential consumers recognise 0844 and 33 per cent recognise 0871. Also, call costs are unclear to many consumers: the proportion of residential consumers making a broadly correct estimate of the correct tariff for chargeable 08 numbers ranged from 15 per cent for 0871 to 21 per cent for 0845. About half of them cannot distinguish between the costs of any type of chargeable NTS number. Consumers also are not generally aware that some 084 and 087 numbers might be revenue-sharing ones, nor are those businesses that do not use them, and qualitative research suggests that almost all consumers are largely uninterested in where the money goes, the cost of the call being of greater concern to them.
- 4.24 For 08 numbers, Ofcom has estimated the effect of low consumer awareness of 08 numbers, by calculating the welfare loss incurred by over-estimating call costs for numbers that begin with 084 or 087. This approach uses consumer survey evidence on consumers' perceived prices<sup>19</sup> and assumptions about how demand varies according to price.<sup>20</sup> Ofcom calculates that there is a welfare loss to the economy of £323m each year on these calls as a result of consumers not knowing the actual charges. Even if consumers only estimated 08 prices to be as low as 14p per minute – the level they estimate for geographic call prices – there would be a welfare loss of £143m per year as a result of consumers not knowing actual 08 charges. There is therefore a significant current cost to this limited transparency.
- 4.25 Awareness of 09 numbers is not high. In research, 29 per cent of residential consumers said, when prompted, that they recognised numbers beginning with 09. Only 12 per cent of residential consumers claimed to have used a 09 number in the previous year. This is presumably partly due to the fact that those consumers who are aware of 09 numbers have an overwhelmingly negative impression of all such numbers and their providers (see paragraphs 4.27-4.31).
- 4.26 Awareness of individual sub-ranges within 09 is likely to be even lower, given the lack of trust in the range as a whole and the complex way in which the sub-ranges are structured (see Annex 2).

<sup>19</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/research>

<sup>20</sup> the methodology uses that of the NTS consultation, with updated data on consumers' price perceptions from the consumer research published with this consultation document



## Consumer abuses

- 4.27 Many consumers no longer trust certain telephone numbers, notably NTS (on 08), PRS (09) and personal (070) numbers. Consumer reactions to PRS specifically (from Ofcom’s focus groups) include:

“They’re a total scam, I don’t know why they’re allowed, all they do is rip unsuspecting people off – have you ever been able to read the small print?”

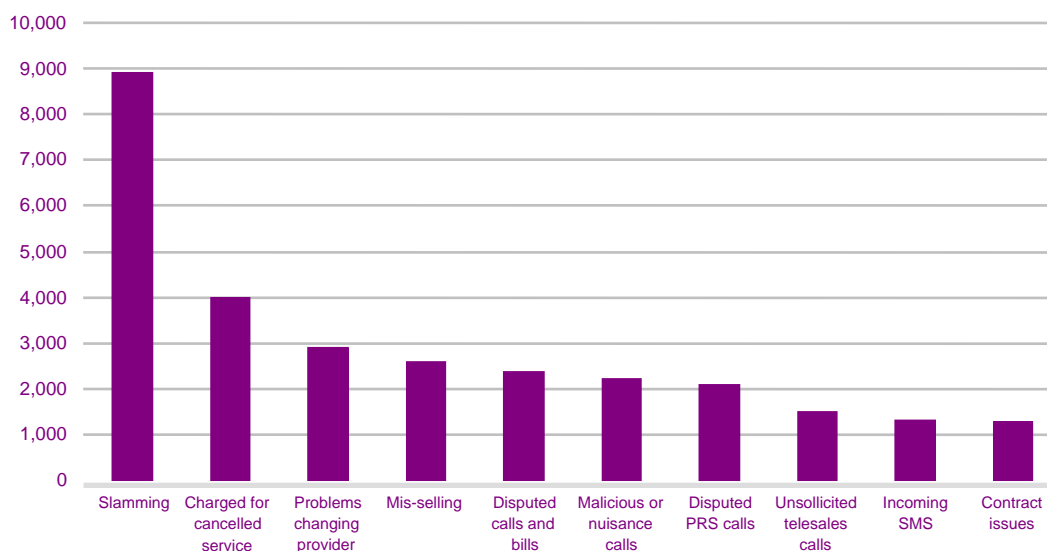
“They’re numbers to be avoided – there’s a terrible image associated with them, dishonest and preying on the innocent”.

- 4.28 Both residential and business consumers’ impression of 09 numbers are overwhelmingly negative, and companies that offer these numbers are generally considered to be unscrupulous. When asked in Ofcom research how likely they were to call numbers of different types, as many as 82 per cent of residential consumers stated that they would be likely or certain not to call a number beginning with 090. However, our research also suggests limited awareness of 09 prefixes. These findings together suggest that consumers are less likely to call those numbers with which they are unfamiliar. Most said that they were also likely or certain not to call 08 numbers, the highest proportion for an 08 prefix being 78 per cent for 0871 numbers.

- 4.29 Another expression of consumer sentiment on such numbers is consumer complaints to Ofcom. For example, in the year to October 2005 more than 2000 consumer calls to Ofcom were made simply in relation to disputed premium rate service calls, making it one of the top ten consumer concerns raised with Ofcom (see Figure 4.9). To set this in context, the most significant source of consumer complaints, 'slamming' (where customers are switched from one company to another without their express knowledge and consent), was the subject of nearly 9000 calls. ICSTIS, the premium rate services regulator, also handles PRS complaints, currently receiving around 1000 complaints per month<sup>21</sup>.

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<sup>21</sup> [www.icstis.org.uk/pdfs\\_news/IQWinter05.pdf](http://www.icstis.org.uk/pdfs_news/IQWinter05.pdf)

**Figure 4.9 Complaints to Ofcom, November 2004 and October 2005**

4.30 The basis of these concerns is misuse by some providers of certain types of numbers, which tends to bring all services offered on such numbers into disrepute. This misuse has several aspects:

- increasing use of 08 numbers to deliver content services, such as adult services, which are normally provided on 09 numbers. This allows providers to evade the PRS regulatory regime and, in particular, ICSTIS regulation, and also undermines the effectiveness of call barring as a consumer protection mechanism. These concerns are currently being addressed as part of the NTS consultation; and
- abuses in the PRS market. The UK is currently the world's leading market for using premium-rate charging, with tens of thousands of services in operation at any one time and services generating approximately £1 billion per annum of revenues in 2005. In recent years, though, there has been a series of examples of unethical and potentially fraudulent behaviour, including problems related to 'rogue' internet diallers, which have caused considerable consumer detriment and have damaged consumer confidence in the PRS sector.

4.31 Ofcom has reviewed the regulatory framework for PRS<sup>22</sup> to assess whether consumers are adequately protected from potential consumer detriment. Ofcom has recommended various measures with the aim of significantly reducing the scope for consumer detriment. But numbering policy can also have a role in addressing these concerns, in terms of ensuring service and tariff transparency and in terms of which PRS providers should have number allocations.

<sup>22</sup> *The Regulation of Premium Rate Services – an Ofcom report for the DTI*  
[http://www.ofcom.org.uk/telecoms/loi/nwbnd/prsindex/ntsprsdti/prs\\_review.pdf](http://www.ofcom.org.uk/telecoms/loi/nwbnd/prsindex/ntsprsdti/prs_review.pdf)

*Question 4 Do you have any comments on Ofcom's assessment of the current challenges to the Numbering Plan, in terms of a) number availability, b) transparency, or c) consumer abuses?*

## Section 5

# Summary of proposals and next steps

## Introduction

- 5.1 This section summarises Ofcom’s specific proposals in relation to numbering policy, building on the principles established in Section 3. The emphasis here is on describing Ofcom’s preferred options for different areas of numbering policy, and the linkages between them. The aim is to demonstrate that the policy proposals presented here do not simply represent separate solutions to separate problems but that, when taken together, they also represent a coherent approach to numbering policy as a whole.
- 5.2 It is not possible in this section to provide such a broad overview and at the same time describe in detail all the options which have been considered in each individual policy area. A more detailed analysis of some of the options, together with more detailed consultation questions, is instead presented in a number of policy annexes.
- 5.3 In this section we first summarise our proposals in relation to each policy issue, and then provide a roadmap for implementation of the complete set of proposals. We finally summarise the next steps in this consultation process.

## Geographic numbers – 01 / 02

- 5.4 Geographic numbers are widely recognised and trusted by consumers. They are also the type of telephone number in most demand by communications providers. Ofcom recognises the value of geographic numbers and the importance of ensuring both ongoing availability and consumer trust in the use of geographic numbers.
- 5.5 As discussed in more detail in Section 4, there are currently two main challenges to this objective:
- certain geographic number ranges are close to exhaustion. If no action is taken to manage demand for such numbers, then number changes are likely to be required in order to increase supply. This implies a threat to either the **availability** of new numbers for communications providers, or the **continuity** of existing numbers used by consumers; and
  - geographic numbers have historically provided information to callers as to the location of the person being called, and have also provided information to people receiving calls as to the location of the caller. This helps provide tariff transparency, and also in many cases helps promote a sense of community. However, technology change, and in particular the transition to VoIP and NGN networks, threatens this **meaning** provided by geographic numbers.
- 5.6 The policy proposals set out here are intended to address proactively the first of these two concerns, through the increased use of number conservation measures. This should substantially reduce the risk of number changes, and thereby promote the availability and continuity of geographic numbers to consumers. Ofcom does not however believe it is possible to protect to the same extent the meaning about location that is currently provided by

geographic numbers. The technological changes which are eroding this meaning are, in Ofcom's view, inevitable, and are in many other respects beneficial, in that they promote innovation and competition. The proposals set out here therefore aim to protect the tariff transparency currently provided by geographic numbers, whilst accommodating the deployment of new technologies.

### Continuity and availability of geographic numbers

- 5.7 As discussed in Annex 1, there are a number of locations in which geographic numbers are close to exhaustion. On current projections Ofcom will not be able to meet continuing demand for allocations of new numbers to communications providers in these areas unless additional steps are taken.
- 5.8 This is not, however, because of growth in the underlying demand by end users for geographic numbers. Indeed, it is likely that the underlying demand is either stable or in decline, since it is linked to the total number of exchange lines, which is currently declining by 2.6 per cent per year<sup>23</sup>. The growth in the demand for new numbers by communications providers is currently being driven by the entry into the market of new providers, coupled with the large block-size used for allocations of geographic numbers, which together result in poor utilisation of the available numbers (currently about 15 per cent)<sup>24</sup>.
- 5.9 This problem could be addressed through a restructuring of the Numbering Plan, which would involve changing area codes to make available additional capacity in shortage areas. This would not however meet Ofcom's primary goal in relation to geographic numbers, of ensuring continuity for existing end users of such numbers.
- 5.10 It is also worth noting that this is a problem which, whilst presenting a very real threat now, should be resolved within a few years. The forthcoming transition from PSTN to NGN networks will eliminate the technical requirement to allocate numbers in 10,000-number ('10k') blocks, which arises from the limited availability of decode resource within legacy PSTN networks. This transition will enable Ofcom to allocate numbers in whatever block size is most efficient from a number administration perspective. This should substantially improve the utilisation of geographic numbers, and thereby eliminate the current risk of exhaustion.
- 5.11 We therefore need improved measures to manage the short-term-demand for geographic numbers, on the basis that long-term demand will in any case decline. Ofcom therefore proposes to extend its current use of Conservation Areas, by modifying the definitions in use for such areas. Type A Conservation Areas are currently defined as those which are at risk of exhaustion within two years, and the proposal is to extend this forward-look period to five years. The practical consequence would be to confer conservation area status on any area which is at risk of exhaustion before the projected peak in demand has been reached.
- 5.12 The consequence of this change would be to increase the number of areas in which numbers are allocated in 1k blocks. Ofcom has commissioned a study into whether such an extension of conservation measures is likely to

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<sup>23</sup> Ofcom market intelligence: figures relate to Q2 (July-September) 2003 – Q2 2005

<sup>24</sup> paragraph 4.14 of this document explains how utilisation rates were derived

be technically feasible, given the technical constraints associated with legacy PSTN networks. The primary constraint is the limited availability of ‘decode’ resource associated with such networks. The conclusion of this study is that a significant extension of conservation measures should be technically feasible<sup>25</sup>.

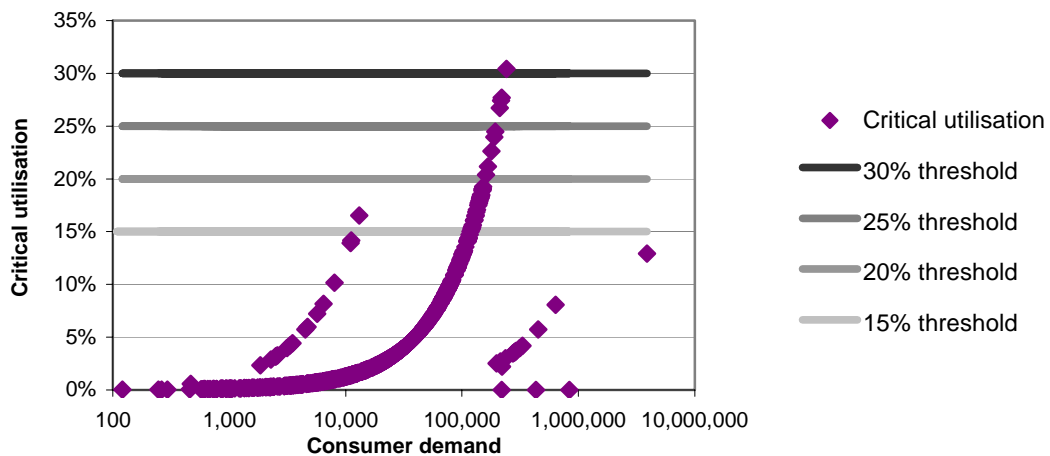
- 5.13 There is strong evidence that such conservation measures are an effective means of managing demand. For example, the data presented in Figure 4.2 show that the impact of market entry by VoIP providers on numbering resource has been negligible in areas where conservation measures were already in place (e.g., Brighton) but significant in areas where they were not (e.g., Cambridge).
- 5.14 However, Ofcom also proposes to consider other more innovative means of conserving numbers. It may for example be possible for several VoIP providers to share a single pooled allocation of geographic numbers, and Ofcom expects to enter into more detailed discussion with interested parties following publication of this consultation.
- 5.15 Ofcom has analysed the risk that numbers might be exhausted in some areas, despite the measures proposed above. The methodology adopted for this risk analysis can be summarised as follows:
- Ofcom obtained a copy of BT’s OSIS directory enquiries database, and used this to determine the number of geographic numbers allocated to consumers in each geographic area. An uplift of 20 per cent was then applied to this figure in order to correct for those numbers which are in use but which are not in this database. The result is an estimate of the underlying consumer demand for geographic numbers;
  - we assumed that the key variable which affects operator demand for numbers is utilisation, as discussed above, and that underlying demand is broadly stable over the forward look period. For this to be true we have to assume that there will be some growth of VoIP-based second lines in the short term, but that this will be offset by a short-term reduction in the number of second lines associated with dial-up internet access, and that in the longer term VoIP becomes substitutional for traditional PSTN lines; and
  - we then calculated a ‘critical utilisation’ for each geographic area, equal to the consumer demand for numbers divided by the total capacity. A given geographic area is at risk of exhaustion if the actual utilisation achieved is less than this critical utilisation.
- 5.16 Based on this risk analysis, Ofcom is of the view that the conservation measures proposed above should be effective as a means of avoiding a significant number of number changes. A modest increase in the utilisation of geographic numbers, from 15 per cent to 20 per cent, reduces the number of areas at risk of exhaustion from 34 to 9. Further increases in utilisation, to 25 per cent or 31 per cent, would further reduce the number of areas at risk to four and zero respectively.
- 5.17 This is illustrated in Figure 5.1, which shows the critical utilisation in each geographic area, plotted as a function of underlying consumer demand. The family of curves can be seen in this graph, corresponding to the different

<sup>25</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/digitanalysis>

levels of capacity associated with different types of geographic code (for example, all geographic areas with 4-digit codes appear on one curve). Several thresholds are also shown, illustrating the number of areas at risk for different levels of actual utilisation.

5.18 Ofcom has also considered the implications of these critical utilisation rates for the number of area codes that might need to acquire conservation area status. This analysis indicates that if average utilisation exceeds 10 per cent, 77 extra code areas would need conservation measures. If average utilisation exceeds 12 per cent, 55 extra code areas would need conservation measures. Therefore, between 55 and 77 extra code areas is an indicative range for the number of additional code areas.

**Figure 5.1 Critical utilisation of geographic numbers**



5.19 The measures proposed here should, in Ofcom’s view, be sufficient to contain demand for numbers in most geographic areas. However, there is always a risk that there will be localised shortages of numbers in specific areas, either because of locally poor utilisation, or because of a local increase in underlying demand (caused for example by a major new housing development). Ofcom does therefore need a strategy for increasing the supply of numbers in such areas.

5.20 Three options have been considered for increasing the supply of geographic numbers. These options, which are discussed in more detail in Annex 1, are:

- the introduction of wide area codes (this would involve widespread changes to many UK dialling codes, through a move to large areas sharing the first three digits of their geographic number);
- the withdrawal of local dialling (also known as ‘closing the scheme’, this would not change current numbers, but area codes would always have to be dialled in order to call someone within the same area); and
- the selective use of overlay codes (these involve using a second area code to cover exactly the same geographic area that has run out of numbers).

5.21 Ofcom’s view is that the introduction of Wide Area Codes and the withdrawal of local dialling would both require significant changes to consumer

behaviour, and threaten the continuity which users of geographic numbers most value. Furthermore, they would do so across a number of geographic areas, not just the specific area in which there was a risk of exhaustion. They would therefore result in a degree of disruption which is disproportionate to the problem which they are being used to solve, namely localised shortages of numbers in specific areas.

- 5.22 Overlay codes do also have some disadvantages. They create a degree of consumer confusion in the areas in which they are used, and they potentially discriminate against new entrants. However, the relatively smooth introduction in London of the 020 3 number range (which is not formally an overlay code but which shares many of the attributes of one) suggests that these concerns can be managed. Overlay codes undoubtedly provide an effective means of providing additional number resource in a manner that is targeted at specific areas. Ofcom's view is that they are therefore the most appropriate backstop to the conservation measures proposed above.

*Question 5 Do you agree that the extension of conservation measures is the best approach to take before the impact of NGNs eases the pressure on geographic number demand?*

*Question 6 Do you agree that the use of overlay codes is the best backstop approach in the event that extended conservation measures are not sufficient to meet demand for geographic numbers?*

### Meaning provided by geographic numbers

- 5.23 Geographic numbers have historically provided information to callers as to the location of the person being called, and have also provided information to people receiving calls as to the location of the caller. Both forms of transparency are valued by consumers, but both are currently being eroded. The deployment of VoIP and NGN networks will eliminate the intrinsic link that used to exist for PSTN networks between a geographic number and a specific geographic location, whilst the convergence of local and national call tariffs reduces the tariff transparency provided by geographic numbers.
- 5.24 Both of the trends described above appear to be inevitable, in the sense that they are linked to the current deployment of new network technologies. These technologies reduce the importance of distance as a driver for call tariffs, and they ultimately eliminate the role of geographic numbers in relation to call routing. These are not therefore trends which can be halted by regulatory diktat, and in any case these trends also bring compensating benefits associated with innovation and competition.
- 5.25 Ofcom does however acknowledge the critical importance of maintaining the trust which consumers currently have in geographic numbers. Measures are already in place to achieve this:
- the National Telephone Numbering Plan specifies (condition 3.1.2) that a geographic number can only be used out-of-area if such use is requested by the end user of that number. This provides consumers with control of the way in which numbers are used, and acts as a brake on the widespread out-of-area use of geographic numbers. Ofcom proposes to retain this provision; and



- the National Telephone Numbering Plan specifies, via the definition adopted for a geographic number, that where such a number is used out-of-area, tariff transparency must be protected. Consumers calling such numbers must be charged the tariff that would apply if the number was being used within its designated area. Ofcom proposes to retain this provision.
- 5.26 There is an outstanding concern that consumers calling geographic numbers might in certain circumstances be misled as to the location of the person they are calling. This concern is not addressed by the provisions set out above, and could only be fully addressed by an absolute ban on the out-of-area use of geographic numbers. Ofcom has considered such a ban, but considers that, given the growth of VoIP services and other nomadic technologies, such a ban would be unworkable in practice. Furthermore such a ban might create barriers to the deployment of new technologies and to market entry by new providers. Instead, Ofcom proposes to consider means by which, over a period of time, consumers can be informed as to the impact of technology change on geographic numbers.

*Question 7 Do you agree that Ofcom should continue to respect the geographic identity of numbers until consumer understanding of the impact of technology change evolves further, and what do you consider is the best way to develop that consumer understanding?*

### **Non-geographic numbers – (03) / 08 / 09**

- 5.27 This section deals with some types of non-geographic numbers (excluding mobile numbers). These are widely used by consumers, both as a means of calling organisations which have a national rather than a local presence, and as a means of paying for a range of value-added services (i.e., as a micro-payment mechanism). These non-geographic numbers are currently provided on the '08' (Freephone and NTS) and '09' (PRS) ranges.
- 5.28 Freephone services are well understood and trusted by consumers. The same is not however true of NTS and PRS services. Consumers have a poor awareness of the absolute level of call charges for NTS and PRS services, and the nature of the micro-payment which is included in them. Additionally, a number of 'scams' have emerged which exploit this micro-payment mechanism. The result has been a substantial erosion of consumer trust.
- 5.29 Ofcom has consulted separately on a variety of measures to restore this trust in relation to NTS services, in the NTS consultation. We have also consulted on proposals to strengthen the consumer protection arrangements associated with PRS services<sup>26</sup>, and a statement is expected by March 2006. There is a potential overlap between those earlier proposals and the proposals in this document, especially in relation to those parts of the NTS consultation which deal with numbering policy. These will formally be considered within the context of the NTS consultation, and Ofcom's conclusions will be set out in the forthcoming NTS statement, which we expect to be published by April 2006. They will not be considered further in this document.

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<sup>26</sup> *Conditions regulating Premium Rate Services*  
(<http://www.ofcom.org.uk/consult/condocs/prsconditions/prs.pdf>)

## Proposals in relation to NTS

- 5.30 The NTS consultation contained several proposals which were designed to restore consumer trust in NTS numbers, including:
- restoring the link between the retail pricing of 0870 and national geographic calls for calls made from BT lines – this link has been eroded, in particular, by the development of optional calling plans;
  - extending this link, so that it applies to all providers, and not only BT, except where a price announcement (for which the caller is not charged) is made at the start of the call;
  - removing the regulatory underpinning for revenue sharing on the 0870 range, by removing the requirement for BT to originate these calls at cost;
  - subjecting 0871 numbers to PRS regulations, most likely including a requirement that advertisements include the call prices;
  - requiring communications providers to give more prominence to NTS prices on websites, price lists and promotional material;
  - asking public bodies carefully to consider their use (especially exclusive use) of 084/087 numbers; and
  - clarifying the existing requirement that adult services should be provided only on 0908 or 0909 numbers, where they would be covered by PRS regulations.
- 5.31 The NTS consultation anticipates that similar measures might be applied to the 0845 range, once the number of subscribers to dial-up internet services has fallen to a level at which the benefits of restoring the link to local geographic call charges would outweigh the associated costs of number migration. However, such a step would be subject to a further review.
- 5.32 These proposals form part of a package of measures designed to improve pricing transparency and consumer protection on calls made to 08 numbers. It is very likely that, if implemented, these proposals would lead to the end of revenue sharing on the 0870 range, and in due course on 0845.
- 5.33 The NTS consultation strongly advised communications providers not to act on the proposals presented as far as they relate to number migration, but wait until publication of the final NTS statement. We stated that this was because a strategic review of Ofcom's numbering strategy was underway, and that early research indicated that some number ranges may become exhausted in the medium term. We further stated that we were considering whether a wider restructuring of the 08 range was required.
- 5.34 Our detailed analysis of the possible exhaustion of NTS number ranges is presented in Section 4. We note that the historical trends for each range suggest that 0871 will become exhausted in 2007, 0870 and 0844 in 2008, and 0845 in 2011. It is unlikely that the approach adopted for geographic numbers, of more effective demand-side management, will be effective here, because growth in allocations is being driven by growth in underlying demand, not by poor utilisation of the allocated numbers.
- 5.35 Ofcom will therefore need to make available additional capacity for the services associated with these ranges. This creates an opportunity to

manage growth in a manner that does not give rise to forced migration of legacy services, and which is also consistent with a long-term vision intended to deliver greater benefits to consumers. This consultation considers three broad approaches to doing so, and a number of more detailed options.

- 5.36 All the options presented here recognise the strength of the current 0800 / 0808 Freephone brand, by leaving those numbers unchanged. Freephone numbers are the one type of 08 numbers that is well-recognised and trusted by consumers. Internationally, Freephone services often use 0800, which may contribute to high consumer awareness. There is also no current danger of these numbers being exhausted. Consequently, it seems inappropriate to make any change to the usage of this range. Most of the options presented also avoid opening up any 08 ranges that are numerically close to 080, in order to limit the risk of consumer confusion.
- 5.37 **Option 1** takes as its starting point the proposals set out in the NTS consultation in relation to 0844/0845/0870/0871, and then additionally proposes that as each of these number ranges becomes exhausted, they are supplemented by new 3-digit ranges ('0872' in addition to '0870', '0873' in addition to '0871'). This proposal provides the additional numbering capacity that is required to accommodate long-term growth, and does so without requiring existing providers and end users to incur additional migration costs, over and above those already considered in the NTS consultation.
- 5.38 Ofcom's primary concern in relation to this proposal is that it would be likely over a period of time to erode rather than improve tariff and service transparency. The long term outcome would be that different services would be accommodated on overlapping 3-digit ranges, an outcome somewhat similar to the current state of '09'. Consumers are unlikely to find this easy to understand, and this is not therefore a sustainable means of restoring consumer trust.
- 5.39 **Option 2** also takes as its starting point the proposals set out in the NTS consultation in relation to 0844/0845/0870/0871. It then additionally proposes that as each of these number ranges becomes exhausted, they are supplemented by new 2-digit ranges ('085' in addition to 0844, '086' in addition to 0845, '088' in addition to '0870', '089' in addition to '0871'). Each of these new 2-digit ranges would have the same attributes as the 3-digit range which it supplemented. The Numbering Plan would therefore have the structure set out in Figure 5.2.

**Figure 5.2 Option 2 for 08 numbers**

Number range	Service
080x	Freephone
0844 and 085x	Calls up to 5ppm
0845 and 086x	Calls linked to local rates
0870 and 088x	Calls linked to national rates
0871 and 089x	Calls up to 10ppm

- 5.40 This proposal also provides the additional numbering capacity that is required to accommodate long-term growth. It does so in a manner that is simpler than Option 1 above, thereby avoiding the risk of a large number of overlapping ranges. However, the use of a 3-digit range and a separate 2-digit range for each service still results in a fairly complex Numbering Plan, which consumers might have difficulty understanding.
- 5.41 **Option 3** also takes as its starting point the proposals set out in the NTS consultation in relation to 0844/0845/0870/0871, but then exploits the broader scope of this numbering review, by managing part of the expected growth on a wholly new non-geographic range: '03'. The use of an additional range provides us with greater flexibility as to how we manage growth, both on this range and the existing '08' range.
- 5.42 Our specific proposal is to target this new range at those businesses and public sector bodies which require a non-geographic number because they require a national presence, rather than because they wish to generate revenue from incoming calls. The expectation is that the new range would become trusted by consumers as covering clearly-identified services with a well-understood price range. Ofcom would take several steps to establish consumer trust in the new range:
- the new proposed range is in close proximity to the existing geographic ranges, and call tariffs would be tightly linked to geographic rates;
  - revenue-share would be forbidden on this new range. This would be achieved by using the Numbering Plan to impose a condition on those providers which adopt numbers in the new range, similar in character to the condition which already applies to personal numbers; and
  - Ofcom would work with those UK communications providers responsible for managing international interconnects to try and ensure that the new range is available for incoming international calls.
- 5.43 The new range would be used to accommodate growth in demand for those services that do not require revenue-share, and whose call tariffs are closely linked to geographic rates. Additionally, if the new range is successful in

building consumer trust, then there will be an incentive for those providers currently providing such services on 08 to migrate to it.

- 5.44 Ofcom recognises that there is an apparent inconsistency between this proposition, which establishes the new '03' range as the natural home for those services which do not require revenue sharing, and the proposals set out in the NTS consultation, which may lead to the end of revenue sharing on the 0870 range, and possibly also on 0845. Ofcom does not rule out the possibility that the 0870 and 0845 ranges could be treated as exceptions to the general rule, in accommodating non-revenue sharing calls within a broader revenue sharing range. Ofcom also considers that the designation of 03 as a new non-revenue sharing number range could mean that this apparent anomaly would become less significant over time if the new 03 range proved popular and resulted in migration of services from the 08 range. Ofcom will return to this issue in its NTS statement, which it expects to publish by April 2006.
- 5.45 Ofcom also notes that its current proposals for '03' are slightly different in nature to those set out in the NTS consultation for 0870, and potentially for 0845. The NTS consultation proposed to remove the regulatory guarantee of revenue share on certain 08 sub-ranges (the NTS call origination condition). What is proposed here for the '03' range is a complete ban on revenue share, implemented via an additional obligation on all providers who adopt these.
- 5.46 There are several options for how the new '03' range might be structured, and these include:
- under **Option 3(a)** Ofcom would open up two new ranges broadly analogous to the existing 08 ranges. The '034' sub-range would be reserved for calls linked to local rates, and the '037' sub-range would be reserved for calls linked to national call rates. When coupled with an appropriate policy for number block allocation, this could allow the services that migrate to 03 numbers to change just the first digit after the zero;
  - however, it may be that prices for non-revenue-sharing services will not vary enough to justify price distinctions between different parts of the 03 number range. **Option 3(b)** would therefore focus on establishing a clear identity for national rate calls, by using a memorable range for those calls, such as 030 (beginning allocations with the repeated 0303 numbers) or 033 (beginning with the symmetrical 0330 numbers); and
  - under **Option 3(c)** Ofcom would open different '03' sub-ranges for different services. For example, calls to essential public services might have their own range on 030.
- 5.47 Growth in demand for those services that do require revenue share would be accommodated on 08. The aim here would be for Ofcom to set out a strategic vision for the long-term management of this range, and then manage short term capacity growth in a manner that is consistent with that vision.
- 5.48 The long-term vision which Ofcom proposes for the 08 range is that service designations would be at the 2-digit level (e.g., 080, 081, 082), rather than the current 3-digit level (e.g., 0844, 0845), thereby increasing the capacity of each range by a factor of 10, and eliminating any danger of exhaustion in the

foreseeable future. The ranges would be ranked according to price, from 080 to 089. This would significantly increase transparency, since consumers are likely to find 2-digit number ranges easier to remember than 3-digit range, and because of the simplicity of the message that ‘the higher the number, the higher the price’. Three specific options for the 08 range are considered in Annex 2, and summarised in Figure 5.3 below.

5.49 The following points should be noted in relation to these options:

- Option 3(i) adopts the same structure for the 08 range as is proposed in option 2, accommodating growth on each of the existing 3-digit ranges on completely new 2-digit ranges. The potential disadvantage of this option is that it does not exploit the increased flexibility which should arise as a consequence of creating the new 03 range;
- Option 3(ii) does try and exploit this increased flexibility, by assuming that growth in demand for numbers linked to ‘local’ and ‘national’ tariffs can be accommodated on the existing 3-digit ranges (0845 and 0870) and on the new 03 range. This allows the remainder of the 084 and 087 ranges to be dedicated to growth in numbers linked to ‘up to 5ppm’ and ‘up to 10ppm’ respectively. This provides a simpler long term structure for the ‘08’ range, and therefore maximises consumer transparency; and
- Options 3(iii) is a variant on Option 3(ii), which assumes that at some point ‘0845’ and ‘0870’ become exhausted, and that new 2-digit ranges have to be made available for these services within 08. We assume that 085 and 088 are used for this purpose.

**Figure 5.3 Options for current 08 services under option 3**

	Option 3(i)	Option 3(ii)	Option 3(iii)
<b>Summary</b>	03: Geographic 080: Freephone 0844 / 085: ≤5ppm 0845 / 086: local 0870 / 088: national 0871 / 089: ≤10ppm	03: Geographic 080: Freephone 084: ≤5ppm 0845: local 087: ≤10ppm 0870: national	03: Geographic 080: Freephone 084: ≤5ppm 0845 / 085: local 087: ≤10ppm 0870 / 088:national
Freephone	Accommodate growth on 080	Accommodate growth on 080	Accommodate growth on 080
Local rate	Accommodate growth on 03 and 0845 / 086	Accommodate growth on 03 and 0845	Accommodate growth on 03 and 0845 / 085
Calls up to 5ppm	Accommodate growth on 0844 / 085	Accommodate growth on 084	Accommodate growth on 084
National rate	Accommodate growth on 03 and 0870 / 088	Accommodate growth on 03 and 0870	Accommodate growth on 03 and 0870 / 088
Calls up to 10ppm	Accommodate growth on 0871 / 089	Accommodate growth on 087	Accommodate growth on 087

- 5.50 Ofcom recognises that each of the options summarised above will leave existing services in place on certain 3-digit numbers with a tariff structure which is inconsistent with the long-term vision. Ofcom is not in this consultation considering forced migration of such services, since this issue raises a number of complex issues in relation to migration costs, on which we have already consulted within our review of NTS policy. Ofcom notes however that if the proposals described here do incentivise significant voluntary migration from the 08 range to the new 03 range, then it may be appropriate at some point in the future to return to the issue of forced migration of the remaining legacy services from the 0845 and 0870 ranges. The trigger for such a re-evaluation might be a level of voluntary migration which materially reduced the residual costs associated with forced migration.
- 5.51 Ofcom has considered a number of alternatives to the options summarised above on which we are consulting, for example:
- Ofcom has considered various options for restructuring of the 08 range, in a manner similar to that described in Option 3 above, but without also opening up the new 03 range. However, options similar to these are already being considered within the context of the NTS consultation, and it would not add to the debate to consult specifically on them again here. They do all raise significant concerns in relation to migration costs, an issue which is considered in detail in the NTS consultation; and
  - Ofcom has also consulted within the context of the NTS consultation on the option of banning revenue-share on all 08 numbers. All services which exploited this capability would have to move to 09. This option will not be considered further here.

*Question 8 Do you agree with Ofcom's proposal to open a new '03' number range for non-geographic, non-revenue sharing services?*

*Question 9 How should the '03' range be structured, in terms of tariffs and services?*

*Question 10 How should the '08' range be structured, in terms of tariffs and services?*

## Proposals in relation to PRS

- 5.52 Premium rate services face a similar challenge to that faced by NTS, namely the need to establish greater transparency, and hence rebuild consumer trust, against a background of rapid growth in number utilisation. Indeed the problem faced in relation to 09 number ranges is more advanced than that faced for 08, since several 3-digit ranges have already been exhausted, resulting in the opening up of new and overlapping ranges. The result is that consumers using 09 have almost no awareness of the meaning communicated by the Numbering Plan, beyond a general distrust of the entire range. Ofcom believes that there are broadly three possible options for addressing this issue.
- 5.53 **Option 1** is to continue as at present. Existing service definitions would be retained at the 3-digit level, and new 3-digit ranges would be opened up as required. The problem with this approach is that whilst the Numbering Plan theoretically provides service and tariff information to consumers, this information is not in a form that is understood by most consumers. The result

is a regulatory structure which is highly complex but which delivers few benefits to consumers. This situation is likely to be exacerbated as further 3-digit number ranges are made available.

- 5.54 **Option 2** represents one alternative approach to the status quo, under which we recognise and accept the erosion of meaning that has taken place in relation to the 09 part of the Numbering Plan, and replace all existing service designations by a single service designation for all premium rate numbers. There would no longer be an expectation that the Numbering Plan should provide tariff and service transparency for 09 numbers, and this would instead be provided via the existing obligation on providers via the ICSTIS code to advertise tariffs. This option has the merit of simplicity, in that it does at least recognise the current reality. It does however make no contribution to Ofcom's objective of rebuilding consumer trust in 09 numbers.
- 5.55 **Option 3** would be to restructure the 09 range using similar principles to those proposed for 08. A new set of service categories would be defined, and 2-digit number ranges allocated to each, providing sufficient capacity for the foreseeable future. These would be ranked in ascending order of potential consumer detriment. The problem with this proposal is that it is not obvious what service categories could usefully be adopted, or how they should be ranked. It may be more appropriate in certain cases to rank services by the type of content being provided (e.g., '092' for 'charity fund-raising', '098' for 'adult content') than the price being paid.
- 5.56 Ofcom's current view is that Option 3 is preferred, but only if it is possible to define a set of service categories which are of use to consumers. Ofcom is therefore consulting on the different dimensions which need to be considered when defining service categories (e.g., tariff information, availability of adult content) as well as the relative weighting to be given these different dimensions. If Option 3 is not tenable, then Ofcom's preference is to move to Option 2, rather than revert to the status quo, since Option 2 does at least have the benefit of simplicity.

*Question 11 Which broad approach should Ofcom take to structuring the '09' range, and if a re-structured '09' range is preferred how would you arrange the different types of '09' services (e.g., according to price per minute, price per call, inclusion of adult content)?*

*Question 12 Should any specific PRS service categories be identified or segregated in order that parents can block access by their children (e.g., sexually explicit content, gambling)? Is there merit in having a general 'adults only' classification, including a range of services to which access might be restricted on the grounds of content, or might consumers wish to apply different rules for different types of content?*

## Mobile, Personal and Individual Numbers

### Mobile numbers

- 5.57 Most consumers tend to recognise mobile services as being associated with the '07' range of numbers. Ofcom's proposals in relation to mobile numbers are therefore designed to recognise and over a period of time consolidate this range as a mobile 'brand'.



- 5.58 There has historically been no need to segregate different mobile services on to different number ranges, since the mobile market has been dominated by a single service – mobile voice. However, as the range of mobile services diversifies, to encompass a broader range of mobile multimedia services, there may be merit in reserving specific sub-range of '07' for specific services. The market for mobile multimedia services is too immature for Ofcom to bring forward specific proposals at this time, but Ofcom would nevertheless welcome comment on this issue.
- 5.59 Ofcom is aware of consumer concern as to the level of tariff transparency provided by mobile numbers. Ofcom does not however believe that mobile tariff transparency can readily be improved through changes to numbering policy, since much of the concern in relation to mobile tariff transparency arises from differences between the on-net and off-net tariffs<sup>27</sup> offered by mobile communications providers and the bundling of call charges in packages, as well as increasing mobile number portability (which prevents identification of the terminating network and, hence, the tariff). Ofcom would nevertheless welcome views on this.

*Question 13 Are there any practical means by which the Numbering Plan could provide improved mobile tariff transparency?*

- 5.60 There is no immediate risk of mobile numbers being exhausted, and so Ofcom does not here propose any significant changes to the way in which they are managed. There is however a slight risk that at some point in the future, entry into the mobile market by a large number of small mobile communications providers could fragment the mobile range. In order to mitigate this risk Ofcom has recently established the capability to make distinct allocations in smaller block sizes (blocks of 100,000 rather than one million numbers) to smaller providers.

### Personal and Individual numbers

- 5.61 Personal Numbering Services are provided on one specific sub-range within the 07 range (070). Ofcom does have several concerns about this sub-range. There is very limited consumer awareness of 'Personal Numbers' as a concept, and services which exploit this concept have had relatively little market impact.
- 5.62 There have at the same time been a number of cases where providers have used the 070 range in an inappropriate manner. There was an attempt to remedy this in 2001 by removing the ability of providers to use revenue share on this range, thereby reducing the financial incentives which lead to abuse<sup>28</sup>. However, this does not seem to have been effective, and Ofcom continues to receive a high level of consumer complaints regarding services provided on 070 numbers.
- 5.63 Some of the complaints which have been received by Ofcom may arise from the continuing use of revenue share on 070, in contravention of the Numbering Plan, and this issue is most appropriately addressed via Ofcom's

<sup>27</sup> an 'on-net' call is one made to someone on the same mobile network, an 'off-net' call is to someone on a different mobile network

<sup>28</sup> *Restoring Trust in Personal Numbers*, Oftel, October 2001

enforcement programme. There are however two additional characteristics of the 070 range which make it an easy target for abuse:

- consumers in general are not aware of the intended purpose of 070 numbers, and therefore have a poor understanding of what service they should expect to receive and what tariff they should expect to pay when they call 070 numbers; and
- the Numbering Plan sets no formal ceiling on charges for calls to personal numbers, and this, coupled with the poor consumer awareness of what might constitute an appropriate tariff, gives providers substantial flexibility as to what tariff they charge.

5.64 The October 2001 statement on personal numbers did consider whether it might be appropriate to introduce a call ceiling on charges for calls to 070 numbers, similar in nature to the call ceilings which apply on 08 and 09, but did not at that point favour this option. Ofcom does now believe that more stringent measures are required to improve tariff transparency in relation to personal numbers, and is therefore now consulting on whether a ceiling on call charges should be introduced. We propose that where providers choose to set their charges above such a ceiling, they would be required to use a recorded message to notify callers of the rate being charged. A further question about such announcements is whether they should be free to the caller (i.e., incorporated within the call charge).

*Question 14 Do you agree that personal numbers should have a tariff ceiling (or recorded message) to restore trust in those numbers? If so, what level, and should that ceiling include the cost of recorded messages?*

5.65 There is a more fundamental problem with personal numbering services, in that our consumer research shows that consumers are generally unaware that such services even exist. This has two consequences. It limits uptake of legitimate personal numbering services. And it makes 070 a convenient home for those scams which rely on poor consumer awareness.

5.66 Both concerns might be addressed if it was possible to establish a stronger brand for ‘follow-me’ services such as personal numbering services, by opening up a new number range for such services. This number range might include traditional personal numbering services, but it might also extend this concept to include numbers which are directly allocated to individual end users. Ofcom is therefore consulting on the following proposals:

- to designate a new range, provisionally “06”, to be used for ‘follow-me’ services such as Personal Numbering Services and Individual Numbers;
- to open a new sub-range, provisionally “065”, to be used for new allocations of numbers for Personal Numbering Services. Ofcom would apply the same conditions (no revenue share, possible call ceiling with related requirement on call announcements) to this sub-range as to the current “070” range; and
- to designate a new sub-range, provisionally “060”, to be used at some point in the future for individual allocations of numbers direct to end users.

5.67 070 would continue to be used by existing providers of Personal Numbering Services for a transitional period. This transitional period would be long enough to permit existing service providers to migrate to the new range in a

manner that minimised migration costs. A possible transitional period might be three years.

- 5.68 Ofcom is aware of a number of issues associated with the individual allocation of numbers direct to end users. These are discussed in more detail in Annex 3, and Ofcom welcomes comment on these. Ofcom would not expect to open up a sub-range for allocation of such numbers until these issues had been resolved.

*Question 15 Do you agree with Ofcom’s proposals to move personal numbers (with the same consumer protection provisions) to the ‘06’ range and to pursue the direct allocation of numbers to end users as proposed at some point in the future?*

### Other number ranges

- 5.69 The 04 range of numbers is currently completely unused. Ofcom has no current proposals for this range, and will keep it in reserve for future applications.
- 5.70 The 05 range of numbers has very limited use. Some legacy Freephone numbers are still in use on 0500 9-digit numbers, all of which are allocated to Cable and Wireless. No new numbers have been allocated on this range since 1999 and it is expected that eventually, as services cease, the 0500 number range will become free.
- 5.71 The 055 range is used for Corporate Numbering – a service designed to provide additional control for businesses over their number allocations. However, the demand for such numbers has been low to date, possibly because the processes for direct allocation of number blocks to businesses are hampered by the large block size (10k numbers) required to allow the numbers to be routed on traditional networks.
- 5.72 Finally, the 056 range was made available in September 2004 for Location Independent Electronic Communications Services. This range was designed to provide a dedicated non-geographic range for new voice services, which was not subject to NTS regulation.
- 5.73 Although the demand for 056, and 055 numbers in particular, has been low, Ofcom intends to treat this range as experimental and to keep under review its current and potential future use for innovative services. We would, however, welcome stakeholder views on the situation regarding 05 numbers.

*Question 16 Do you have any comments on the use of the 05 number range?*

- 5.74 In addition to the standard (E.164 format) telephone numbers covered in this section, consumers can access some services using short (usually 3-digit) access codes. These include ‘100’ and ‘999’, which give access to operator services and emergency services respectively. In this document we do not propose any changes to these access codes. Figure 5.4 summarises the current short access codes.

**Figure 5.4 Current short access codes**









Access Code	Service provided
<b>Type A codes</b>	Type A codes provide access to a specific designated service across all public networks
100	Operator assistance
101	Single Non-Emergency Number <sup>29</sup>
112 and 999	Emergency services
123	Speaking clock
14xx	Various call-handling and call identification services
155	International operator assistance
1800x	Voice text services for the deaf
195	Directory enquiries for the blind and disabled
<b>Type B codes</b>	Type B access codes are allocated to individual service providers, and permit consumers to access services provided by those providers
118xxx	Directory enquiry services
124xx-140xx, 143xx-146xx, 148xx-149xx, 160xx-169xx, 181xx-189xx	Prefix codes which permit consumers to make calls via a different communications provider than that to which they are directly connected ('Indirect Access')
<b>Type C codes</b>	Type C access codes are available for use as required within a specific public network but do not permit the service provided to be accessed from other networks:
120-122, 142, 150-152, 154, 156 to 159, 170 to 179, 190, 191, 193, 194, 196-198	Available for services provided by individual providers to their subscribers only

### Summary of the proposed changes to the Numbering Plan

5.75 The last four sections have proposed a number of changes to the way in which different parts of the Numbering Plan are defined and administered. If Ofcom's preferred options were adopted in relation to each of the policy proposals presented here, then the Numbering Plan in (say) 2010 might be summarised as follows:

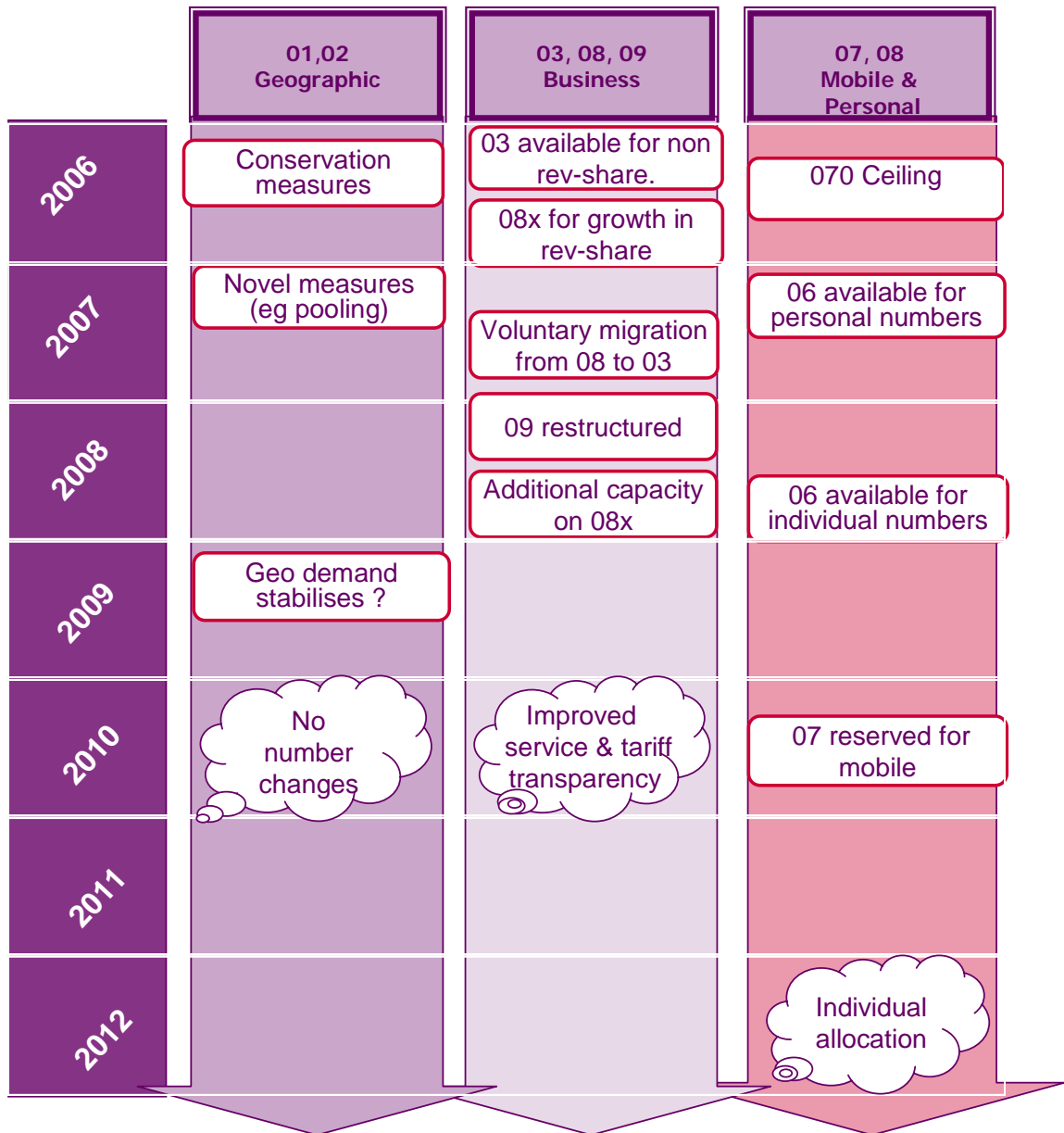
<sup>29</sup> Currently subject to consultation – see <http://www.ofcom.org.uk/consult/condocs/snen/>

**Figure 5.5 Ofcom’s preferred future Numbering Plan**

Numbers starting:	Service provided:
	<p><b>Geographic numbers</b></p>
	<p><b>Countrywide numbers</b></p>
	<p><b>For future use</b></p>
	<p><b>Personalised numbers</b></p>
	<p><b>Mobile numbers</b></p>
	<p><b>Freephone</b></p>
	<p><b>Chargeable services</b></p>
	<p><b>Premium rate services</b></p>

5.76 As discussed throughout this section, action will be required in a number of areas to deliver on this vision. These will need to be coordinated in order to minimise costs and confusion. A possible roadmap is summarised in Figure 5.6.

**Figure 5.6 A roadmap to a new Numbering Plan**



*Question 17 Do you agree that Ofcom’s overall proposals for a future Numbering Plan are coherent and comprehensive, and do you have any comments on the timescales in which the changes should be implemented?*

## Numbering and the consumer interest

### Ways to promote the consumer interest

- 5.77 Section 3 describes how promoting the consumer interest is a key theme of Ofcom’s objectives and strategic principles for numbering. But, as stated in Section 4, consumers currently have significant concerns about services provided using 070, 08 and 09 numbers, on the basis of poor transparency and susceptibility to scams.
- 5.78 To address these problems, Ofcom wishes to restore trust in those specific elements of the Numbering Plan that are currently associated with consumer harm. Ofcom also wants to take this opportunity to maximise trust in, and minimise the potential for future harm across, the Numbering Plan as a whole. It is hoped that higher consumer trust of the Numbering Plan in general will reflect favourably on 070, 08 and 09 numbers, reinforcing the specific steps taken on those.
- 5.79 As discussed in Ofcom’s current review of consumer policy<sup>30</sup>, Ofcom promotes the consumer interest primarily through promoting effective competition. The approach is supported both through the provision of **consumer information**, which equips consumers to make informed decisions, and through effective **consumer protection** measures, which aim to prevent harm from occurring, and take effective action when harm does occur. Our proposals in these areas (covered in more detail in Annex 5) comprise:
- using numbering administration processes to **protect** consumers, by avoiding numbers being in the hands of those who fail one or more Ofcom consumer protection tests; and
  - equipping consumers with the **information** required to make informed decisions, by
    - ensuring that numbers can be used only for their intended purpose; and
    - ensuring that numbers provide adequate tariff transparency, and that this applies regardless of the identity of the originating communications provider.

### The consumer protection test

- 5.80 Taking effective action when consumer harm occurs or numbering regulations are breached is important for consumer protection, as it can create a strong deterrent against such breaches. Ofcom believes that restoring trust in the Numbering Plan in general, and 09 numbers in particular, requires strong and early action to be taken to prevent and deter scams on those number ranges.
- 5.81 Some procedures already exist to deter consumer abuses for premium rate services. ICSTIS regulates such services provided on 09 numbers, and Ofcom has proposed in the NTS consultation an extension of ICSTIS’s remit to regulate 0871 revenue-sharing numbers. However, Ofcom can also

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<sup>30</sup> Ofcom’s Consumer Policy, <http://www.ofcom.org.uk/consult/condocs/ocp/>

strengthen current consumer protection through its numbering administration procedures. Specifically, we propose that one or more consumer protection tests could be applied:

- to deny numbers to providers that have persistently and/or seriously abused consumers in the past; and
- to cover 03, 06, 07 and 08 numbers as well as 09 numbers.

5.82 The main legal basis of these proposals is Ofcom’s general duties in sections 3 and 4 of the Act, which include an obligation to promote the consumer interest. In implementing these proposals, Ofcom needs to ensure that decisions to withhold or withdraw numbers are proportionate, non-discriminatory, objectively justifiable and transparent. Ofcom invites views on whether, as long as these criteria are met, a consumer protection test is a desirable initiative to counter consumer abuses.

5.83 The denial of number allocations is a potentially very effective tool for preventing consumer abuse. Practical issues must be addressed in devising an effective test, and Ofcom would welcome views on the following points in order that any test would not impose a disproportionate burden in relation to the benefits achieved:

- the test must identify accurately those organisations and individuals that seek to conceal previous abuses when applying for numbers;
- the test must be straightforward to apply on a case-by-case basis as part of the normal process of administering number allocations, whilst any review or appeal process must be both rapid and effective; and
- enforcement must work equally effectively against those that are allocated numbers directly and those that may use sub-allocated numbers. This relates to the issue of which party should be held accountable for misuse.

5.84 Examples of the type of conditions for the allocation of numbers could be that:

- numbers would not be allocated by Ofcom to companies which had persistently and/or seriously abused consumers in the past, including by misuse of number allocations. One example of such misuse might be multiple and/or serious breaches of the ICSTIS Code. Ofcom could consider not allocating numbers to applicants following a trigger of more than one serious breach being committed in the year prior to the number application; and
- communications providers would have to register with Ofcom the contact details of those providers to which they sub-allocate numbers. When Ofcom does allocate numbers to providers, this could be on condition that those providers apply similar tests to sub-allocations as Ofcom applies to direct allocations. Ofcom could facilitate this process by maintaining a list of communications providers who would not pass a test to receive number allocations or sub-allocations.

5.85 Further details of this proposed test are provided in Annex 5. In addition, Ofcom introduces the idea of withdrawing numbers based on a consumer protection test. Number withdrawal is a more complex issue, both in practical terms and because it could potentially disrupt many consumers currently receiving services.



*Question 18 Do you agree with the principle of using consumer protection tests in numbering in order to limit consumer abuses, as long as the relevant legal tests are met? Do you have any suggestions for what tests would be appropriate or any conditions that should be met to pass such tests?*

### Improved consumer information

- 5.86 Prevention of consumer harm is partly to do with equipping consumers to make informed decisions. Ofcom's plans to do this are covered partly by through the restructuring of the Numbering Plan which is set out at paragraphs 5.4 to 5.76 above. These proposals would, if implemented, make it easier for consumers to understand what services are provided on what numbers, and at what price.
- 5.87 However, this simpler structure will only deliver real benefits to consumers if the service definitions which apply to each service are precise and well understood. If this is not the case, there will be potential for scams based on consumer misunderstanding of the services provided. Ofcom therefore proposes to review all service definitions which are in use across the Numbering Plan in order to ensure that they adequately protect and inform consumers. For this to be the case service definitions must:
- accurately and precisely describe the service being offered;
  - exclude those services which are not to be offered; and
  - do so in language which is comprehensible to consumers.
- 5.88 This review will also ensure that numbering policy encourages competition, by ensuring that service definitions do not inappropriately favour particular types of communications provider, or particular networks and technologies. The review is expected to be carried out during summer 2006. Tight service definitions will make it easier to take enforcement action against communications service providers who allow their number allocations to be used in ways that do not comply with the Numbering Plan.
- 5.89 Even with clear service definitions, a new Numbering Plan will have most effect only if it is relevant to all UK consumers. However, most of the provisions in relation to tariff transparency which are contained within the current Plan apply only to calls which originate on BT lines. Historically this may have been acceptable, as almost all calls did originate on BT lines. However, the growing use by consumers of competing fixed communications providers, and of mobile phones, mean that a declining share of retail traffic is covered by these tariff transparency provisions. By mid-2005, BT retail customers accounted for about 60 per cent of all retail fixed call volumes<sup>31</sup>.
- 5.90 We therefore propose to explore whether the tariffing provisions in the Numbering Plan which currently apply to BT retail customers should be extended to apply to customers of other providers of publicly available communications services. Ofcom has a number of options for widening the application of the tariffing provisions in the Numbering Plan. The two dimensions to consider are:

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<sup>31</sup> Ofcom market intelligence data

- which other providers should have obligations: some other fixed services providers, all other fixed service providers, or all providers including mobile services providers and payphone service providers?; and
  - for which number ranges should other providers have obligations: just those number ranges most prone to consumer abuses, or all number ranges?
- 5.91 Ofcom’s preferred current position is to extend the tariffing provisions within the Numbering Plan as far as possible, to apply to all originating providers, on all types of network. This is the best way to ensure that the whole Numbering Plan is not weakened by inconsistencies in consumers’ experiences.
- 5.92 Ofcom’s intention in doing this is not to use the Numbering Plan to regulate the prices which communications providers charge. Communications providers should be free to determine what price they wish to charge for their services, subject only to any price controls imposed following a finding of Significant Market Power (‘SMP’), and then choose a number range which is consistent with that price. Of course, this may not always be possible, since the Numbering Plan can only support a limited set of number ranges. However, Ofcom believes that the tariff transparency provisions in the Numbering Plan are written in a sufficiently general manner that most pricing models can be supported. Where this is not the case, it may be acceptable for communications providers to provide tariff transparency through other means, such as via a pre-announcement of the call tariff that supercedes the tariff information provided by the Numbering Plan, made free of charge at the start of every call.

*Question 19 Do you support the proposal to extend the tariffing provisions of the Numbering Plan so that they apply to customers of all providers on all types of network?*

- 5.93 As well as revising the Numbering Plan service definitions and developing the identity of each number range, Ofcom will consider taking active steps to ensure that the new Numbering Plan is communicated to consumers. This should be much more practicable once simpler new numbering arrangements are in place across the Numbering Plan. In residential consumer surveys, about 90 per cent of respondents said that they would use such information. The most popular potential source of information was the inside cover of the phone book, which almost two-thirds said they would realistically use.<sup>32</sup>
- 5.94 During the consultation period to May 2006, Ofcom will arrange consumer research to help develop straightforward descriptions for individual number ranges and associated graphics, which can then be used in publicity material designed to promote greater consumer awareness.

*Question 20 How do you think the new Numbering Plan could be effectively communicated to consumers?*

<sup>32</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/research>

## Market-based mechanisms

- 5.95 This section sets out Ofcom’s initial thinking on more fundamental changes in Ofcom’s approach to the way in which numbers are allocated. Allocations are currently made using a rule-based system under the centralised administration of Ofcom, an approach which might be characterised as ‘command and control’. We consider in this section whether the introduction of market-based mechanisms might result in regulation which is both more effective and less intrusive.
- 5.96 This is a particularly timely moment to consider this issue. The Act gave Ofcom the power to charge for numbers, a power which did not exist previously, and this has opened up the option of using market-based mechanisms. At the same time Ofcom faces particular challenges in relation to numbering administration, with a variety of geographic and non-geographic ranges facing exhaustion. Any contribution which market-based mechanisms can make to solve this problem should be of value.
- 5.97 Ofcom currently allocates blocks of telephone numbers free of charge, on demand, and on a ‘first come first served’ basis. A variety of rules are applied on both the demand side and the supply side. An example of a demand-side rule is that new blocks are only allocated to providers that have used a significant proportion of their existing allocation. An example of a supply-side rule is that the size of number blocks allocated in conservation areas is restricted. The general aim of this approach is to maximise the technical efficiency with which numbers are used, this being measured in terms of utilisation.
- 5.98 In addition to this rule-based approach to number allocation, Ofcom also seeks to ensure the efficient use of numbers through informal discussions with providers about the utilisation of allocated numbers, more regular formal numbering audits, reclaiming number blocks that are not in use, and potentially restructuring number ranges that are poorly utilised.
- 5.99 This ‘command and control’ approach suffers from several failings:
- it is highly intrusive, in that it requires Ofcom to investigate the operational business practices of communications providers to determine if numbers are being efficiently used;
  - it tends to promote technically efficient use (i.e., the utilisation rate) over economically efficient use. An example of where these objectives might diverge is the allocation of multiple numbers to a single end user. This is technically efficient because the number is utilised by the provider, but it may not be economically efficient; and
  - current utilisation rates (15 per cent for geographic numbers) suggest that it may not be a particularly effective mechanism even of ensuring technical efficiency.
- 5.100 That this highly intrusive approach does not lead to efficient use of resources is a characteristic of many administrative systems which make no use of market-based incentives. As set out in Section 3, Ofcom does not believe that a system for managing numbers based entirely on market mechanisms is appropriate, due to the citizen interests at stake. However the introduction of specific market mechanisms in regard to the *process* of allocation could

increase the efficiency with which numbers are utilised whilst decreasing the administrative burden on Ofcom and the regulatory burden on industry, without undermining consumer protection. Possible options are discussed in more detail below.

- 5.101 It is worth observing that there is already a secondary market in numbers, where providers and others exchange memorable numbers for many thousands of pounds. This is done through the process of sub-allocation, which is discussed in more detail in Annex 4.

### Promoting efficient utilisation through charging

- 5.102 In a market-based system, charging might be used to promote the efficient use of a scarce resource ('allocative efficiency' in economic terms). A possible first step in introducing market mechanisms would be to signal to communications providers the costs of making numbers available by introducing a cost-based charge.

- 5.103 In developing a cost-based charge Ofcom would seek to maintain certain principles to ensure that the charge is fair, proportionate, promotes efficient utilisation and does not unduly discriminate between communications providers. These principles include:

- *Cost-reflective* - the charge should reflect the marginal or incremental costs that are relevant to the decision being taken;
- *Cost causation* - the charge should be recovered from those whose actions cause the costs to be incurred at the margin;
- *Cost minimisation* - the charge should aim to minimise the total cost of numbering allocation, capacity enhancement and numbering usage;
- *Effective competition* - the charge should not undermine the pressure for effective competition and should be set on a non-discriminatory basis; and
- *Transparent, stable, practical and comprehensible* - the structure of the charge and the basis on which it is set should be clear and understood by all communications providers.

- 5.104 Two different types of cost can be associated with the allocation and management of numbers. These are summarised below:

- **Administration** costs are incurred either directly at the time of allocation (direct costs) or over the medium term in maintaining systems and supporting processes (common costs); and
- **Capacity** costs are incurred over the longer term in managing conservation areas and changing the Numbering Plan to either introduce a new supply of numbers or make available new service categories or tariff bands.

- 5.105 Both of the cost categories above can be split into those costs which are incurred by Ofcom, those which are incurred by industry, and those which are experienced by consumers.

- 5.106 In introducing a cost-based charge we would need to consider which categories of costs might be included. A purely 'administrative' charge would reflect some or all of the first category of costs. A 'capacity' charge would reflect the wider costs of increasing the supply of numbers or range of tariffs.

An overall charge that sought to incentivise efficient utilisation of numbers could be made up of a combination of the different charging elements identified above.

- 5.107 The timing of any charge would also be an important factor in the way in which it incentivised efficient use:
- a charge payable on allocation would provide an efficiency incentive to those providers who require a new allocation. It would not however provide an efficiency incentive in relation to number blocks already allocated to providers; or
  - a charge payable annually as a rental would provide an ongoing efficiency incentive in relation to all number blocks held by communications providers.
- 5.108 The timing of any charge could also have consequences for competition:
- a charge payable on allocation could possibly be regarded as discriminating to some extent against new entrants, who do not yet have allocations of numbers, in favour of existing providers; and
  - a charge payable annually as a rental could be regarded as discriminating against existing providers, who have historically had no incentive to use numbers efficiently, and who may now have limited flexibility to restructure their operations to do so.
- 5.109 It is worth noting that the introduction of any charge may have a greater impact on smaller providers (such as recent entrants) than on established providers. This is because of the way in which calls are currently routed, requiring communications providers to receive number allocations in large blocks. This means that smaller providers will generally not be in a position to achieve the same utilisation of such blocks as established providers.
- 5.110 The point in time at which a charge is introduced also has important incentive properties, especially in relation to charges payable on allocation. An announcement in advance that such a charge was likely to be introduced at some point in the future would incentivise providers to apply for numbers before they were genuinely required, and therefore may provide a perverse incentive for inefficient use. A simultaneous announcement that an annual charge would be levied as well could help mitigate this perverse effect because by requesting numbers earlier than would otherwise have been the case providers would not have avoided charges. The effectiveness of the mitigation will depend on the relative levels of these two charges.
- 5.111 We would need to consider whether charges should be per block or per number. The size of block allocated varies (see above) leading to differences in impact:
- a charge per block might better reflect the costs associated with individual allocations of numbers, whereas a charge per number might better reflect the cost associated with maintaining capacity;
  - the deployment of NGN and VoIP networks means that the block size in which allocations will be made in the future is increasingly arbitrary. In the future it may therefore be difficult to justify a specific charge per block; and
  - a charge per block might in certain circumstances operate against other Ofcom numbering objectives. For example, we might wish for number

conservation purposes to allocate smaller blocks to new entrants than to established providers (see Annex 1), but if they were charged the same amount irrespective of their block size this could favour established providers or reduce the incentive of small providers to accept smaller blocks.

5.112 We would need to consider whether charges should be different for different service categories, and for different geographic areas. Allocative efficiency is likely to be maximised if charges are higher for service categories and/or geographic areas where numbers are in short supply. This suggests that we should adopt a charge that varies by service/geographic area to reflect differences in number scarcity. There are however counter-arguments to this:

- a charge that varies by service/geography could be more costly to calculate and administer. This would of course depend on the level of complexity proposed;
- the scarcity of numbers for a particular service category or geographic area depends not just on demand for that class of numbers, but also on the supply made available by Ofcom through the Numbering Plan. This will in turn depend on demand pressures elsewhere in the Numbering Plan. The benefits of conservation are therefore distributed across the entire Numbering Plan. For example, the capacity available for Flat Rate Internet Access Call Origination ('FRIACO') services<sup>33</sup> (on 080899) was limited to 100k numbers, as compared to the ten million numbers available on each of the NTS ranges (0844, 0845, 0870, 0871), and this was done in order to conserve '08' numbers more generally. If demand for FRIACO numbers were to prove greater than anticipated, then a charge that varied by service would place a higher charge on FRIACO providers, whilst it could be argued their decisions were not the cause of that cost; and
- different networks and services may be in competition with each other but use different parts of the Numbering Plan. A charge which varies by service type or geographic area might therefore be regarded as discriminatory. For example, a high charge for FRIACO as compared to NTS numbers would increase the cost base for FRIACO-based internet service providers as compared to NTS-based internet service providers. This would be justifiable if the higher cost is considered an intrinsic part of the FRIACO cost environment, but is more difficult to justify in this case, as it is considered to be caused by an artificially-induced scarcity.

5.113 There is thus the potential for considerable complexity in the charging mechanism. There is a trade-off between the cost-reflectivity of the charge (more granular charge) and the complexity, comprehensibility and ease of implementation of the charge (more averaged charge). For example, a charge for a geographic number block could reflect costs that are specific to the area code that it is in, or to all area codes with certain properties, or there could be only one charging level for all geographic number blocks. The review period and/or criteria for a review of the charge would also have to be considered.

### *Summary of charging options*

5.114 Figure 5.7 summarises the different attributes identified here and the options considered in relation to each.

<sup>33</sup> FRIACO is an unmetered wholesale service provided by BT to other communications providers

**Figure 5.7 Options for number charging**

Attribute	Options
Charge components	Include administrative costs Include capacity costs Include service and tariff costs Include value based charges (see below)
Frequency	Charged on application Charged annually
Unit	By number By block
Variance by service type	Varies by service type Constant by service type
Variance by geo area	Varies by geo area Constant by geo area
Granularity	Constant across number ranges/service types Small number of different charge levels Large number of different charge levels
Review period	Pre-determined Automatically in response to changes to conservation status In response to change

**Question 21** *What are your views on Ofcom’s analysis and the different options for number charging?*

- 5.115 The objective of introducing a charge for numbers would be to signal to providers the costs associated with making numbers available and provide an incentive to providers to take these costs into account when deciding on their allocation requests. The incentive effect of a charge would depend on the size and structure of the charge, the ability of communications providers to respond to the costs that it imposes on them and the details of how it is combined with other elements of the allocation and numbering management processes. These aspects are discussed in more detail in Annex 4.
- 5.116 Although a charge could be introduced to supplement the current rules-based system of number allocation, Ofcom believes that it is likely a charge would render some rules unnecessary. Ofcom would welcome views on how the existing rule-base could be reduced.
- 5.117 Ofcom will consider the costs and benefits of charging, and the practical issues associated with any charge, in the light of responses to this

consultation. Ofcom currently envisages consulting again in Summer 2006 on more detailed proposals. Depending on the progress of that second consultation, charges could be introduced in 2007.

- 5.118 Ofcom is aware that by signalling the possible introduction of such a charge, providers may apply early for numbers that they do not yet need in order to avoid future charges. Ofcom wishes to make clear that such behaviour will not be rewarded. For example, any charge which is introduced is likely to include an annual charge that would be applied to all allocated numbers.

### Allocating numbers to providers who value them most: value-based charging

- 5.119 A cost-based charge incentivises **allocative** efficiency. In economic terms it is also desirable to encourage **distributive** efficiency whereby numbers are distributed to those who value them most. In this way the benefit to the UK and ultimately to consumers is maximised as those who value a resource most tend to make the best use of it. A value-based charge would seek to allocate a given number block to those who value it most. This would be most likely to be relevant for golden numbers, which are numbers with a special value, generally because they are easy to remember. One example from the mobile numbering range might be 07777777777.
- 5.120 To promote distributive efficiency in numbering, cost-based charging could be supplemented by a value-based charging mechanism. This would attempt to allocate number blocks for which demand exceeds supply to those who value them most. Ofcom would have to consider how best to identify both which number blocks are likely to include 'golden numbers' and the communications providers that most value such blocks. This is discussed in more detail in Annex 4.
- 5.121 Ofcom does not have a specific timetable for the introduction of value-based charging for numbers, since its immediate priority is to improve allocative efficiency, as discussed above.

*Question 22 Which, if any, numbers might appropriately be allocated using a value-based charge?*

*Question 23 Do you have any other comments on Ofcom's proposals for numbering as discussed in Section 5, or any other suggestions for how Ofcom might revise the current Numbering Plan or its administration?*

### Policy annexes

- 5.122 The policy proposals described in this section are covered in more detail in the following annexes, some of which explicitly compare a number of policy options:
- annexes relating to specific types of number:
    - Annex 1: Proposals relating to geographic numbers;
    - Annex 2: Proposals relating to non-geographic (NTS and PRS) numbers;



- o Annex 3: Proposals relating to mobile, personal and individual numbers;
- annexes relating to broader numbering issues:
  - o Annex 4: Proposals to use market-based mechanisms in numbering; and
  - o Annex 5: Proposals to strengthen consumer protection.

### Next steps

- 5.123 This consultation runs until **4 May 2006**. Ofcom aims to publish final conclusions in a statement in summer 2006 in relation to geographic numbers, some non-geographic numbers (including 08 numbers) and the approach to current 070 personal numbers.
- 5.124 Details on how to respond to this consultation, and Ofcom's consultations process are included in Annexes 7 and 8. Annex 9 provides the cover sheet to attach to your consultation response, and Annex 10 lists all the specific questions raised by Ofcom in this document.
- 5.125 Ofcom is also publishing Plain English and Welsh versions of this document to help consumers engage with the issues.
- 5.126 To implement its policy decisions, Ofcom will need to conduct further consultation, perhaps in a single consultation document in summer 2006. Ofcom also expects to consult further in summer 2006 on more detailed proposals concerning consumer protection tests, number charging, allocating numbers directly to end users, and numbering for premium rate services, publishing final conclusions by the end of 2006.

## Annex 1

# Geographic number management

## Introduction

- A1.1 Geographic numbers are the most widely recognised and trusted type of number in use by consumers. They are also the type of telephone number in most demand by communications providers, with over 233 million geographic numbers allocated to over 150 providers. Ofcom recognises the value of geographic numbers and the importance of ensuring their ongoing availability and consumer trust in their use.
- A1.2 The UK is divided into over 600 geographic area codes beginning with the digits 01 and 02. The next few digits have traditionally indicated the geographic location of the end user. Although location significance has been eroded over the years due to geographic numbers being used “out of area” and the emergence of nomadic services, essentially geographic numbers still provide location information. Geographic numbers also provide an element of platform significance, generally indicating a fixed line. However, like location significance, converging technologies have begun to erode the reliability of this information.
- A1.3 As explained in section 4, the UK Numbering Plan provides an abundance of telephone numbers but the attachment of meaning and provisions for competition restrict availability. The 01 and 02 geographic area codes provide over one and a half billion numbers, clearly enough to satisfy the requirements of the UK population. The attachment of location significance through area codes limits the supply of numbers in each area, but still leaves a substantial supply of numbers in each area. For example, the Cambridge code area has a supply of 790,000 numbers, which might be expected to be sufficient for the 74,000 households and just over 5,000 businesses covered. However, the requirement to allocate numbers to competing communications providers in blocks means that almost all of the total supply is now allocated. It is these two elements – meaning and competition - rather than an inherent shortage of numbers to provide to consumers, that has created a scarcity of geographic number blocks for allocation to communications providers in some areas.
- A1.4 Conservation measures already in place have so far ensured availability of geographic numbers in all areas. However, the growth in providers entering the market is expected to continue to increase demand for number blocks over the next five years until the introduction of NGNs and new forms of identifiers diminishes demand for geographic numbers. It is the objective of this part of the review to establish the best means, in keeping with Ofcom’s statutory duties and strategic aims, to meet this growing but time limited demand. An examination of the issues and options for action are set out in this annex.

## Links to Ofcom’s strategy

- A1.5 Ofcom’s strategy in approaching this review of numbering policy is set out in section 3. The discussion and proposals relating to the management of geographic numbers in this annex link directly to that strategy and to how

Ofcom could meet its key objectives. The options proposed are designed to ensure the ongoing availability of geographic numbers in all areas and consumer confidence in the meaning provided by the Numbering Plan.

- A1.6 Looking at the lack of number blocks available for allocation in some areas, it is clear that Ofcom needs to take action to ensure the availability of geographic numbers and thereby meet its statutory duty. There is a decision to be made on the best option to fulfil that duty and to meet Ofcom's other duties and aims, in particular, the promotion of consumer interests.
- A1.7 There are two main approaches to how Ofcom could ensure availability of geographic numbers now and in the future. The first way is to **manage demand** for blocks of geographic numbers by introducing tighter forecasting and monitoring procedures, increase conservation measures and encourage better utilisation of allocated numbers. The second way is to **increase the supply** of numbers by either introducing an additional code in areas experiencing a number shortage (i.e., overlay codes); closing the scheme so that local dialling is no longer possible; or implementing a code change and moving to wide area codes. These two main approaches can also be combined to provide a two-stage strategy to ensuring geographic number availability, by first using management demand measures and, where these are insufficient, introducing supply-side measures.
- A1.8 Ofcom has conducted consumer research to better understand what consumers want and understand from geographic numbers and to help us to form opinions on the best option for ensuring availability. The research found that consumers recognised geographic numbers more than other number types and perceived them to be the cheapest numbers (apart from Freephone) to call, with 49 per cent of consumers making a broadly accurate estimate of the call cost based on the BT Together option 1 tariff and Numbering Plan. The familiarity and trust in number type and tariff has resulted in consumers having a lower level of hesitancy in calling geographic numbers than other number types.
- A1.9 Continuity in geographic numbers and the information they provide was a strong theme for consumers. Number changes were considered stressful, annoying and costly, although the inconvenience could be lessened if the changes were well communicated. Location significance, though diminishing, is still valued by a considerable proportion of consumers, with just under half of those surveyed concerned at the idea of geographic numbers losing location significance. Consumers were also concerned about losing platform significance, primarily if it resulted in loss of tariff information.
- A1.10 Taking account of Ofcom's strategic and policy aims and of the information consumers want from numbers, Ofcom has developed an approach that we consider to be important when developing the appropriate measures to ensure ongoing availability of geographic numbers. This approach involves:
- favouring, wherever possible, measures that provide continuity and cause the least disruption and cost to consumers;
  - proposing measures that can be expected to provide continued availability of geographic numbers for the foreseeable future. The manner in which the measures are implemented should be neutral in their treatment of communications providers and not create a barrier to entry into the market;

- retaining tariff transparency, so that a caller pays what he/she expects to pay for a call to a geographic number. This principle should be retained, for instance, when geographic numbers are used “out-of-area” or are used for calls to mobile handsets; and
- not hastening the erosion of location significance but recognising (and not stifling) the effect of network and service evolution on that significance.

*Question 24 What do you think of Ofcom’s proposed general approach to managing geographic numbers?*

## Historical and current position of geographic numbers

A1.11 The pressures on the availability and meaning of geographic numbers are not new. This pressure has been handled in various ways in the past, for example:

- in 1990, the code for London changed from 01 to 071 and 081, releasing the 01 code;
- in 1995, phONEday inserted the released 01 code into the beginning of all geographic numbers to provide an easily recognisable number range;
- in 2000, The Big Number change increased the supply of numbers in London, Coventry, Southampton, Portsmouth, Cardiff and Northern Ireland through the introduction of wide area codes; and
- in 2002 (and extended in 2005) conservation measures were introduced to manage demand in over 50 geographic areas.

A1.12 The administration of the UK’s numbering resource was handed over from BT to an independent regulator in 1994. Since then demand for geographic numbers has grown steadily. Section 4 provides further information on how demand has grown and been managed to date. An important point to note is that when the regulator took over administration of the numbering scheme from BT, a significant proportion of numbers in many geographic area codes was already allocated, mainly to BT. This was not due to consumer demand for numbers, but to the historical practice of allocating a 10k block of numbers to each local exchange regardless of the number of subscribers covered by that exchange. This resulted in low utilisation of number blocks in many areas. Although, over the years, BT has attempted to rationalise its use of allocated numbers and utilisation of new blocks has improved, the point remains that there is a historical legacy of low block utilisation.

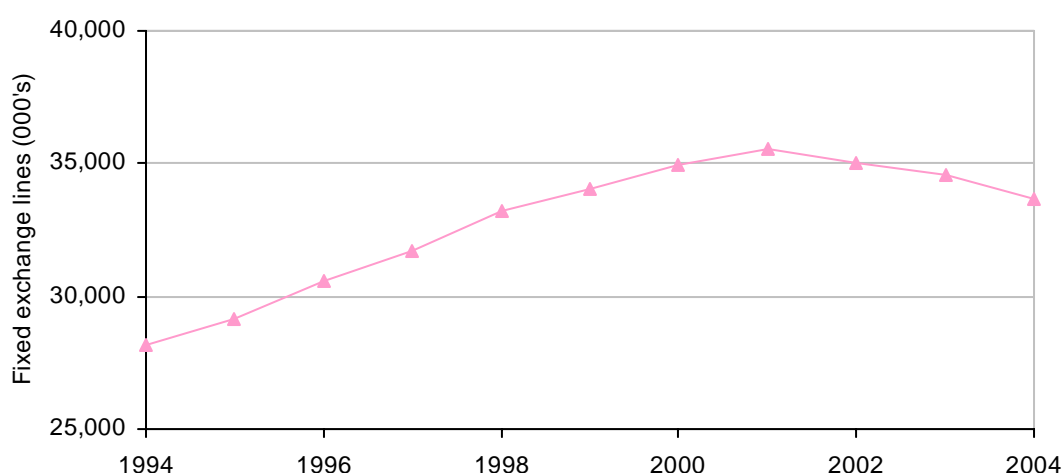
A1.13 The driver for continued growth in demand since 1994 has been the rise in the number of communications providers rather than an increase in consumers wanting telephone numbers. Due to the routing constraints of legacy networks, Ofcom allocates geographic numbers to communications providers in blocks – generally 10k reducing to 1k in conservation areas. In the majority of cases, the communications provider requires far less numbers than it is allocated and would settle for a much smaller amount of numbers if that was the established unit of allocation. The ability to meet larger demand would not be lost as multiple allocations of smaller blocks would be available where justified. This, of course, would provide a much closer alignment of allocation size to actual number requirement and improve utilisation.

A1.14 Given that the high level of number blocks allocated in many areas is not an indicator of past or future number demand from consumers, it is reasonable to assume that better utilisation of geographic number blocks would help meet demand and eradicate the need to increase the supply of numbers in many areas. The relevance of this assumption is demonstrated by the success of existing conservation measures in meeting VoIP providers demand for geographic numbers as opposed to the considerable impact on availability of numbers experienced over the past few years in many non-conservation areas. This point is illustrated by Figure 4.2 in Section 4 which shows the easy management of VoIP provider requirements in Brighton (a conservation area from 2002) as opposed to the impact felt in the Cambridge code area (which led to conservation measures being required in 2005).

### Future demand for geographic numbers

A1.15 The availability of geographic numbers to meet demand depends on three main factors – the underlying demand from consumers; the growth in competing communications providers; and the efficiency with which communications providers use the numbers allocated to them. Consumer demand, as already mentioned, can be easily met by the geographic Numbering Plan. Ofcom data show that the number of exchange lines has been in decline since 2001, as illustrated in Figure A1.1. Ofcom expects this decline to continue (apart from growth generated by regional development) and to result in a similar gradual decline in the underlying demand for geographic telephone numbers. In the short term this might be partially offset by growth in VoIP-based second lines, but in the longer term VoIP is expected to start replacing rather than adding to existing exchange lines. There are known trends in demographics which could impact the number of exchange lines – such as the formation of larger numbers of smaller households, but it is Ofcom’s view that such changes will not significantly increase demand for numbers.

**Figure A1.1 Trends in exchange line numbers**



A1.16 Growth in communications providers has been fairly continuous, strengthened by the entry into the market of a number of small VoIP providers since 2004. In central London, for instance, the number of

providers has grown from seven in 1994 to over 90 now. Growth in providers outside London has been slower but still substantial. Although there is likely to be some consolidation in the market, Ofcom expects the number of providers to continue to rise.

- A1.17 As the number of exchange lines is set to decrease while the number of providers increases, it is clear that numbers, if they continue to be allocated at the 10k number block level, would become increasingly poorly utilised. Ofcom expects this to be a transitory effect, in that once NGNs are fully deployed, it will no longer be necessary to allocate numbers in 10k blocks (or even in 1k blocks), and this should result in improved utilisation. In the meantime, demand for blocks will rise while actual requirement for numbers will diminish. This tension will need to be addressed by increasing the number of blocks of geographic numbers available for allocation to communications providers. This can either be done by reducing the amount of numbers in each block, increasing the supply of numbers in an area code or a combination of both solutions.

### Forecasting and monitoring

- A1.18 The sufficiency of numbers in an area to meet demand depends on the number of blocks free for allocation, the level of utilisation of allocated numbers and the predicted future demand for numbers. Demand scenarios are necessarily complex: key drivers include past and predicted demand; the rollout of NGNs; population density for that area; and likely growth in population. Other events can also affect demand, including changes to number allocation eligibility criteria; fixed-wireless network and service convergence on geographic numbers; increased demand from overseas users; and non-communications-based changes such as regional development. There are also events that could reduce demand for numbers, such as rationalisation of the market place resulting in fewer providers and the possible introduction of charging for numbers (see Annex 4).
- A1.19 Regular and accurate forecasting is fundamental to making number management processes work. Ofcom is developing a model that allows for more precise advance planning for each geographic area. The model will provide the basis for Ofcom to assess the impact of varying demand scenarios on the likelihood of each area having sufficient numbers to meet that demand and whether it needs a demand and/or supply side measure to ensure this happens. However, forecasting with accuracy is a difficult process. The analysis set out below takes into account factors known to Ofcom at this time. It is planned to supplement this knowledge during the consultation period with a consultancy study designed to present a more detailed picture of the likely demand in each geographic area code, taking into account external factors such as local development. Ofcom would also welcome feedback from stakeholders on the likely structure of the communications market in the next five years.

*Question 25 Do you have detailed evidence or suggestions on the variables likely to influence demand for geographic numbers, how those variables will change over time, and how Ofcom should develop a demand model?*

## Demand management measures to increase utilisation rates

- A1.20 As explained, the amount of geographic numbers available is easily sufficient to meet consumer requirements and to satisfy communications providers demands, yet geographic number blocks are scarce in many areas due to the poor utilisation of 10k blocks. Looking back at the strategic aims as set out in Section 3 and the guiding approach for the framework for geographic numbers as set out earlier in this annex in paragraph A1.10, Ofcom favours an approach that will ensure the ongoing availability of geographic numbers in a manner that causes the least disruption to consumers. Measures to produce better utilisation of geographic number blocks, the execution of which would have no effect on consumers, are therefore the most obvious initial step to take to ensure availability of numbers.
- A1.21 Ofcom has predicted that demand for geographic numbers will increase over the next three to five years before reducing. At a similar time, BT plans to roll out its “21CN” network and other communications providers have similar plans to deploy NGNs of their own. These are widely expected to remove the technological limitations which have required the allocation of numbers in large blocks and resulted in poor utilisation levels. Broadly speaking, therefore, if the existing geographic number resource could be better utilised between now and when NGNs become ubiquitous, then Ofcom believes sufficient geographic numbers would be available to cover the intervening years in the vast majority of areas, obviating the need for number changes.

## Conservation measures

- A1.22 Demand management processes, in the form of conservation measures, are already agreed and in place for geographic numbers in certain areas which have experienced a shortage of numbers. These measures reduce the rate at which geographic numbers are allocated to communications providers by reducing the standard block size for allocation in that area from 10k to 1k.
- A1.23 Current conservation measures rely on estimating when a geographic area is likely to have less than ten blocks for allocation. Areas where this situation is predicted in the next two and ten years are then designated as Type A and Type B Conservation Areas respectively and blocks are either allocated (in the case of Type A) or use restricted (in the case of Type B) to 1k blocks. Forecasting the lifespan of geographic area codes needs to be done regularly and accurately to ensure that the measures deliver the required outcome and conserve numbers. As mentioned, demand scenarios are difficult to predict with accuracy. The risk is that unpredicted demand can result in an area quickly falling below the ten-block barrier. By the time the necessary statutory consultation to make it a conservation area has taken place, there may be insufficient blocks remaining to allocate at the 1k level to make an appreciable difference to utilisation figures and avoid the area requiring supply side measures.

## Proposed modification to conservation measures

- A1.24 Ofcom proposes to modify the definition and application of the current measures and extend the use of conservation as a demand management tool. It is proposed to extend the forecasting of number scarcity from two years to five years ahead, in order to cover the predicted peak demand for

geographic numbers. The consequence of this proposed change is that the number of conservation areas would increase.

A1.25 Ofcom is proposing to replace the current conservation area categories with two new categories of geographic area status. Existing conservation areas would then be reclassified according to the new criteria:

- standard areas - areas that are not forecast to be at risk of exhaustion within the next five years. Conservation measures are not required. 10k blocks allocated, but use restricted to specific 1k blocks to allow for number withdrawal if the area subsequently requires conservation measures; and
- conservation areas - areas that are forecast to be at risk of exhaustion within the next five years. Numbers allocated in 1k blocks.

A1.26 Ofcom would use its forecasting and monitoring processes to assess the ability of available number blocks to meet communication provider demand for numbers over the next five years. Those areas that required improved utilisation of numbers by moving from a 10k to a 1k unit of allocation would be classed, subject to consultation, as conservation areas and that status would be recorded and enforced through the Numbering Plan. As an indicative range, Ofcom estimates that perhaps between 55 and 77 additional conservation areas might be required (in addition to the existing 51 Type A conservation areas), although this will depend on future utilisation.

*Question 26 Do you agree with the specific proposal for how to extend conservation measures, including the extension to areas with a number shortage predicted in the next five (rather than two) years?*

### Impact on stakeholders

A1.27 The main point of conservation measures is that they address the underlying problem of geographic number management - poor utilisation of the existing and sufficient resource. It is an approach that has been tried and found to be successful in offsetting the need for more disruptive supply side measures in the existing conservation areas. The prime benefit of conservation measures is their invisibility to consumers, who would be unaffected by any changes apart from the indirect benefit of available geographic numbers on which to receive communications services.

A1.28 Communications providers would be affected by an increase in conservation areas, as reducing the number block size for allocation and routing would have an impact in terms of administrative and operational costs. There are also infrastructure limitations on legacy networks' ability to route at the 1k level. In order to appreciate the level of burden an increase in the number of conservation areas would present to communications providers, Ofcom commissioned a technical study by the consultants Intercai Mondiale. This study has been published as a companion document to this consultation.

A1.29 The Intercai study concluded that wholesale implementation of routing geographic numbers at the 1k level is possible, although there are a number of consequences that should be considered. At the centre of the issue is the finite level of network resource (known as decode resource) that is required to route numbers at the 1k level. Depending on what that finite limit is, how the resource is used and infrastructure details, there may be restrictions on the extent to which finer digit analysis (the requirement for networks to



analyse more digits of the telephone number to gain routing information) can be implemented. However, the study showed that while the available decode resource on both System X and AXE 10 switches (which represent the limit on finer digit analysis for geographic numbers) is constrained and not extensible, it is nonetheless adequate to support a substantial increase in conservation areas. This ability could be compromised by other regulatory measures that compete for data decode resource. However, Ofcom has considered the demands that could be made on the decode resource by its policy in other areas and has made the conservation of geographic numbers its priority for 1k block routing. Given all this, Ofcom is of the opinion that there is no overarching technical reason to limit the number of geographic area codes where conservation measures could be introduced as necessary.

*Question 27 Do you consider there to be any upper limit, in terms of technical feasibility, on the number of areas in which conservation measures could be used?*

- A1.30 The Intercai study added an author's comment that conservation measures provided a stop-gap measure to meet number demand before wide area codes provided a permanent solution. Ofcom agrees that conservation measures do provide a medium-term solution, but believes the long-term solution to demand will be provided by technical advances (the deployment of NGN and VoIP networks) which fundamentally change the way in which calls are routed, and thereby eliminate the need for large blocks of numbers to be allocated.
- A1.31 Implementation of conservation measures does represent a cost to communications providers. Ofcom has made an approximate estimate of this cost. Essentially, the cost of putting a number block on the telecommunications network so that calls can be routed and charged appropriately (known as data management amendment or data-build) would be the same for all new blocks irrespective of whether the block contained 1k or 10k numbers. The difference would occur in areas where communications providers' demand is more likely to exceed 1k numbers and multiple blocks would need to be allocated, entailing a corresponding multiple of data-build costs.
- A1.32 The data-build cost for each area varies according to the number of affected processors (part of the switching mechanism in telecommunications networks), which in turn is affected by the size and population density of the code area and by the network topology. To get a feel for the impact of data-build, Ofcom estimates that a small town or rural area may require changes to up to nine processors requiring in the region of nine engineer hours. Data-build requirements in major cities can vary widely from 10 to 135 processors and 14 to 31 engineer hours per block. Economies of scale may be available for multiple blocks.
- A1.33 According to communications providers' responses to previous consultations on conservation measures, limiting use to specific 1k units within an allocated 10k would result in no significant impact or cost. Therefore the introduction of restricted use in "standard areas" would not create a burden on communications providers.

*Question 28 Do you agree with Ofcom's assessment of the impact of conservation measures on stakeholders?*

### Additional measures to improve utilisation

- A1.34 Ofcom's primary aim in implementing conservation measures is to improve the utilisation rate of numbers. There are also other processes that could be put into practice alongside the allocation of numbers in 1k blocks which could make a difference to utilisation.

### Withdrawal of unused 1k blocks

- A1.35 Ofcom already conducts annual audits, where it surveys the use of blocks in selected number ranges and withdraws those that are completely unused. In addition, once an area receives conservation status, Ofcom can revisit existing allocations of 10k numbers and seek the withdrawal of unused 1k blocks from within that allocated 10k block. Once returned to Ofcom, the 1k blocks can be reallocated to different communications providers who require numbers in that area.

### Addressing the legacy of low utilisation practices

- A1.36 Paragraph A1.12 explained that BT's allocation of number blocks according to local exchange has meant that in some areas numbers are poorly utilised. Ofcom plans to examine more closely whether there are any opportunities for BT to amalgamate numbers across local exchanges with the aim of freeing up number blocks for return to Ofcom.
- A1.37 A further legacy from BT's administration of the numbering scheme is that BT numbers in some areas have codes and numbers of mixed digit length. This causes some numbers to be shorter than the standard eleven dialled digits, which reduces the amount of available numbers in that area. Localised measures could be used to address shortage of numbers in these areas by making changes to the code and number lengths. For example, within the Lancaster 01524 code there are blocks of both five and six digit subscriber numbers. The use of five digit numbers reduces the amount of numbers in that block by a factor of ten. Ofcom plans to work with communication providers to establish the best approach to mixed digit length codes and numbers.

### New approaches to number allocation

- A1.38 Ofcom would also like to pursue novel approaches to number allocation such as number pooling between consenting communications providers. For example, the Internet Telephony Service Providers Association (ITSPA) has indicated in responses to previous Ofcom consultations that it would be interested in pursuing number pooling between new voice service providers. Commonly, new voice service entrants have a low requirement for numbers when applying for allocations and therefore the recent escalation of demand for blocks has resulted in low utilisation. The sharing of geographic number blocks through number pooling would greatly improve the utilisation rate.
- A1.39 A further means of encouraging better utilisation of numbers could be the introduction of a charge payable on application and/or annually. Currently communications providers do not pay any fee for allocation or ongoing usage of number blocks or codes. This may lead to communications providers applying for large quantities of number blocks rather than prioritising their

requirements. Although Ofcom does assess each application in terms of whether the request for numbers is justified by demand, the introduction of a charge for numbers would encourage communications providers to make that judgement themselves. Further discussion on charging for numbers is contained in Annex 4.

### Impact on stakeholders

- A1.40 As with conservation measures, processes for improving utilisation of geographic numbers generally have no impact on consumers. In the measures listed above, the only exception is the processes for localised code and number changes to standardise number length. Any changes to number or dialling behaviour would need to be communicated to consumers well in advance to minimise disruption.
- A1.41 The impact on communications providers would be greater. Withdrawal of number blocks already data-built on switches would require administrative and data rebuilding costs. The costs of withdrawal of a 10k block and reallocation of a single 1k block are roughly the same as the costs for allocation of a new block set out in paragraph A1.32 above. Reallocation of several 1k blocks due to numbers being in use would result in multiples of that data-build cost. This is a likely scenario, as communications providers would have had the numbers available and are likely to have used more than a single 1k block. Ofcom appreciates the impact of number block withdrawal and would work closely with industry to agree the most advantageous means of implementing the proposals.

*Question 29 Do you agree that Ofcom should pursue these additional ways to improve number utilisation and, if we do, how would stakeholders be impacted and what practical issues are involved?*

### Assessment of demand side measures' ability to meet requirements

- A1.42 As set out in the preceding paragraphs, Ofcom proposes to improve communications providers' utilisation of geographic numbers through more widespread conservation measures and other means of encouraging good husbandry of numbers. Improved demand management reduces the speed at which numbers are allocated to communications providers, but it can not increase the overall supply of numbers. Although Ofcom proposes to use improved demand side measures to avoid the need for any changes to consumers' numbers or dialling behaviour, whether or not those measures would be sufficient in all areas depends on the demand scenario and the ability to achieve the required utilisation rate.
- A1.43 Ofcom's monitoring and forecasting models have a crucial role to play in assessing and predicting how many and which areas are unlikely to have sufficient capacity to meet demand despite aggressive conservation measures. Clearly, areas can not be allowed to run out of available numbers for allocation to communications providers, otherwise competition and consumer choice will suffer. Ofcom must have a fallback solution to supplement capacity in areas where required and is therefore consulting stakeholders on their views of the most appropriate option.

## Measures to increase supply of geographic numbers

A1.44 Ofcom has identified three options to increase the supply of geographic numbers where conservation measures are not expected to meet demand. Each measure has its benefits and disadvantages for stakeholders, but the most crucial factor in deciding the most appropriate option is the extent to which supply side measures would be required. For example, if a small percentage of areas dispersed across the UK required additional capacity, then a measure that addressed the issue in a localised manner and caused the minimum disruption would be appropriate. However, if a large amount of areas are likely to require additional numbers, then an option that recognised the need for more wholesale code changes may be more appropriate. The options Ofcom has identified, which are described and evaluated below, are:

- overlay codes;
- closing the numbering scheme; and
- wide area codes.

### Overlay codes

A1.45 Currently, each geographic area has a single area code. The amount of numbers available is therefore limited, generally to 790,000 numbers (or 79 x 10k blocks) although this varies according to the code and number length for that area. The overlay code option allows for a second code to be given to an area experiencing number shortage. This additional code would then be used for new customers – existing numbers would not have to change. Thus a new area code would be introduced to provide supplementary numbering resource for new customers alongside existing numbers.

A1.46 The new overlay code could be an unused 01 code, possibly, where available, one that is contiguous to the existing code. Alternatively, an unused 02 code could be introduced. Another option is the introduction of potentially more memorable codes beginning with the digits 010, which are currently unused.

A1.47 To illustrate, Brighton 01273 has limited capacity available and is already a conservation area. If, despite other efforts to improve utilisation, the level of available number blocks is insufficient to meet demand, then an additional code (e.g., 01272) could be “overlayed” on top of 01273. Consumers with 01273 numbers would not need to change their numbers and could continue to call other 01273 customers without dialling the area code. New customers in Brighton would be given a 01272 number and could dial other 01272 customers without dialling the area code. However, despite both being Brighton codes, local dialling (i.e., without the area code) would not be possible between the 01272 and 01273 codes.

### Impact on stakeholders

A1.48 Overlay codes cause minimal disruption to existing consumers as they generate additional numbers without requiring a number change in that area. There would be certain changes to dialling behaviour required as some consumers within an area code would be unable to dial some numbers locally. There may also be some consumer opposition to the unfamiliar area

code and perceived loss of geographic significance, particularly from businesses who might believe that it creates a commercial disadvantage.

- A1.49 Ofcom's consumer research found that while 62 per cent of residential consumers claimed to local dial, the facility appeared to be taken for granted rather than highly valued. Indeed, 60 per cent of consumers did not think that the ability to local dial was important. In contrast, continuity of numbers was highly valued with 85 per cent of businesses and 79 per cent of residential consumers considering that a number change would cause annoyance and inconvenience.
- A1.50 When consumers were asked specifically for their reaction to the overlay code option, nearly three-quarters of residential consumers were not bothered or only marginally bothered by the option. Business consumers had more concerns, with 41 per cent of businesses saying they were very bothered by this option. The main issues were loss of location significance and confusion arising from two codes for the same area.
- A1.51 The impact on existing communications providers would be relatively minimal as the introduction of additional codes would create little impact apart from modifications to infrastructure tables to ensure calls are routed and billed accordingly. However, information and education on the new codes would need to be provided to consumers.
- A1.52 There might be some impact on new communications providers entering the market, since such providers will be more dependent on overlay codes than existing providers. If consumers were hostile to overlay codes, then this might place new communications providers at a competitive disadvantage. However, the generally positive reaction to the recent introduction in London of 020 3 (which is not formally an overlay code but which shares many of the attributes of one) suggests that this concern can be addressed.

*When would overlay codes be the best option?*

- A1.53 Ofcom proposes to put into place all reasonable measures to improve geographic number utilisation to manage demand. Where these measures prove insufficient, overlay codes could provide a localised solution to a localised problem. Using the earlier example of Brighton as an area with limited available numbering, the surrounding code areas of Worthing, Horsham, Haywards Heath, Uckfield and Eastbourne are not in a similar predicament. Therefore the measures required to increase numbering resource in Brighton do not need to be more widespread in that general area.
- A1.54 Ofcom considers that there is a finite limit to the number of overlays which should be implemented before a localised solution becomes exploited on a wholesale level and is not used to its best advantage. As a benchmark, Ofcom considers this limit to be somewhere in the region of 10 to 50 codes, which is 1.5 to 7.5 per cent of the total geographic area codes. Above this limit, Ofcom considers that a localised solution is no longer considered suitable as the number exhaustion problem is being experienced on a more widespread basis. However, Ofcom is interested in stakeholder views on the maximum number of overlays which would be suitable?

*Question 30 What are your views on overlay codes, and Ofcom’s assessment of them, as a fallback option to increase number supply? What should be the maximum number of areas where overlay codes are introduced?*

### Closing the numbering scheme

A1.55 The UK has what is commonly termed as an “open numbering scheme”. This allows for local dialling within the same area code, which means that only the subscriber number and not the area code need be dialled for the call to be connected. As a consequence, subscriber numbers beginning with the digits 0 and 1 are not possible as they would clash with the use of the digit 0 for indicating national or international dialling and the digit 1 for access codes. In addition, subscriber numbers do not begin with 99 to avoid misdials to the emergency number 999. As most geographic area codes are 4-digit, the ability to local dial decreases the available numbering capacity in most code areas from one million to 790k. By closing the scheme and removing the ability to dial only the subscriber number, the digits 0, 1 can be used, although it may still be prudent not to use numbers beginning with 99. By using subscriber numbers beginning with the digits 0 and 1, a 25 per cent increase in numbers is created.

### Impact on stakeholders

A1.56 Closing the scheme would increase the supply of geographic numbers without the need for any consumers to change numbers. It also has no impact on the geographic significance provided by the number. However, removing the ability to local dial would have an impact on consumer dialling behaviour. As set out in paragraph A1.49 in relation to the loss of local dialling that would occur with overlay codes, the majority of residential consumers claim to local dial regularly, although only 39 per cent thought the ability to local dial was important. Smaller businesses valued the ability to local dial more than larger businesses, but an average of only 40 per cent thought local dialling was important as pre-programming and a higher proportion of non-local calls made it unnecessary.

A1.57 Closing the scheme would increase the number of digits necessary to dial to make a call to the same area code by between three and six digits (depending on the code area), thereby increasing consumers’ time spent and the likelihood of misdialling. It would also take some time for consumers to lose the instinct to dial locally. However, the growing use of calling equipment with preset memories (particularly mobiles) and the increase in calls from mobiles (which require the full number to be dialled where the preset memory is not used) would avoid some of the impact of closing the scheme. The main difference between overlay codes and closing the scheme in terms of consumer impact is that with overlay codes, existing consumers do not experience a change, whereas closing the scheme impacts all consumers, regardless of whether their area has a limited supply of numbers.

A1.58 When asked to consider specifically the option of closing the scheme to increase the supply of numbers, residential consumers were fairly evenly split in their views, with 30 per cent strongly concerned; 29 per cent slightly concerned and 39 per cent indifferent. The main worry was the need to dial more numbers. Business consumers’ views were more polarised, with 42 per cent not bothered and 39 per cent concerned. Their main worry was a

perceived loss of geographic significance and potential confusion over location. However, in comparison to a number change, both sets of consumers favoured number continuity and did not feel that the option would cause too much anxiety.

- A1.59 Communications providers are not expected to experience a significant impact from closing the scheme, as networks already route all calls on a nationally dialled basis (i.e., by adding back the area code when calls are dialled locally). The greatest impact would come from the need to educate consumers and handle misdialled calls.

*When would closing the scheme be the best option?*

- A1.60 In theory, the scheme could be closed at the national level or only at the local level, i.e., for specific area codes. However, in order to manage the necessary change in consumers' dialling behaviour it would most likely be implemented on a national basis.

- A1.61 Closing the scheme is a good option where an increase in the supply of geographic numbers is likely to be more than a localised requirement but where demand is likely to be met by an increase of 25 per cent more numbers. As a benchmark, Ofcom considers that if forecasts predict, despite conservation measures, more than 7.5 per cent of areas are unlikely to achieve the required rate of utilisation to meet demand for the foreseeable future, but that an injection of 25 per cent more numbers would meet that target, then closing the scheme would be the most appropriate fallback option.

- A1.62 Closing the scheme does not necessarily need to be used in isolation as a fallback option for increasing the supply of numbers where demand management is insufficient. Indeed, closing the scheme could be supplemented by overlays if a small amount of areas required more numbers than closing the scheme would make available. The impact of overlays on consumers would be reduced as the ability to local dial would already have been removed.

*Question 31 What are your views on closing the scheme, and Ofcom's assessment of it, as a fallback option to increase number supply?*

**Wide Area Codes**

- A1.63 The final option for increasing the supply of geographic numbers is to instigate a code change, requiring consumers to change their telephone number according to a set migration plan. A code change would involve combining every existing area code currently beginning with the digits 01 with other 01 area codes into much larger geographic areas (i.e., wide areas), and giving this wide area a code beginning with the digits 02 or 03. This has already happened in some areas, e.g., 020 for London and 028 for Northern Ireland.

- A1.64 Implementing the wide area code scheme would entail a substantial change to the structure of UK geographic numbers. It would create a standard length telephone number in the format of a 02X or 03X prefix and an 8-digit subscriber number, the first two digits of which would give an indication of locality. For example, in 2000, the Portsmouth 01705 and Southampton

01703 codes changed as both areas became part of the 023 wide area code. Geographic significance was retained in the next two digits, with 023 **92** relating to Portsmouth and 023 **80** to Southampton. Room for further expansion has been built into the wide area code plans. Ofcom recently made additional numbers available by opening 023 **93** in Portsmouth and 023 **81** in Southampton.

- A1.65 A form of local dialling is still possible within wide area codes. For example, when making calls within the 023 area, those digits may be omitted and only the 8-digit subscriber number dialled. However, the digits following 023 form part of the local number and may not be omitted, even if dialling, for instance, within the Southampton area. A further point is that code and number changes do not affect charging. That is, the widening of area codes does not mean that the area for local call charges is also necessarily widened.
- A1.66 Ofcom has a plan for how wide area codes would be implemented in the UK and this plan is detailed and protected within the current number scheme. That plan would split the UK into 15 wide area codes according to regional boundaries, with ten codes for England, three for Scotland and one each for Wales and Northern Ireland.
- A1.67 The scheme could be implemented throughout the UK or selectively in those areas in which scarcity of geographic numbers has or is expected to arise. For example, the whole of the 029 code has been set aside for Wales. However, only Cardiff required an additional supply for numbers when the 02 codes were initiated in 2000. The remaining codes in Wales were not migrated at that time although under the wide area code plans, there are 029 XX codes set aside for the remainder of Wales if and when required.

### *Implications of planning for Wide Area Codes*

- A1.68 In order to accommodate the whole of the UK into wide area codes, detailed planning is required so that the old subscriber number can be embedded into the new wide area code number. Ofcom inherited the plans from Oftel and has kept the plans protected until it decides whether wide area codes are the appropriate strategic approach to ensuring ongoing availability of geographic numbers – the purpose of this part of the numbering review.
- A1.69 Planning for a code change means that multiples of 10k blocks of numbers are protected in a large number of areas. Unfortunately, the need to plan ahead for the possible introduction of wide area codes has significant implications for the present availability of geographic numbers. Indeed, over 13,500 10k blocks are currently protected for wide area code planning purposes. This represents 38 per cent of unallocated 10k number blocks in the 01 geographic area codes. The number of blocks protected varies considerably from area to area with between one and 65 blocks protected across 01 codes. To illustrate the impact at an area level, removing block protections for wide area code planning, and thus making the blocks available for allocation, would increase availability from four to 16 blocks in Motherwell; from five to 45 in Dorchester and six to 62 in Berwick-upon-Tweed. Therefore, just by removing the plans for the wide area code scheme, availability of numbers is vastly improved and the need for conservation measures reduced. The downside, however, is that once plans are removed, a wide area code scheme would be more costly to reinstate at a later date as the blocks required for the number change would have been



lost through allocations. In addition, such a change could be very disruptive to consumers if it was not easy to combine existing subscriber numbers with the new codes.

- A1.70 Ofcom believes it is now at the point where a decision on the future of a wide area code scheme must be taken in order to ensure that sufficient and appropriate blocks are available either to make conservation measures work or to implement the wide area code scheme successfully. Furthermore, it may be necessary to lift the formal protections which are in place in some areas ahead of a formal decision, simply in order to meet current demand for numbers. As noted above, this does not prevent subsequent implementation of wide area codes, but may make such implementation more costly.

### *Impact of wide area codes on stakeholders*

- A1.71 Implementing the wide area code scheme would entail a substantial change to the structure of the UK's geographic numbers and consumers would need to become accustomed to the number structure, the location significance that it offers and opportunities for local dialling. Wherever a wide area code was rolled out, consumers in that area and those making calls to that area would experience a significant impact. Ofcom would ensure that sufficient notice of a code change was given and communicated to try to alleviate some of the impact (e.g., to allow for stationery reprints, signage changes, informing contacts and reprogramming of autodialed numbers). However, a number change would still be potentially very costly and disruptive to consumers and the UK economy in general. Indeed, recent research conducted by Ofcom suggested that the cost of the number changes in 2000 when the first batch of wide area codes was introduced was roughly between £1500 and £18,500 per business, depending on its size. Research undertaken on behalf of Ofcom to gauge the cost and inconvenience to residential consumers found that they would pay an average of £6 to avoid a number change, but require a payment of £600 to agree to change their telephone number.
- A1.72 As part of Ofcom's commissioned research, consumers were asked specifically for their reactions to the wide area code option. Residential consumers' views were fairly evenly divided between strong, minor and no concern. Businesses appeared less concerned by the option, with 49 per cent indifferent.
- A1.73 The wide area code option would represent the biggest impact on communications providers. Networks would need to manage a period of parallel running between the old 01 code and the new 02 or 03 code. They would also need to handle a potentially large number of misdials as consumers become accustomed to the new codes. Network infrastructure and administration changes would need to be made to ensure calls were routed and billed accordingly. On top of this, there would need to be a concerted information campaign to ensure consumers understood the code change.

### *When would Wide Area Codes be the best option?*

- A1.74 The wide area code scheme offers the opportunity for the UK to have an established plan of how number supply can be increased across the entire UK. The outcome would be a standardised code and number format and the retention of location significance in the number. However, the significant

drawback of the scheme is consumers' loss of number continuity and the considerable cost and disruption to all stakeholders of a number change.

- A1.75 Therefore, Ofcom considers that a change to wide area codes is the best option only when there is a sustained need to increase the supply of numbers in a significantly widespread manner across the UK and when an increase of more than 25 per cent of numbers is generally required. Only then would a comprehensive plan of number change be worth the substantial disruption and cost of number change that it would bring.
- A1.76 However, an exception to the above consideration is when an area has a strong sense of regional identity, for this identity could be conveyed by the wide area code. For instance, 028 provides geographic significance beyond the local area to unify Northern Ireland behind the one code.

*Question 32 What are your views on wide area codes, and Ofcom's assessment of them, as a fallback option to increase number supply?*

*Question 33 Might wide area codes be appropriate in regions with a strong identity and, if so, which specific regions are suitable for wide area codes?*

### How utilisation influences the most appropriate choice of option

- A1.77 As set out above, Ofcom considers that the most appropriate choice of fallback solution to increase the supply of geographic numbers in areas where demand management proves insufficient depends on the extent to which that solution is required. It therefore falls to the forecasting and monitoring process to measure the utilisation rate and predict how many geographic areas would require a supply side measure to ensure numbers are available for the next five years.

### Ofcom's analysis

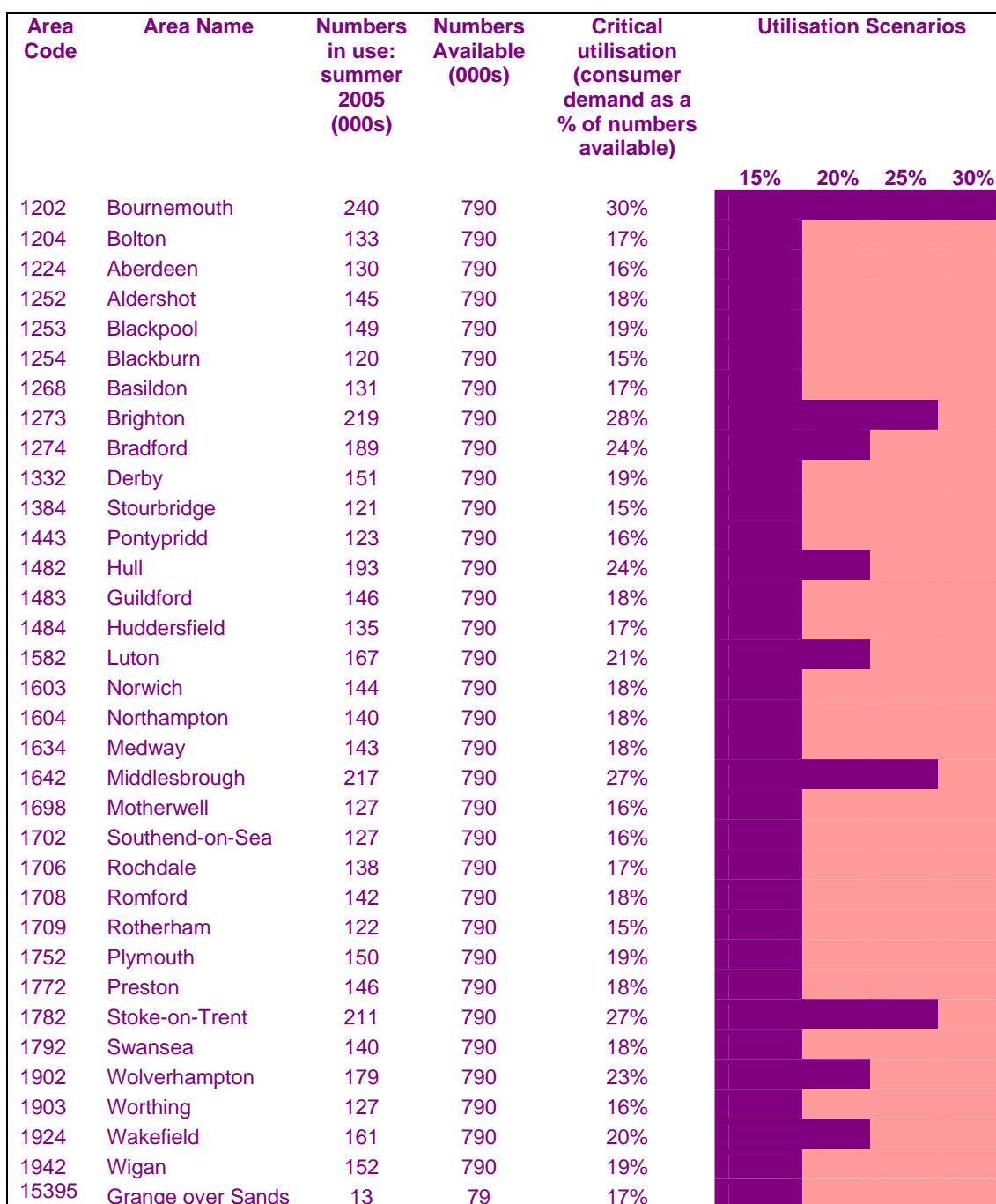
- A1.78 Ofcom's initial analysis of utilisation and demand in each geographic area used the total amount of geographic numbers contained in BT's directory enquiries database (known as the OSIS database) in each geographic area code and uplifted that total by 20 per cent to cover DDI numbers not included in that database. The total of numbers in use represents the current demand for geographic numbers in each geographic area code. As explained, Ofcom expects consumer demand for numbers to remain relatively constant. Where demand increases due to regional development and residential build, an adjustment would be made to the 'numbers in use' figure to ensure that it took into account the predicted increase in demand. Ofcom plans to adjust the consumer demand figure following the forecasting study referred to in paragraph A1.19.
- A1.79 The next step was to take the total available capacity in each area (which varies according to code and number length but is generally 79k) and calculate the current utilisation rate by dividing the available capacity in an area by the total of numbers in use. This represents the critical utilisation level that needs to be met in each area.
- A1.80 Taking the critical utilisation, Ofcom has assessed whether demand can be met if the utilisation rate is 15% of total numbers (the current average) and then by increments of 5% to 20%, 25% and 30%. Ofcom considers that

these increments should be achievable through conservation measures and the other means of improving utilisation, as set out in paragraphs A1.22 to A1.41. Ofcom believes this to be the case as areas which introduced conservation measures in 2000 have generally achieved utilisation rates well above the average. For example, Brighton has an utilisation rate of nearly 28 per cent, Bournemouth over 30 per cent and Middlesbrough 27 per cent of available numbers.

A1.81 Assessing the ability of different actual utilisation rate scenarios to meet the critical utilisation rate for each area is a useful tool in assessing how many areas are likely to need supply side measures in addition to demand side measures. Ofcom's analysis is that:

- if the current average actual utilisation rate of **15%** of available capacity is achieved across all areas, **34 geographic area codes** would require additional numbers;
- if the actual utilisation rate was **20%** across all areas, **nine geographic area codes** would require additional numbers;
- if the actual utilisation rate was **25%** across all areas, **four geographic area codes** would require additional numbers;
- if the actual utilisation rate was **30%** across all areas, **one geographic area code** would require additional numbers; and
- if the actual utilisation rate was **30.5%** across all areas, **no geographic area codes** would require additional numbers.

A1.82 The above analysis and results are set out in Figure A1.2. The red blocks indicate the actual utilisation scenario under which the area is likely to need an overlay code. The critical utilisation rate of all other area codes is under the 15 per cent average actual utilisation rate.

**Figure A1.2 The impact of number utilisation scenarios on the possible need for supply-side measures**

What does this analysis mean for selecting the most appropriate supply side measure?

A1.83 This annex has already set out Ofcom's thoughts on when the different supply side measures would represent the most appropriate choice for increasing numbering capacity. Overlay codes are considered to be the best choice when a localised solution is required to a localised problem. The analysis in Figure A1.2 suggests that only localised measures would be

required. Depending on the actual utilisation scenario, the forecasted number of overlay codes required would range from one to 34. The worst case utilisation scenario, which is the current average of 15 per cent (a figure that is expected to substantially improve with increased conservation measures), would see only 5 per cent of the total number of areas requiring an overlay code. A modest improvement in utilisation rate to 20 per cent would reduce the number of areas which may require an overlay code to nine. The actual total is expected to be less than 2 per cent of all area codes.

A1.84 Given the low level of anticipated overlay codes, Ofcom believes that this option would provide the most appropriate fallback solution to conservation measures. Closing the scheme would unnecessarily impact the dialling behaviour of all consumers in the UK, whereas the use of wide area codes is a solution which addresses more widespread and long-term numbering requirements. Ofcom is therefore proposing to:

- increase the use of conservation measures:
  - by taking a longer-term approach and predicting number shortage over a five year timeframe; and
  - by implementing additional measures to improve number utilisation, such as unused block withdrawal, consistent code and number length and number pooling.
- use overlay codes as a fallback option in areas where conservation measures are insufficient to meet demand.

A1.85 The analysis in this annex, when read in conjunction with the rest of this document, represents an Impact Assessment (IA), as defined by section 7 of the Act, on geographic numbering. You should send comments on this IA to Ofcom by the closing date for this consultation, which is **4 May 2006**. All comments will be considered by Ofcom when it decides whether to implement its proposals.

## Annex 2

# Improved trust and availability for 08 and 09 numbers

## Introduction

A2.1 This annex covers Ofcom's proposals for increasing consumer transparency and number availability in relation to services obtained when calling some key non-geographic numbers. The services covered in this annex are those whose numbers currently begin with:

- 080: Freephone services are provided on 0800 and 0808. Calls to these numbers are free of charge, except for calls made from mobile phones, where a free-to-the-caller announcement is required. These numbers are widely used by business as a means of promoting inbound calls, for example as a sales and marketing tool;
- 084x and 087x: 'Number Translation Services' (NTS) are provided on these numbers, and cover a wide range of services: dial-up internet access, public information lines (e.g., NHS Direct), consumer help lines, home banking services, travel information lines, and many more. What these services have in common is that the call charge is set at a level which does not just cover the cost of a call, but which also includes the cost of a micro-payment that may either be paid to the recipient of the call or used to fund the provision of additional network based services (such as intelligent call routing or announcements), effectively reducing the cost of those services to the recipient of the call. This micro-payment can be regarded as a service charge, which supports the provision of services which may not be commercially feasible if there was no charge. The total cost of a call is different for different number ranges, but will be 10ppm or less from BT lines; and
- 09: 'Premium Rate Services' (PRS) are provided on these numbers, and also cover a wide range of services: charity fundraising, competitions and voting lines, weather forecasts, provision of sexual content, and many more. These services use a similar micro-payment mechanism to that which is supported on 084x and 087x, but the level of the micro-payment is much higher, and hence so are call charges, which can exceed £1 per minute from a fixed line.

A2.2 These numbers are used by a significant number of companies to provide services. In November 2005 research for Ofcom, 24 per cent of large businesses and 8 per cent of small or medium enterprises ('SMEs') stated that they had 08 numbers for their customers to call them on.

A2.3 Freephone services are well understood and trusted by consumers. The same is not however true of NTS and PRS services. Consumers have a poor awareness of the absolute level of call charges for NTS and PRS services, and the nature of the micro-payment which is included in them. Additionally, a number of 'scams' have emerged which exploit this micro-payment mechanism. The result has been a substantial erosion of consumer trust.

A2.4 Ofcom has consulted separately on a variety of measures to restore this trust in relation to NTS services in its September 2005 NTS consultation. We have also consulted on proposals to strengthen the consumer protection arrangements associated with PRS services<sup>34</sup>, and a statement is expected by March 2006. There is a potential overlap between these earlier proposals and the current review, especially in relation to those proposals within the NTS consultation which deal with numbering policy. These will formally be considered within the context of the NTS consultation, and Ofcom's conclusions will be set out in the forthcoming NTS statement, which we expect to be published by April 2006. They will not be considered further in this document.

### The current meaning of 08 and 09 numbers

A2.5 In the UK National Telephone Numbering Plan, telephone numbers are divided into geographic numbers (beginning with 01 or 02) and non-geographic ones. Non-geographic numbers such as those beginning with 08 and 09 (see Figure A2.1) indicate the service and price (per minute or per call) rather than a specific geographic location for the caller.

**Figure A2.1 Services currently on 08 and 09 numbers**

Number range	Application (tariffs are for BT customers)
0800 & 0808	Freephone - including 'Freephone confidential helplines' (08088) and 'Internet services free to caller' (08089)
0820	Internet for schools
0844	Various services at rates up to and including 5p
0845	Special Services basic rate: BT's Standard Local Call Retail Price
0870	Special Services higher rate: BT's Standard National Call Retail Price. Includes "Local Rate+1p" (087009 & 087018).
0871	Various services at rates up to and including 10p
0900-0901	Special Services, time charged calls up to and including 60ppm and total call cost not greater than £5 or fixed fee up to £1 per call
0904-0906, 0911	Special Services, open ended time dependent charge or fixed fee up to £1.50
09059	Multi-Party Chat trial - PRS 'any tariff or fixed fee'
0907	Special Services pay for product that costs more than £1 in total
0908-0909	Sexual Entertainment Services at a Premium Rate

<sup>34</sup> *Conditions regulating Premium Rate Services*  
(<http://www.ofcom.org.uk/consult/condocs/prsconditions/prs.pdf>)

A2.6 However, 08 and 09 numbers currently are only partially effective at conveying clear information about the calls being made. There are a number of aspects to this, including the following:

- tariff information provided by the Numbering Plan relates only to calls from BT lines;
- the falling meaning of ‘local rate’ (0845) and ‘national rate’ (0870) numbers and associated tariffs, partly because many providers no longer make a distinction between these rates, and partially because of increased bundling of ‘free’ geographic minutes within the basic line rental. Ofcom modified the designations of these ranges in 2004 to clarify the nature of the linkage to local and national call tariffs and signalled that the ‘local rate’ and ‘national rate’ terms might be misleading and should no longer be used. Nevertheless these terms are still commonly used by businesses and communications providers;
- the variety of services provided on similar numbers. For example, the 08 range covers both internet access numbers and voice services. The 09 range is also complex in terms of the variety of services and tariffs; and
- the provision of services on some numbers for which they were not intended. In many cases this is due to the service definitions in the Numbering Plan (which govern what number allocations can be used for) being insufficiently precise.

A2.7 In addition, there is a prospect that initial number allocations for some 08 services could run out, due to growing demand for 08 services, and increased competition from new communications providers, all needing numbers in order to compete. As discussed in Section 4, the historical trends for each range suggest that 0871 will become exhausted in 2007, 0870 and 0844 in 2008, and 0845 in 2011. The default response would be to open up new 3-digit number ranges, so for example ‘0872’ might be opened up in response to the exhaustion of ‘0870’, and ‘0873’ in response to the exhaustion of ‘0871’. Unfortunately this approach is likely to exacerbate existing consumer confusion.

A2.8 This has already happened for some 3-digit 09 number ranges. For example, 0906 was initially allocated for “Special Services, open-ended time-dependent charge, or fixed fee up to £1.50”. When 0906 numbers were used up, 0905 ones were used for the same services. As 0905 is also now exhausted, 0904 and 0911 numbers are being allocated. Meanwhile, 0907 is used for “Special Services pay for product that costs more than £1 in total” and 0908 and 0909 are used for “Sexual Entertainment Services at a Premium Rate”. However, it is very unlikely that the meaning supposedly communicated by these overlapping number ranges is understood by many consumers.

A2.9 Services using 09 numbers do however have one transparency advantage over 08 numbers, in that under ICSTIS regulations, 09 prices also must be published when they are advertised to consumers. Consumers therefore have some chance to know the price and nature of 09 services from the adverts that prompt their decisions to make PRS calls. The role of the Numbering Plan in providing tariff transparency is less critical in this context.



## Consumer perceptions of current 08 and 09 services

- A2.10 The uncertainties described above have contributed to a low level of consumer trust in 08 and 09 numbers. This is evident from the significant research that Ofcom has conducted with residential and business consumers on their perceptions and awareness of these numbers.
- A2.11 In general, consumers have a strong broad sense of which numbers relate to services that are cheap and ones that are more expensive, and an equally strong sense of which numbers they trust and which they do not trust. However, they do not understand the details of the current complex Numbering Plan. Business and residential consumers alike recognised some numbers, but both audiences were generally unable to accurately estimate the cost.
- A2.12 For 08 services, 0800 was mostly recognised as Freephone, but recognition of 084X and 087X prefixes has been shown to be low. For example, only 15 per cent of residential consumers recognise 0844 and 33 per cent recognise 0871. Also, call costs are unclear to many consumers: the proportion of residential consumers making a broadly correct estimate of the correct tariff for chargeable 08 numbers ranged from 15 per cent for 0871 to 21 per cent for 0845. About six in ten consumers (after prompting) said that they were aware that 087 numbers cost more to call than 084 numbers, but the majority of these did not appear to be confident in their belief. Also, about half of them could not distinguish between the costs of any type of chargeable 08 numbers.
- A2.13 Awareness of revenue-sharing possibilities of 084 and 087 numbers is limited to the companies using these numbers, other businesses and almost all consumers being unaware. Qualitative research suggests that almost all consumers are largely uninterested in where the money goes, the cost of the call being of greater concern to them. However, this finding should be weighed against the very strong concerns expressed about revenue-sharing by many consultation respondents to Ofcom in the past about tariff transparency and the view that some companies profit inappropriately from such calls.
- A2.14 For 09 numbers, qualitative research shows that residential consumers' and businesses' impressions of many of these numbers are overwhelmingly negative, and companies that offer these numbers are generally considered to be unscrupulous. In general, qualitative research indicated that most respondents felt it was important to be informed about premium rate numbers. Awareness of 09 numbers was slightly higher among businesses than residential consumers, but 09 prefixes are recognised by a minority (29 per cent)<sup>35</sup>. Certainly, Ofcom's research suggests that consumers are not likely in practice to be able to differentiate between the detailed meanings within the 09 range, such as 0901 and 0904 numbers.
- A2.15 For 08 numbers, Ofcom has estimated the effect of low consumer awareness, by calculating the welfare loss incurred by over-estimating call costs for numbers that begin with 084 or 087. This approach uses consumer survey evidence on consumers' perceived prices and assumptions about

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<sup>35</sup> *Number Translation Services: A way forward*  
([http://www.ofcom.org.uk/consult/condocs/nts\\_forward/](http://www.ofcom.org.uk/consult/condocs/nts_forward/))

how demand varies according to price<sup>36</sup>. Ofcom calculates that there is a welfare loss to the economy of £323m each year on these calls as a result of consumers not knowing the actual charges. Even if consumers only estimated 08 prices to be as low as 14p per minute – the level they estimate for geographic call prices – there would be a welfare loss of £143m per year as a result of consumers not knowing actual 08 charges. There is therefore a significant current cost to this limited transparency.

- A2.16 Even when consumers do make calls to 08 or 09 numbers, they may find it difficult to make an informed choice as to the optimum service and tariff, and may therefore be using these services inappropriately. In extreme cases this may result in consumers (or their children) accessing inappropriate content, or in consumers becoming vulnerable to ‘scams’. This results in consumer detriment which is additional to the quantifiable welfare loss described above.
- A2.17 Additionally we need to recognise that the quantifiable welfare and other financial losses caused to consumers are only part of the picture. The anxiety caused to consumers is also an important consideration, albeit difficult to quantify in financial terms. Such anxiety amongst consumers about the potential misuse of 08 and 09 numbers is something which we need to address.

*Question 34 Do you agree with Ofcom’s assessment of the problems with current 08 and 09 in terms of information clarity and consumer perceptions?*

### Assessment of policy options for 08 numbers

- A2.18 The previous paragraphs explain the challenge in setting a strategy for services on 08 and 09 ranges: to overcome negative consumer perceptions and to establish greater consumer trust in the Numbering Plan for the longer-term, in a way that is robust to the growing use and complexity of these services. Some common themes apply to 08 and 09 numbers, but it helps to consider policy options separately.
- A2.19 This annex considers policy options for services provided on 08 numbers. As noted above an important part of the context for these proposals is that Ofcom has already been considering numbering policy for 08 services. The NTS consultation contained several proposals which were designed to restore consumer trust in NTS numbers, including:
- restoring the link between the retail pricing of 0870 and national geographic calls for calls made from BT lines – this link has been eroded, in particular, by the development of optional calling plans with a range of different rates for national calls;
  - extending this link, so that it applies to all providers, and not only BT, except where a free-to-caller price announcement is made at the start of the call;
  - removing the regulatory underpinning for revenue sharing on the 0870 range, by removing the requirement for BT to originate these calls at cost;

<sup>36</sup> the methodology uses that of the NTS consultation, with updated data on consumers’ price perceptions from the consumer research published with this consultation document

- subjecting 0871 numbers to PRS regulations, including a requirement that advertisements include the call prices;
  - requiring communications providers to give more prominence to NTS prices on websites, price lists and promotional material;
  - asking public bodies carefully to consider their use (especially exclusive use) of 084/087 numbers; and
  - clarifying the existing requirement that adult services should be provided only on 0908 or 0909 numbers, where they would be covered by PRS regulations.
- A2.20 The NTS consultation anticipates that similar measures to those proposed above for 0870 could be applied in the future to the 0845 range, once the number of subscribers to dial-up internet services has fallen to a level at which the benefits of restoring the link to local geographic call charges would outweigh the associated costs of number migration.
- A2.21 These proposals form part of a package of measures designed to improve pricing transparency and consumer protection on calls made to 08 numbers. It is very likely that, if implemented, these proposals would lead to the end of revenue sharing on the 0870 range, and in due course on 0845.
- A2.22 The NTS consultation anticipates that similar measures might be applied to the 0845 range, once the number of subscribers to dial-up internet services has fallen to a level at which the benefits of restoring the link to local geographic call charges would outweigh the associated costs of number migration. However, such a step would be subject to a further review.
- A2.23 The NTS consultation strongly advised communications providers not to act on the proposals presented as far as they relate to number migration, but wait until publication of the final NTS statement. We stated that this was because a strategic review of Ofcom's numbering strategy was underway, and that early research indicated that some number ranges may become exhausted in the medium term. We further stated that we were therefore considering whether a wider restructuring of the 08 range is required.
- A2.24 Our detailed analysis of the possible exhaustion of NTS number ranges is presented in Section 4 of this review. We note that the historical trends for each range suggest that 0871 will become exhausted in 2007, 0870 and 0844 in 2008, and 0845 in 2011. It is unlikely that the approach adopted for geographic numbers, of more effective demand-side management, will be effective here, because growth in allocations is being driven by growth in underlying demand, not by poor utilisation of the allocated numbers.
- A2.25 Ofcom will therefore need to make available additional capacity for the services associated with these ranges. This creates an opportunity to manage growth in a manner that does not give rise to forced migration of legacy services, and which is also consistent with a long-term vision intended to deliver greater benefits to consumers. This consultation considers three broad approaches to doing so, and a number of more detailed options.
- A2.26 All the options presented here recognise the strength of the current 0800 / 0808 Freephone brand, by leaving those numbers unchanged. Freephone numbers are the one type of 08 numbers that is well-recognised and trusted by consumers. Internationally, Freephone services often use 0800, which

may contribute to high consumer awareness. There is also no current danger of these numbers being exhausted. Consequently, it seems inappropriate to make any change to the usage of this range. Most of the options presented also avoid opening up any 08 ranges that are numerically close to 080, in order to limit the risk of consumer confusion.

A2.27 The options presented here also recognise the migration costs which would be imposed by a major restructuring of the 08 range, on both communications providers and those business which use 08 numbers for incoming calls. It is these migration costs which have in recent years represented the single most important barrier to change. Note however that the existence of these migration costs does not mean that we should not adopt a radical vision for the structure of the 08 range. What it does mean is that we need to be realistic about the timescale over which this vision can be realised.

### Option 1 Current NTS proposals, with additional growth managed on adjacent 3-digit ranges

A2.28 Option 1 takes as its starting point the proposals set out in the NTS consultation in relation to 0844/0845/0870/0871, and then additionally proposes that as each of these number ranges becomes exhausted, they are supplemented by new 3-digit ranges ('0872' in addition to '0870', '0873' in addition to '0871'). This proposal provides the additional numbering capacity that is required to accommodate long-term growth, and does so without requiring existing providers and end users to incur additional migration costs, over and above those already considered in the NTS consultation. This is the closest of the options presented here to 'business as usual'. This option could have merit, but only if a 3-digit plan could be sufficiently well-communicated and be stable for a long time period.

A2.29 One means by which communication might be improved is by distinguishing between the formal designation of numbers and the manner in which this formal designation is communicated to the general public. It may be possible to provide a public description of 08 number ranges which is simpler than the formal designation, but which is still consistent with it. This may make it possible to improve the public understanding of 08 numbering without changing formal allocation practices to the same extent. One possible approach is set out in Figure A2.2.

A2.30 This option has the advantage that number supply is assured, as new 3-digit ranges are allocated as needed. Also, no current providers of 08 services would have to change their numbers, except for those not charging national rate for 0870 numbers – an approach that is consistent with Ofcom's NTS policy proposals.

A2.31 Ofcom's primary concern in relation to this proposal is that it would be likely over a period of time to erode rather than improve tariff and service transparency. The long term outcome would be that different services would be accommodated on overlapping 3-digit ranges, an outcome somewhat similar to the current state of '09'. Consumers are unlikely to find this easy to understand, and this is not therefore a sustainable means of restoring consumer trust.

**Figure A2.2 Option 1 for 08 numbers**

Formal designation of 08 numbers		Public description of 08 numbers
0800, 0808, 080x	Freephone  (0800 and 0808 currently available, new adjacent 3-digit ranges to be made available as required)	Freephone
08089	FRIACO	Not communicated in 08 Numbering Plans for consumers
0820	Internet for schools	Not communicated in 08 Numbering Plans for consumers
0844, 0843, 0842	Various services at rates up to and including 5p  (0844 currently available, new adjacent 3-digit ranges to be made available as required)	Up to 5 pence per minute
0845, 0846, 0847	Special Services basic rate: BT's Standard Local Call Retail Price  (0845 currently available, new adjacent 3-digit ranges to be made available as required)	Mostly local rate for calls to fixed lines
0870, 0872, 0874	Special Services higher rate: BT's Standard National Call Retail Price. Includes "Local Rate+1p" (087009 & 087018).  (0870 currently available, new non-adjacent 3-digit ranges to be made available as required)	National rate for calls to fixed lines
0871, 0873, 0875	Various services at rates up to and including 10p  (0871 currently available, new non-adjacent 3-digit ranges to be made available as required)	Up to 10 pence per minute

## Option 2 Current NTS proposals, with additional growth managed on adjacent 2-digit ranges

A2.32 Option 2 also takes as its starting point the proposals set out in the NTS consultation in relation to 0844/0845/0870/0871. It then additionally proposes that as each of these number ranges becomes exhausted, they are supplemented by new 2-digit ranges ('085' in addition to 0844, '086' in addition to 0845, '088' in addition to '0870', '089' in addition to '0871'). Each of these new 2-digit ranges would have the same attributes as the 3-digit range which it supplemented. The Numbering Plan would therefore have the structure set out in Figure A2.3.

**Figure A2.3 Option 2 for 08 numbers**

Number range	Service
080x	Freephone
0844 and 085x	Calls up to 5ppm
0845 and 086x	Calls linked to local rates
0870 and 088x	Calls linked to national rates
0871 and 089x	Calls up to 10ppm

A2.33 This proposal also provides the additional numbering capacity that is required to accommodate long-term growth. It does so in a manner that is simpler than Option 1 above, thereby avoiding the risk of a large number of overlapping ranges. However, the use of a 3-digit range and a separate 2-digit range for each service still results in a fairly complex Numbering Plan, which consumers might have difficulty understanding.

## Option 3 Open new 03 range for non-revenue-sharing services, simplify use of 08 range for revenue sharing services

A2.34 Option 3 also takes as its starting point the proposals set out in the NTS consultation in relation to 0844/0845/0870/0871, but then exploits the broader scope of this numbering review, by managing part of the expected growth on a wholly new non-geographic range: '03'. The use of an additional range provides us with greater flexibility as to how we manage growth, both on this range and the existing '08' range.

A2.35 Our specific proposal is to target this new range at those businesses and public sector bodies which require a non-geographic number because they require a national presence, rather than because they wish to generate revenue from incoming calls. The expectation is that the new range would become trusted by consumers as covering clearly-identified services with a well-understood price range. Ofcom would take several steps to establish consumer trust in the new range:

- the new proposed range is in close proximity to the existing geographic ranges, and call tariffs would be tightly linked to geographic rates. Some of the possible options are discussed in more detail below;
  - revenue-share would be forbidden on this new range. This would be achieved by using the Numbering Plan to impose a condition on those providers which adopt numbers in the new range, similar in character to the condition which already applies to personal numbers;
  - Ofcom would work with those UK communications providers responsible for managing international interconnects to try and ensure that the new range is available for incoming international calls.
- A2.36 The new range would be used to accommodate growth in demand for those services that do not require revenue-share, and whose call tariffs are closely linked to geographic rates. Additionally, if the new range is successful in building consumer trust, then there will be an incentive for those providers currently providing such services on 08 to migrate to it.
- A2.37 Ofcom recognises that there is an apparent inconsistency between this proposition, which establishes the new '03' range as the natural home for those services which do not require revenue sharing, and the proposals set out in the NTS consultation, which are expected to lead to the end of revenue sharing on the 0870 range, and in due course on 0845. Ofcom does not rule out the possibility that the 0870 and 0845 ranges could be treated as exceptions to the general rule, in accommodating non-revenue sharing calls within a broader revenue sharing range. Ofcom also considers that the designation of 03 as a new non-revenue sharing number range could mean that such an anomaly would become less significant over time. Ofcom will return to this issue in its NTS policy statement, which it expects to publish by April 2006.
- A2.38 Ofcom also notes that its current proposals for '03' are slightly different in nature to those set out in the NTS consultation for 0870, and potentially for 0845. The NTS consultation proposed to remove the regulatory guarantee of revenue share on certain 08 sub-ranges (the NTS call origination condition). What is proposed here for the '03' range is a complete ban on revenue share, implemented via an additional obligation on all providers who adopt these.
- A2.39 There are several options for how the new '03' range might be structured, and these include:
- under **Option 3(a)** Ofcom would open up two new ranges broadly analogous to the existing 08 ranges. The '034' sub-range would be reserved for calls linked to local rates, and the '037' sub-range would be reserved for calls linked to national call rates. When coupled with an appropriate policy for number block allocation, this could allow the services that migrate to 03 numbers to change just the first digit after the zero;
  - however, it may be that prices for non-revenue-sharing services will not vary enough to justify price distinctions between different parts of the 03 number range. **Option 3(b)** would therefore focus on establishing a clear identity for national rate calls, by using a memorable range for those calls, such as 030 (beginning allocations with the repeated 0303 numbers) or 033 (beginning with the symmetrical 0330 numbers); and

- under **Option 3(c)** Ofcom would open different '03' sub-ranges for different services. For example, calls to essential public services might have their own range on 030.

A2.40 Growth in demand for those services that do require revenue share would be accommodated on 08. The aim here would be for Ofcom to set out a strategic vision for the long-term management of this range, and then manage short term capacity growth in a manner that is consistent with that vision.

A2.41 The long-term vision which Ofcom proposes for the 08 range is that service designations would be at the 2-digit level (e.g., 080, 081, 082), rather than the current 3-digit level (e.g., 0844, 0845), thereby increasing the capacity of each range by a factor of 10, and eliminating any danger of exhaustion in the foreseeable future. The ranges would be ranked according to price, from 080 to 089. This would significantly increase transparency, since consumers are likely to find 2-digit number ranges easier to remember than 3-digit range, and because of the simplicity of the message that 'the higher the number, the higher the price'. Three specific options for the 08 range are considered in Figure A2.4.

**Figure A2.4 Options for current 08 services under Option 3**

	Option 3(i)	Option 3(ii)	Option 3(iii)
<b>Summary</b>	03: Geographic 080: Freephone 0844 / 085: ≤ 5ppm 0845 / 086: local 0870 / 088: national 0871 / 089: ≤ 10ppm	03: Geographic 080: Freephone 084: ≤ 5ppm 0845: local 087: ≤ 10ppm 0870: national	03: Geographic 080: Freephone 084: ≤ 5ppm 0845 / 085: local 087: ≤ 10ppm 0870 / 088:national
Freephone	Accommodate growth on 080	Accommodate growth on 080	Accommodate growth on 080
Local rate	Accommodate growth on 03 and 0845 / 086	Accommodate growth on 03 and 0845	Accommodate growth on 03 and 0845 / 085
Calls up to 5ppm	Accommodate growth on 0844 / 085	Accommodate growth on 084	Accommodate growth on 084
National rate	Accommodate growth on 03 and 0870 / 088	Accommodate growth on 03 and 0870	Accommodate growth on 03 and 0870 / 088
Calls up to 10ppm	Accommodate growth on 0871 / 089	Accommodate growth on 087	Accommodate growth on 087

A2.42 The following points should be noted in relation to these options:

- Option 3(i) adopts the same structure for the 08 range as is proposed in option 2, accommodating growth on each of the existing 3-digit ranges on completely new 2-digit ranges. The potential disadvantage of this option is



that it does not exploit the increased flexibility which should arise as a consequence of creating the new 03 range;

- Option 3(ii) does try and exploit this increased flexibility, by assuming that growth in demand for numbers linked to 'local' and 'national' tariffs can be accommodated on the existing 3-digit ranges (0845 and 0870) and on the new 03 range. This allows the remainder of the 084 and 087 ranges to be dedicated to growth in numbers linked to 'up to 5ppm' and 'up to 10ppm' respectively. This provides a simpler long term structure for the '08' range, and therefore maximises consumer transparency; and
- Options 3(iii) is a variant on Option 3(ii), which assumes that at some point '0845' and '0870' become exhausted, and that new 2-digit ranges have to be made available for these services within 08. We assume that 085 and 088 are used for this purpose.

A2.43 Ofcom recognises that each of the options summarised above will leave existing services in place on certain 3-digit numbers which with a tariff structure which is inconsistent with the long-term vision. Ofcom is not in this consultation considering forced migration of such services, since this issue raises a number of complex issues in relation to migration costs, on which we have already consulted within our review of NTS policy. Ofcom notes however that if the proposals described here do incentivise significant voluntary migration, then it may be appropriate at some point in the future to return to the issue of forced migration of the remaining legacy services. The trigger for such a re-evaluation might be a level of voluntary migration which materially reduced the residual costs associated with forced migration.

A2.44 Ofcom has considered a number of alternatives to the options summarised above on which we are consulting, for example:

- Ofcom has considered various options for restructuring of the 08 range, in a manner similar to that described in Option 3 above, but without also opening up the new 03 range. However, options similar to these are already being considered within the context of the NTS consultation, and it would not add to the debate to consult specifically on them again here. They do all raise significant concerns in relation to migration costs, an issue which is considered in detail in the NTS consultation; and
- Ofcom has also consulted within the context of the NTS consultation on the option of banning of revenue-share on all 08 numbers. All services which exploited this capability would have to move to 09. This option will not be considered further here.

A2.45 All variants of Option 3 would have the key advantages of establishing a strong new brand for non-revenue-sharing national services, which would be particularly straightforward to communicate to consumers. At the same time it would over a period of time permit some simplification of numbering for revenue-share services, which should both build trust in paid-for revenue share services, and at the same time protect the already strong brand of Freephone services.

A2.46 There are also, however, some disadvantages to Option 3. Those choosing to migrate to 03 numbers would incur costs. However, this would not be a forced migration. Those choosing to migrate would be doing so because in their judgement the benefits justified the costs involved. They would be able

to migrate on a timescale which was appropriate for them, taking into account these costs and benefits.

- A2.47 Option 3 does also require an entirely new range to be made available for non-geographic services, and this range will therefore not be available for other services at a future date. Ofcom does not however regard this as a major issue. It is expected that completely new services will increasingly be made available using forms of identifier other than telephone numbers (e.g., IP addresses) and this reduces the importance of retaining an extensive reserve of ‘clean’ telephone numbers.

### Ofcom’s preferred options for 08 numbering

- A2.48 Ofcom has a preference for option 3. It provides a new choice for those businesses and public sector bodies which require a non-geographic number because they require a national presence, rather than because they wish to generate revenue from incoming calls, and it provides a simpler message to those consumers which call such numbers. Option 3 does not have the lowest costs of migration, but it does minimise the net economic cost of migration by making it voluntary. If the 03 range proves popular it will provide a strong incentive to migrate quickly, separating the revenue-sharing and non-revenue sharing services sooner.
- A2.49 Ofcom has no particular preference between those sub-options of Option 3 which relate to the structure of the new ‘03’ range (i.e., sub-options 3(a), 3(b), 3(c). Ofcom would welcome comment on these.
- A2.50 The most difficult issue raised by Option 3 is the choice between those sub-options which relate to the long term vision of the ‘08’ range. The precise nature of this trade-off depends on the outcome of the proposals set out in the NTS consultation, and Ofcom will therefore return to this issue in the NTS statement, which it expects to publish by April 2006.
- A2.51 The analysis in this annex on the numbering of services currently using 08 numbers, when read in conjunction with the rest of this document, represents an Impact Assessment (IA), as defined by section 7 of the Act, on this issue. You should send comments on this IA to Ofcom by the closing date for this consultation, which is **4 May 2006**. All comments will be considered by Ofcom when it decides whether to implement its proposals.

*Question 35 Which of these options for current 08 services do you think is best in terms of a) increasing consumer transparency and b) minimising the costs of re-structuring the 08 range?*

*Question 36 How might early migration to the ‘03’ range be encouraged?*

### Premium rate services: 09 numbers

- A2.52 Premium rate services face a similar challenge of establishing greater transparency, and hence rebuilding consumer trust, against a background of rapid growth in number utilisation. Indeed the problem faced in relation to 09 number ranges is more advanced than that faced for 08, since several 3-digit ranges have already been exhausted, resulting in the opening up of new and overlapping ranges. The result is that consumers using 09 have almost no

awareness of the meaning communicated by the Numbering Plan, beyond a general distrust of the entire range.

- A2.53 As noted above, the consequences of this loss of transparency are to a certain extent mitigated by the ICSTIS code, which requires providers to make available tariff information when they advertise premium rate services. It could be argued that this is sufficient. We should however also consider whether there might be benefits to improving the tariff and service transparency provided by the Numbering Plan. In what follows we therefore consider three broad options, plus a number of sub-options.
- A2.54 **Option 1** would be to continue the status quo. Existing service definitions would be retained at the 3-digit level, and new 3-digit ranges would be opened up as required. This model is illustrated in the table below

**Figure A2.5 Current PRS services**

Number ranges	Services
0900-0901 (&0902?)	Special Services, time charged calls up to and including 60ppm and total call cost not greater than £5 or fixed fee up to £1 per call
0904-0906, 0911 (&0903?)	Special Services, open ended time dependent charge or fixed fee up to £1.50
09059	Multi-Party Chat trial - PRS 'any tariff or fixed fee'
0907	Special Services pay for product that costs more than £1 in total
0908-0909	Sexual Entertainment Services at a Premium Rate
0912 - 0999	Available for allocation as required

- A2.55 The problem with this approach is that whilst the Numbering Plan theoretically provides service and tariff information to consumers, this information is not in a form that is understood by most consumers. The result is a regulatory structure which is highly complex but which delivers few benefits to consumers. This situation is likely to be exacerbated as further 3-digit number ranges are made available.
- A2.56 **Option 2** represents one alternative approach to the status quo, under which we recognise and accept the erosion of meaning that has taken place in relation to the 09 part of the Numbering Plan, and replace all existing service designations by a single service designation for all premium rate numbers. There would no longer be an expectation that the Numbering Plan should provide tariff and service transparency for 09 numbers, and this would instead be provided via the obligation on providers to advertise tariffs. This option has the merit of simplicity, in that it does at least recognise the current reality. It does however make no contribution to Ofcom's objective of rebuilding consumer trust in 09 numbers.

- A2.57 **Option 3** would therefore be to restructure the 09 range using similar principles to those proposed for 08. A new set of service categories would be defined, and 2-digit number ranges allocated to each, providing sufficient capacity for the foreseeable future. These would be ranked in ascending order of potential consumer detriment.
- A2.58 As with 08, there are a number of different dimensions which need to be considered in defining service categories. These include tariff information (both per minute and per call) and service information (e.g., the availability of sexually explicit content). Ofcom would welcome feedback on the type of information which is most important to communicate.
- A2.59 Having identified the various dimensions which need to be considered, we then need to consider how best to map these to a one-dimensional Numbering Plan. This is difficult, since the relative importance of different dimensions will matter more for some consumers than others. Some consumers may be primarily concerned about price, but many parents might be primarily concerned about the availability of adult content. Ofcom would welcome feedback on the relative importance which should be attached to the different dimensions of 09 service definitions.
- A2.60 The advantages of Option 3 are that it would greatly increase service and tariff transparency, and that it would also allow the selective barring of certain services. For example, parents might continue to permit access to charities and competitions, whilst barring access to adult content. There are alternative means of achieving the former objective, through the requirement on providers to advertise tariffs, but selective barring can only be achieved via a restructured Numbering Plan.
- A2.61 The disadvantage of Option 3 is that it would involve migration of some existing services on 090 and 091 ranges, alongside new allocations in accordance with the new plan. Migration costs, however, would be limited by the high degree of turnover of such 09 services. Furthermore, there might be a strong incentive for certain services to migrate on a voluntary basis. For example, organisations seeking charitable contributions might value their own range, both because of the more positive image this would present, and the reduced likelihood that calls to this range would be barred.
- A2.62 If Option 3 is adopted, the Ofcom will use the responses to this consultation document to construct and consult on a range of options for a 09 Numbering Plan. Figure A2.6 below provides example of how this could be done. Option 3a provides a high degree of tariff granularity, similar to that provided by the current plan. Option 3b provides reduced tariff granularity, in order to make 09 numbering more readily understood by consumers. Option 3c focuses primarily on the service being provided rather than the tariff being charged, but does propose charge ceilings which might be considered appropriate for each service.
- A2.63 Ofcom's view is that for any revision of 09 numbering to be of value, it must be kept simple. Ofcom would therefore prefer options 3b or 3c to option 3a. Ofcom would however welcome feedback on the degree of complexity that is useful to consumers.

**Question 37** *Is it more important to indicate price per minute or price per call, and does this vary for different types of PRS service? What granularity of PRS tariff information should be given to consumers by the Numbering Plan?*

**Question 38** *Should there be any PRS number ranges with no tariff ceiling?*

**Question 39** *What is the typical turnover of 09 numbers, and what does this mean for migration timescales to a new 09 Plan? How could Ofcom structure the 09 range or take other steps to promote voluntary migration of 09 services?*

**Figure A2.6 Option 3: Convey meaning on content, then price**

Number range	3a	3b	3c
<b>090</b>	If charged by time, up to £1 per minute and £5 in total. If fixed fee, up to £1 per call. No adult content.	Legacy 090 services	Legacy 090 services
<b>091</b>	If charged by time, up to £1 per minute and no maximum total charge. If fixed fee, up to £1 per call. No adult content.	Legacy 091 services	Legacy 091 services
<b>092</b>		Up to £1 per minute and £5 per call. No adult content.	Charitable contributions. Up to £5 per call.
<b>093</b>	If charged by time, up to £2 per minute and £10 in total. If fixed fee, up to £2 per call. No adult content.	Up to £2 per minute and £10 per call. No adult content.	Public competitions and votes. Up to £1 per minute.
<b>094</b>			
<b>095</b>	If charged by time, up to £2 per minute and no maximum total charge. If fixed fee, up to £2 per call. No adult content.		Business services with a fixed payment. Up to £2 per call.
<b>096</b>	Over £2 per minute or per call, with no maximum total charge. No adult content.		Business services hotlines. Up to £1 per minute.
<b>097</b>	Sexual Entertainment Services, up to £1 per minute and £5 per call.	Up to £1 per minute and £5 per call. Adult content.	
<b>098</b>	Sexual Entertainment Services, over £1 per minute, no limit on total cost.	Up to £2 per minute and £10 per call. Adult content.	Adult content. Up to £2 per minute.
<b>099</b>			

## Annex 3

# Mobile, Personal and Individual numbers

## The 06 and 07 number ranges

- A3.1 Most consumers tend to recognise 07 numbers as being associated with mobile services. This is despite the fact that mobile services are currently provided only on certain sub-ranges within 07 (077-079). The proposals here are designed to recognise and over a period of time consolidate the 07 range as a mobile 'brand'.
- A3.2 There is no urgent need for change to the way in which mobile numbers are allocated, since there is no risk of exhaustion, nor is there any great consumer confusion as to the nature of the services being provided on these numbers. We do however need to give consideration to the following issues:
- are there any practical means by which the Numbering Plan could provide improved mobile tariff transparency?;
  - as the range of mobile services diversifies, to encompass a broader range of mobile multimedia services, is there any merit in segregating such services on different sub-ranges within the 07 range?; and
  - mobile numbers are currently allocated only in blocks of one million numbers. Ofcom would like to be able to allocate in smaller blocks, in order for example to be able to make modest allocations of numbers to new entrants.
- A3.3 Personal Numbering Services are provided on one specific sub-range within the 07 range (070). Ofcom does have several concerns about this sub-range. There is very limited consumer awareness of 'Personal Numbers' as a concept, and services which exploit this concept have had relatively little market impact. It appears that opening up the 070 range for these services has not been the success that was originally anticipated. However, Ofcom's market research suggests that there is a reasonable degree of interest in using such numbers among residential consumers and, especially, businesses.
- A3.4 There have at the same time been a number of cases where providers have used the 070 range in an inappropriate manner. This type of misuse typically exploits the fact that there are no ceilings to the call charges on 070, and that consumers have a poor understanding of what service they are purchasing when they call such numbers. Ofcom sets out proposals here to address these concerns:
- Ofcom proposes to introduce a ceiling to the charges which can be made for calls to personal numbers, with an associated requirement to provide a call announcement if a provider chooses to price above that ceiling. It may be necessary to exempt certain call types (e.g., calls to hospital patients) from this ceiling on public policy grounds; and

- Ofcom proposes to open up a new range (06) for ‘follow-me’ services such as personal numbers, initially making 065 available for new allocations of personal numbers. It is expected that over a period of time existing providers of personal numbering services would migrate to the new range.
- A3.5 A logical extension of the existing personal numbering scheme would be for Ofcom to allocate individual numbers directly to end users. These end users would then own their own personal number, rather than having it sub-allocated to them by a provider of personal numbering services. Ofcom recognises that routing calls to such individual numbers represents a challenge for legacy PSTN networks. However, technology change, and in particular the deployment of VoIP and NGN networks, means that it may in the future be possible for providers to offer a service to individuals which permits such individuals to choose which network hosts ‘their’ number. Ofcom invites comment as to the feasibility and desirability of such services. Ofcom provisionally proposes to set aside the ‘060’ sub-range for such services, but not at this stage to start making allocations.
- A3.6 Radio-paging services are currently made available on ‘076’. The use of this service is falling. Ofcom proposes that, as their proximity to mobile numbers does not seem to create consumer detriment issues, they should be left on this range.
- A3.7 The proposals are described in more detail in the following paragraphs. If Ofcom’s proposals were to be adopted, then the 06 and 07 ranges within the Numbering Plan would have the structure set out below.

**Figure A3.1 Proposed services for 06 and 07 number ranges**

Number range	Services
060	Individual Numbers (sub-range provisionally set aside for direct allocations of numbers to end-users, numbers only to be made available for allocation once service feasibility has been established)
065	Personal Numbering Services (calls subject to a call ceiling) (new allocations)
070	Personal Numbering Services (calls subject to a call ceiling) (no new allocations, expectation that existing allocations will migrate to 065 over a period of time)
071-075	Mobile services (not yet allocated)
076	Legacy Radio-paging Services
077-079	Mobile Services (existing allocations)

### Mobile numbers

- A3.8 Our consumer research shows that consumers do recognise 07 numbers as being associated with mobile services. Our research also shows that, despite the importance of fixed-mobile convergence as a technological and market

trend, consumers do still value the ability to distinguish between fixed and mobile services. Ofcom therefore proposes to recognise and over a period of time consolidate the 07 range as a mobile 'brand'. Where new number ranges are required for new mobile services, Ofcom proposes to make these available on this range. Ofcom specifically proposes to reserve the currently unused part of this range (071-075) for such services.

*Question 40 Do you agree that that part of the 07 range which is currently unused (071-075) should be reserved for mobile services, with the aim of establishing 07 as a mobile 'brand'?*

- A3.9 Ofcom currently makes no attempt to differentiate between different mobile services provided on the 07 range. This is because the mobile market has historically been dominated by a single service, mobile voice. However, new mobile technologies, especially 3G, will support a broader range of mobile multimedia services. Associated with this broader range of services may be a broader range of tariff structures. It may therefore be helpful to reserve specific sub-ranges for specific mobile multimedia services, in the interests of promoting consumer awareness and tariff transparency.

*Question 41 Should Ofcom reserve specific sub-ranges within the 071-075 range for new mobile multimedia services, in the interests of promoting consumer awareness and tariff transparency, and if so how?*

- A3.10 Ofcom is aware that consumer concern already exists as to the level of tariff transparency provided by the Numbering Plan in relation to mobile voice services. Ofcom is not however of the view that this can be readily remedied through changes to numbering policy. One of the main reasons for poor mobile tariff transparency is the difference between the charges made by mobile providers for on-net and off-net calls. This means that consumers need to be aware of the identity of the terminating network in order to be able to determine tariff information.
- A3.11 Consumers could in principle identify terminating communications providers from knowledge of individual block allocations, but it is very unlikely that most consumers will take the trouble to do so. In any case, the increasing uptake of mobile number portability means that even knowledge of individual block allocations is insufficient to determine the identity of a terminating network, and thereby determine the tariff. Ofcom's current view is therefore that detailed information on mobile tariffs must be provided by means other than the Numbering Plan. Ofcom is however open to alternative proposals.
- A3.12 There has been substantial growth in the number of active mobile subscribers over the last few years, and this is reflected in the allocation of mobile numbers. However, availability of mobile numbers is not a significant concern for Ofcom. The numbers are relatively well-utilised, at around 30 per cent, and plenty of spare capacity is available on the 07 range. As noted above the 071-075 range is currently completely unused.
- A3.13 Ofcom does however have some concern that the market entry of a large number of 'new mobile voice providers' (e.g., network-based MVNOs, WiFi or DECT guard-band communications providers) might at some point in the future fragment the available address space. This is because mobile numbers are currently allocated only in blocks of one million numbers. The



major mobile networks can make efficient use of such large blocks, but smaller new entrants may not be able to do so.

- A3.14 The potential fragmentation that would result from the market entry of a large number of 'new mobile voice providers' is analogous to the fragmentation of geographic numbering currently being experienced as a result of the market entry of new VoIP providers. However, in the mobile case this potential concern can easily be addressed by establishing the principle (which we have recently done) that we might allocate mobile numbers to such providers in blocks of 100,000 numbers. The Intercai study<sup>37</sup> confirmed that there is no technical barrier to allocation of mobile numbers in 100,000-number blocks

*Question 42 Do you support the use of 100,000-number blocks in allocating mobile numbers to new mobile voice providers?*

### Personal numbers

- A3.15 Numbers within the 070 range have been designated as Personal Numbers, available for use by Personal Numbering Services. The formal definition of such services, as set out in the Numbering Plan is:

“a service based on number translation that enables end users to be called or otherwise contacted, using a single personal telephone number, and to receive those calls or other communications at almost any telephone number, including mobile numbers”

- A3.16 Oftel set out the various attributes of a personal numbering service in more detail in a 2001 consultation<sup>38</sup>. These attributes include:

- a single contact number for family, friends and business colleagues;
- network independence (the owner of a personal number can change their provider without changing telephone number);
- a dynamic, follow-me-anywhere service that is easy to use; and
- ancillary services such as voice mail and messaging services.

- A3.17 Oftel also recognised in that consultation that there was extensive abuse of personal numbers, and in particular that they were being used by many providers to deliver Premium Rate Service, but do so in a manner that evaded the regulation which applies to services delivered on 09 numbers. Oftel noted that “the 070 range is at risk of becoming a by-word for scams and pseudo-premium-rate promotions”. Oftel attempted to remedy this by removing the ability of providers to offer revenue-share services on 070.

- A3.18 This change does not however appear to have remedied the situation. Oftel noted in its May 2001 consultation that it was normal for Oftel to receive around 250 complaints relating to Premium Rate Services each year, of which around a third concerned the usage of an 070 rather than a 090 number. In November 2005 to January 2006, Ofcom received an average of approximately 250 complaints per month relating to the use of 070 numbers.

<sup>37</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/digitalanalysis>

<sup>38</sup> *Restoring trust in Personal Numbering*, Oftel, May 2001

- A3.19 Several of the types of scams identified by Oftel in 2001 remain a current concern. For example, Oftel noted in 2001 the widespread use of fax-back scams, in which a consumer is contacted and duped into sending a fax to a 070 number. The consumer will be charged a high cost per minute and the receiving fax machine may be slowed down, so that the call may take as long as 30 minutes. There were a number of cases of fax-back scams in 2001, targeting hoteliers and estate agents, and such cases continue<sup>39</sup>.
- A3.20 Some of the complaints which have been received by Ofcom may arise from the continuing use of revenue share on 070, in contravention of the Numbering Plan, and this issue is most appropriately addressed via Ofcom's enforcement programme. There are however two additional characteristics of the 070 range which make it an easy target for scams:
- consumers in general are not aware of the intended purpose of 070 numbers, and therefore have a poor understanding of what service they should expect to receive and what tariff they should expect to pay when they call 070 numbers; and
  - the Numbering Plan sets no formal ceiling on charges for calls to personal numbers, and this, coupled with the poor consumer awareness of what might constitute an appropriate tariff, gives providers substantial flexibility as to what tariff they charge.
- A3.21 Oftel did consult in 2001 on whether it might be appropriate to introduce a call ceiling on charges for calls to 070 numbers, similar in nature to the call ceilings which already apply on 08 and 09. Oftel did not however favour this option, since it recognised that there needs to be a substantial degree of flexibility in 070 tariffs, to accommodate the fact that a call may be terminated on any network, including in particular mobile networks. Only four out of 31 respondents to the 2001 consultation supported this option; seven were against and 18 respondents were indifferent. Those against this option stated that price controls would be an excessively bureaucratic solution that would fail to take account of the essential flexibility required for Personal Numbering. Oftel agreed, in a statement dated October 2001, that was not an appropriate option at that stage.
- A3.22 However, the rise in complaints to Ofcom about 070 numbers in the second half of 2005 makes it clear that the ban on revenue share introduced in 2001 has not been sufficient to prevent abuse of the 070 range. Ofcom's view is that additional measures to improve tariff transparency are now required to restore trust in this range. Ofcom also considers that the most straightforward measure would be the introduction of a charge ceiling, with any providers choosing to price above this ceiling being required to provide a pre-recorded call announcement free of charge. Ofcom is therefore consulting on this option.
- A3.23 If a call ceiling was introduced, it would be necessary also to consider an appropriate level for such a ceiling that reflected customer expectations of the charge that might be made for such a service. There are a number of possible approaches for doing this. For example, the following options relating to the costs of such calls might indicate a reasonable ceiling:

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<sup>39</sup> See Ofcom's Competition Bulletins, at [www.ofcom.org.uk/bulletins/comp\\_bull\\_index/](http://www.ofcom.org.uk/bulletins/comp_bull_index/)

- the ceiling could be consistent with the worst case cost of a redirected call, which would probably be the cost of terminating a call on a mobile network, plus an additional element to cover the costs of redirection. Given the current costs of mobile calls, this approach might suggest a charge ceiling in the range 15-20 ppm; or
- the ceiling could reflect a typical mix of calls to fixed and mobile networks, plus an overhead to allow for the fact that this mix might legitimately vary, plus an additional element to cover the costs of redirection. If we were to assume that roughly two-thirds of calls terminated on fixed networks, and that the remaining third of calls terminated on mobile networks, then this approach might suggest a charge ceiling of around 10 ppm.

A3.24 Other approaches to the setting of a charge ceiling are almost certainly possible. However, the analysis presented here suggests a charge ceiling in the range 10 – 20 ppm. Ofcom is therefore consulting on three possible charge ceilings in this range.

*Question 43 Based on the above analysis, if Ofcom were to introduce a charge ceiling on calls to 070 numbers, which of the following levels should be adopted; i) 10 ppm ii) 15 ppm iii) 20 ppm iv) something else ?*

A3.25 It should be noted that there are certain services which are provided on 070 numbers which may require a higher call ceiling. In particular, Patientline Ltd ("Patientline"), and Premier Managed Payphones Ltd ("Premier") have both entered into agreements with certain NHS Trusts to provide bedside communications and entertainment services to hospital patients at individual hospitals. Calls to such hospital patients are made using numbers in the 070 range, and are typically charged at 49 ppm (peak) or 39 ppm (off-peak). The revenue from these calls is used to recover the cost of installing and operating the integrated bedside terminals which provide communications and entertainment services (such as telephony, television and radio) to those patients. In January 2006 Ofcom closed an investigation into making telephone calls to hospital patients with a recommendation that the Department of Health enter into discussions with Patientline and Premier to examine whether these services can viably be provided on a basis that does not involve charging such prices for incoming calls. If the Department of Health's review proves unsuccessful it may be necessary for Ofcom to consider applying a higher call ceiling for these services.

A3.26 There are alternative means of providing tariff transparency. In particular, it might be appropriate to introduce a requirement that providers advertising personal numbering services also advertise the price of calls to such services at the point of sale. This is analogous to the requirement imposed on providers of Premium Rate Services by the ICSTIS code. Ofcom has recently considered extending such a requirement to NTS services provided on certain 08 numbers. This would be implemented via an amendment to General Condition 14, which deals with consumer Codes of Practice. It might be worth extending this change further, to encompass 070. However, it is not obvious that this change would solve the current problem, since the consumers who purchase personal numbering services are usually the terminators of calls, not the originators of calls. Improved tariff transparency at the point of sale of personal numbering services may not therefore be insufficient to address the broader tariff transparency concerns.

**Question 44** *Would a requirement to make tariff information clearly available to purchasers of personal numbering services at the point of sale, either in addition to, or instead of a call ceiling, be an effective means of providing tariff transparency on personal numbers?*

- A3.27 There is a more fundamental problem with personal numbering services, in that our consumer research shows that consumers are generally unaware that such services even exist. This is rather different from the situation in relation to NTS and PRS, which most consumers are at least aware of. This has two consequences. It limits uptake of legitimate personal numbering services. And it makes 070 a convenient home for scams which rely on poor consumer awareness.
- A3.28 Ofcom’s consumer research<sup>40</sup> actually suggests that there is a reasonable degree of potential demand for personal numbers. Among residential consumers, 38 per cent of those surveyed expressed interest in having a single number that they could direct to both fixed and mobile phones, with younger age groups showing more interest than average. Businesses’ apparent demand was even stronger, 59 per cent of those surveyed stating that they were interested in such numbers.
- A3.29 The use of personal numbers could be stimulated, and the potential for scams reduced, if it was possible to establish a stronger brand for ‘follow-me’ services such as personal numbering services, by opening up a new number range for such services. This number range might include traditional personal numbering services, but it might also extend this concept to include numbers which are directly allocated to individual end users. This concept is discussed in more detail in the following paragraphs.

### **A new number range for Personal and Individual numbers: 06?**

- A3.30 The key attribute of follow-me services such as Personal Numbering Services is that the end user to whom the number is allocated controls the routing of calls to it. This was recognised in Ofcom’s consultation on ‘*Restoring trust in Personal Numbering*’ and is also recognised in Ofcom’s “Guidance on the acceptable use of 070 numbers”, which was last updated in January 2004). This states that:
- “what all Personal Numbering Services have in common is that it must be the called party who decides which destination the 070 number is routed to. Additionally, if the service that is being offered is the facility to be reached at any chosen destination then the End user must be in charge of changing as well as allocating the destination number”
- A3.31 The basic concept is that the end user to whom the number is allocated should be able to move from location to location within the same network, or move from one network to another network, and still be contactable on the same number.
- A3.32 There are two distinct models for how numbers for such services might be administered:

<sup>40</sup> <http://www.ofcom.org.uk/consult/condocs/numberingreview/research>

- Personal Numbers might be allocated to service providers, as at present. They are then sub-allocated to individual end users, as part of a ‘follow-me’ service provided to those end users. The end user is able to control the routing of calls to such numbers, but ownership and management of these numbers remains the responsibility of the service provider; and
- an alternative model is one in which telephone numbers are allocated directly to individual end users. These end users would then determine which network hosted ‘their’ number, and in conjunction with the relevant network provider, determine how calls were to be routed within that network. This is broadly analogous to the manner in which domain names are currently allocated for web-sites and e-mail services. End users can receive a direct allocation of a domain name from an internet registry, and can then choose which IP network hosts that domain name.

A3.33 The second of the two options discussed above is not currently available, and this is because it is not technically feasible for traditional PSTN networks to route calls to individual telephone numbers owned by individual end users. Ofcom is however of the view that the deployment of VoIP and NGN networks may enable such services to be provided in the future. Such networks will use IP addresses to route calls, rather than telephone numbers. It ought to be possible in such circumstances for providers to map an individual telephone number to an IP address and route calls accordingly.

A3.34 Discussions are already underway within the Network Interoperability Consultative Committee (NICC) as to the detailed manner in which the address resolution require to support such services might be achieved, based on the use of a central ‘ENUM’ database. These discussions are mainly driven by a desire to improve the current UK implementation of number portability, but could also have broader applications.

A3.35 There are a number of other issues which would also need to be resolved before individual numbers could be allocated direct to end users. For example, the Communications Act does permit Ofcom to make allocations of numbers direct to end users, and to make a charge for doing so, but this would require the introduction of new administrative processes. These would have to be more highly automated than current processes, in order to cope with the increased transaction volume that would result from direct allocations of individual numbers.

A3.36 More fundamentally, it is important to note that the manner in which communications providers adopt and use telephone numbers is set out in a variety of General Conditions. However, these General Conditions only bind communications providers. Ofcom is permitted by section 59 of the Act to set conditions on persons other than communications providers, and enforce such conditions in civil proceedings. However, the practical implementation of the necessary conditions, and the associated enforcement regime, is likely to take some time. The operation of the enforcement regime could be resource intensive, given the need to police the use of numbers by a much wider group of stakeholders than at present, and consideration will need to be given to whether this is practicable.

A3.37 Further challenges still are created if the numbers which are allocated to individual end users then also become tradeable. It would be necessary to establish a mechanism for keeping track of the owner of individual numbers, and it would also be necessary to ensure that the conditions which applied to

the use of numbers by the original end user also applied to subsequent end users. Trading of numbers is referred to at paragraph A4.63.

A3.38 Ofcom therefore proposes a phased approach to opening up the proposed new number range:

- Ofcom proposes to open up a new range, provisionally “06”, to be used for “follow-me” services such as Personal Numbering Services and Individual Numbers;
- Ofcom proposes to open a new sub-range, provisionally “065”, to be used for new allocations of numbers for Personal Numbering Services. Ofcom would apply the same conditions (no revenue share, possible call ceiling) to this sub-range as to the current “070” range;
- 070 would continue to be used by existing providers of Personal Numbering Services for a transitional period. This transitional period would be long enough to permit existing service providers to migrate to the new range in a manner that minimised migration costs. A possible transitional period might be three years;
- Ofcom proposes to designate a new sub-range, provisionally “060”, to be used for individual allocations of numbers direct to end users. Numbers would not however be allocated from this sub-range until the practical issues discussed above had been resolved; and
- It is possible that any trading of “060” numbers would not be permitted initially, but be introduced at a latter date once the practical issues associated with trading had also been resolved.

*Question 45 If a new sub-range is made available for personal numbering services, how long should the current ‘070’ sub-range remain available for existing providers, in order to minimise migration costs?*

*Question 46 What issues do you think would need to be resolved before Ofcom makes individual numbers available for direct allocation to end users?*

A3.39 The analyses of 06 and 07 numbering in this annex, when read in conjunction with the rest of this document, represent Impact Assessments (IAs), as defined by section 7 of the Act, on these issues. You should send comments on these IAs to Ofcom by the closing date for this consultation, which is **4 May 2006**. All comments will be considered by Ofcom when it decides whether to implement its proposals.

## Annex 4

# Meeting consumer needs with market-based mechanisms

## Introduction

- A4.1 In this annex, we set out our initial thinking on more fundamental changes in Ofcom’s approach to the way in which numbers are allocated. Allocations are currently made using a rule-based system under the centralised administration of Ofcom, an approach which might be characterised as ‘command and control’. We consider in this annex whether the introduction of market-based mechanisms, such as charging for numbers and trading of numbers, might result in regulation which is both more effective and less intrusive.
- A4.2 This is a particularly timely moment to consider this issue. The Communications Act gave Ofcom the power to charge for numbers, a power which did not exist previously, and this has opened up the option of using market-based mechanisms. At the same time Ofcom faces particular challenges in relation to numbering administration, with a variety of geographic and non-geographic ranges facing exhaustion. Any contribution which market-based mechanisms can make would be of value.
- A4.3 It is worthwhile considering how market-based mechanisms relate to our strategic principles. By increasing efficient utilisation of numbers and reducing the likelihood of number changes, Ofcom believes that they could contribute to meeting the first two:
- Ofcom will maintain the availability of telephone numbers to consumers, so that they can access the services that they value; and
  - Ofcom will do so in a manner that maintains the continuity and meaning which is provided by numbers and which is valued by consumers.
- A4.4 Ofcom recognises, however, that we must pay particular attention to ensuring the introduction of market-based mechanisms does not undermine our second two principles:
- Ofcom will allocate numbers in a manner that delivers the benefits of competition to consumers, and in particular that does not inappropriately discriminate between different providers, or the networks and technologies used by those providers; and
  - Ofcom will allocate and manage numbers in a manner that does not unnecessarily expose consumers to abuse.
- A4.5 In the rest of this annex, we describe the current administrative approach and its limitations. After sketching the current legal framework, we explore how to promote the efficient utilisation of numbering resources by means of charging. This leads to distinguishing cost-based charging from value-based charging. An example of a charging structure is provided to illustrate some key issues raised by charging. Finally we consider the relationship between

charging and the sub-allocation of numbers, and some of the issues this raises.

### Current administrative approach

A4.6 Ofcom's current approach to the management of numbers is rules-based under centralised administration: 'command and control'. Number blocks are allocated free of charge, on demand, and on a 'first come, first served' basis. However, a variety of rules are applied to both the supply side (the way in which Ofcom allocates numbers) and the demand side (the conditions under which applications for blocks can be made). The most important of these rules are:

- Ofcom allocates blocks of telephone numbers to those providers which can establish that they have an operational need for direct allocations. These tend to be the larger communications providers, which have multiple interconnects with other communications providers, and so require their own allocation of numbers for routing purposes;
- other providers (e.g., MVNOs and ISPs without their own networks) are normally encouraged to obtain sub-allocations from other communications providers. The process of sub-allocating numbers is discussed in more detail later in this annex. Numbers are not allocated directly to consumers;
- the standard allocation unit for geographic and non-geographic (excluding mobile) numbers is in blocks of 10,000 (10k) numbers. The exception to this is where there are specific reasons to increase allocation efficiency, for example in geographic area codes that have been designated 'Type A conservation areas'. These are allocated in blocks of 1,000 (1k); and
- applicants must demonstrate that any existing numbering blocks allocated within that number range are substantially used.

A4.7 The general aim of these rules is to maximise the efficiency with which numbers are used subject to the technical constraints imposed by the current routing technology. Efficiency in this context is typically measured in terms of actual utilisation, i.e., the ratio of numbers used to numbers allocated. For example the rationale for limiting the type of operator who receives number blocks directly is to improve the utilisation of the blocks currently allocated as these blocks are relatively large for small providers to utilise efficiently. Ofcom also acts as an informal consultant on the best use of numbers, discussing best practice with stakeholders. Following allocation, Ofcom seeks to verify that numbers that have been allocated are being used efficiently in the following ways:

- formal audits of numbering which take place every year. These audits focus on specific number ranges where there are concerns and take account of past or anticipated future demand patterns. Only the holders of blocks in number ranges where there is some shortage or possible policy development need should expect to be subject to this audit but they may be audited more than once;
- informal discussions with number block holders, particularly when further applications are made; and
- reclaiming numbers blocks that are not in use. In practice this rarely happens as if only one number in a block is in use, then the entire block



cannot be reclaimed. However, number blocks are required to be returned to Ofcom when an operator leaves the market due to bankruptcy or other factors.

- A4.8 A range of processes support numbering administration. These include the technical review of numbering applications to verify technical conditions are met and content review for adult services on PRS. The overall allocation process is supported by the ONUS IT system which identifies which numbering blocks are allocated. Ofcom undertakes to complete the processing of applications within three weeks, as required by the Communications Act.

### Limitations of the current approach

- A4.9 Ofcom considers that there are a number of limitations associated with the current approach. Firstly, it is highly intrusive as it requires Ofcom to investigate providers' normal business practices - reviewing providers' reasons for requesting numbers, assessing how these numbers are used, evaluating internal processes for allocation and reclamation of numbers etc. This in turn places a burden on providers and generates internal administrative costs.
- A4.10 Secondly, it tends to promote technically efficient use (i.e., the actual utilisation rate) over economically efficient use, i.e., the allocation of numbers where the benefits of their use exceed the costs. An example of where these objectives might diverge is the allocation of multiple numbers to a single end user. This is technically efficient because the number is utilised by the provider, but this use may not be economically efficient.
- A4.11 Thirdly and perhaps most significantly, although a key aim of this approach is to maximise utilisation it does not appear to be effective. At their highest, actual utilisation rates are 30 per cent for mobile numbers; for geographic numbers utilisation rates vary between 15 per cent and 25 per cent.
- A4.12 That this highly intrusive approach does not lead to efficient use of resources is a characteristic of many non-market, administrative systems. One of the reasons for this is information asymmetry: Ofcom cannot know whether numbers are being efficiently allocated or used as we are not well placed to assess the value and revenues generated by numbers or the options for providers to use their existing stock of numbers rather than seeking a new allocation. In a more market-based system, it is market mechanisms which balance supply and demand, rather than the imperfect knowledge of a central administrator.
- A4.13 There are advantages to the rule-based system, most significantly that it enables Ofcom to control whom has access to numbers and therefore to a certain extent to safe guard the consumer and citizen interest. However these safe guards are not dependent on the allocation process but the obligations and duties associated with numbers when allocated. As set out in Section 3, Ofcom does not believe that a system for managing numbers based entirely on market mechanisms is appropriate, due to the citizen interests at stake. However the introduction of specific market-based mechanisms in regard to the process of allocation could increase the efficiency with which numbers are utilised whilst decreasing the

administrative burden on Ofcom and the regulatory burden on industry, without undermining consumer protection.

- A4.14 Markets work through demand and supply being brought into balance through a price, which signals costs and values to those considering allocation decisions: purchase or sale. A charge for numbers which reflected the costs of number allocation and the costs of expanding numbering capacity should incentivise economically efficient utilisation of numbers – this is known as allocative efficiency. There may be cases where more than one provider seeks the same number block (typically because it contains ‘golden numbers’ that are easy to remember), in this case, a charge for numbers which reflected the value of the number block to the provider should incentivise distributive efficiency whereby the number block goes to the provider who values it most. These two types of efficiency are considered in more detail later in this annex.
- A4.15 It is worth observing that there is already a secondary market in numbers, where providers and others exchange memorable numbers for many thousands of pounds. This is done through the process of sub-allocation, which is discussed in more detail later in this annex. The secondary market in these ‘golden numbers’ contributes to distributive efficiency by enabling those end users that value these numbers to obtain them.
- A4.16 As discussed in Annex 1, it is our view that the demand for geographic number blocks needs to be tightly managed over the next few years if we are to avoid changes to numbers, which disrupt both consumers and industry. It is therefore important that any contribution market mechanisms can make to efficient utilisation is made sooner rather than later. Ofcom recognises that there are many factors which need to be considered before we are in a position to consult on a charge. The structure of the charge must be agreed, the evidence base for the charges collected, its impact assessed, the processes and procedures developed, and billing systems implemented. This annex sets out our initial thinking with regard to some of these issues.
- A4.17 Ofcom is aware that the possibility of introducing market-led mechanisms in numbering administration has already been covered in a consultation and statement by Oftel in 1998 and 1999<sup>41</sup>. Since that time significant developments have taken place, including: the Big Number Change in April 2000; significant increase in demand for numbers from VoIP services; the growth in 08XX and 09XX numbers; and the maturity of number portability.
- A4.18 It is also worth noting that although the introduction of market-based mechanisms might simply supplement the current approach to numbering our expectation is that it would replace certain elements of the current regime, allowing Ofcom to adopt a less interventionist approach to the management of numbering. For example, if providers faced an economic incentive to return unused numbers to Ofcom, there might be a reduced need for Ofcom to audit their usage of numbers. In this way, market-based mechanisms could contribute to reducing the regulatory burden.

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<sup>41</sup> see

[http://www.ofcom.org.uk/static/archive/oftel/publications/1995\\_98/numbering/dna798.htm#Annex%20B](http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/dna798.htm#Annex%20B) and  
<http://www.ofcom.org.uk/static/archive/oftel/publications/1999/consumer/frdna599.htm>

*Question 47 What do you consider to be the main strengths and weaknesses of the current rules-based system of UK number allocation?*

## Legal framework

- A4.19 Ofcom has powers to raise charges in relation to telephone numbers under two sections of the Communications Act. Section 38(1) gives specific statutory authority for Ofcom to impose an “administrative charge” on providers, whose aim is to raise a sum of money sufficient to meet the annual cost of Ofcom fulfilling its functions. At present the cost of Ofcom administering telephone numbers is recovered along with Ofcom’s other costs under section 38 and is spread across all the designated providers based on their turnover.
- A4.20 Section 58 of the Act states that the general numbering condition can include a requirement to pay money to Ofcom “in respect of the allocation...of telephone numbers.” Payments can be in the form of a lump sum or periodical payments, or both. Section 58 implements articles of the EU Authorisation Directive that deal with usage fees and set out the rights of Member States to charge for numbers to ensure optimal use as well as to make a purely administrative charge.
- A4.21 Ofcom has the power to impose both a charge to cover administration costs and a charge targeted at specific policy objectives – such as the efficient utilisation of numbers. The rights and obligations of use of numbers are contained in a number of sources including:
- section 61 of the Communications Act, where Ofcom’s numbering specific obligations are detailed;
  - Article 6 of the EU Authorisation Directive which sets out the conditions to which the rights of use for numbers may be subject;
  - ‘Conditions of Use’ detailed in the Numbering Plan, for example that 079 must be used for mobile services;
  - ‘Conditions of Use’ detailed in the Notification of Allocation which successful applicants receive;
  - General Conditions for communications providers; and
  - the ICSTIS Code of Practice.
- A4.22 Further background on the origin of this concept of “rights of use” in respect of numbers can be found in the “Final Report on Non-Discriminatory Access to Numbering Resources” dated 15 July 1996 prepared for the Commission of the European Union by the European Telecommunications Office (ETO) which states:
- “Since no-one can have any ownership rights to numbers, instead of dealing with the term “number ownership”, the term Rights of Use (RoU) of numbers should be defined for all parties involved: users, service providers and network operators. These RoU should be defined at a national level for national numbers and on a European level for pan-European numbers.”
- A4.23 Ofcom needs to consider how any charging might impact sub-allocation and what the consequences might be for rights of use and the obligations Ofcom

imposes, particularly with regard to consumer protection. These issues are discussed further later in this annex.

### Promoting efficient utilisation through charging

A4.24 As we have seen there are areas of likely number scarcity across the Numbering Plan. In certain geographic areas, number demand is likely to exceed supply in the near future. Increasing the supply through a number change imposes costs on Ofcom, on the industry and on consumers (detailed below). Because they do not pay for obtaining and using number blocks, communications providers do not bear all the costs generated by receiving and using these blocks. This is a type of market failure known as a negative externality<sup>42</sup> and leads to providers requesting and holding more number blocks than would be economically efficient. One approach to remedy it is to try to internalise those external costs – that is, to enable communications providers to take these external costs into account so that their utilisation of numbers becomes more efficient. A standard internalisation strategy is to set a charge for receiving and holding number blocks that reflects the external costs that communications providers impose.

A4.25 In developing a cost-based charge Ofcom would seek to maintain certain principles to ensure that the cost was fair, proportionate, promotes efficient utilisation and does not unduly discriminate between communications providers. These principles include:

- *Cost reflective*: the charge should reflect the marginal or incremental costs that are relevant to the decision being taken;
- *Cost-causation*: the charge should be recovered from those whose actions cause the costs to be incurred at the margin (and therefore who are in the best position to change their behaviour so as to minimise the costs imposed);
- *Cost-minimisation*: the charge should aim to minimise the total cost of numbering allocation, capacity enhancement and numbering usage. Signalling number allocation costs and capacity enhancement costs to communications providers allows them to trade-off these costs (which their request may give rise to) against their requirements for numbering usage, and this should tend to minimise total costs across all stakeholders in the industry;
- *Effective competition*: the charge should not undermine the pressure for effective competition (it should not act as a barrier to entry) and should be set on a non-discriminatory basis; and
- *Transparent, Stable, Practical and Comprehensible*: the structure of the charge and the basis on which it is set should be clear and understood by all communications providers. Industry players should not face significant costs in either identifying the sort of behaviour that would minimise their costs or quantifying the likely effect on the charge of the various options available to them. The charges should not fluctuate in arbitrary or unpredictable ways and should be practical and easy to implement.

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<sup>42</sup> A negative externality occurs when a party making a decision fails to take into account the costs that their actions may have on other parties.

**Question 48** Do you agree with these principles for number charging?

*Costs of numbering*

A4.26 There are different sets of costs associated with making telephone numbers available, and these costs may be incurred by Ofcom, by providers and by consumers. In the short term there are the purely administrative costs incurred by Ofcom in reviewing application forms, reserving number blocks and updating systems. In the longer term, there are the wider costs to Ofcom of developing numbering policy, and to providers and consumers of number conservation measures and number capacity increases that may flow from the allocation of a block. Ofcom divides the costs associated with number availability into two categories:

- Administration costs
  - *Number allocation costs*: Ofcom's internal costs of allocating new number blocks – these can be identified to individual numbering requests and individual providers and are likely to be directly variable with allocation of number blocks. They are incurred each time a request for numbering blocks is made; and
  - *General administration costs*: Ofcom's internal costs of administering the numbering scheme, developing numbering policy etc can be treated as common costs. They are incurred on an ongoing basis and are not directly related to the demand for number blocks.
- Capacity costs
  - *Costs of introducing number conservation measures*: these are medium-run costs to Ofcom and to providers of introducing number conservation measures. They are incurred whenever the conservation status of an area changes; their magnitude partly depends on the characteristic of that area;
  - *Costs of increasing the numbering supply*: these are long run costs to Ofcom, providers and consumers of changing the numbering scheme to increase number capacity. They are incurred whenever a numbering change takes place; their magnitude depends on the characteristics of the particular numbering change being considered; and
  - *Service and Tariff costs*: these are the costs principally to providers of making the necessary changes to billing systems, routing tables and their price lists to accommodate the introduction of new tariff bands or service categories.

A4.27 Ofcom's initial calculations indicate that the costs of number administration (as defined above) would be (based on 2005 data) between £500K and £700K, of which a significant proportion represents allocation work. The capacity-related costs incurred by Ofcom are more difficult to estimate. Our initial view is that there is an internal cost of between £10K and £15K associated with the introduction of each Conservation Area. The costs Ofcom incurs in increasing the numbering supply depend on the type of numbering supply increase: the introduction of an overlay code would not

incur the same costs as closing the numbering scheme for example (see Annex 1 for description of the different options available to increase the numbering supply). In addition, there are internal costs associated with policy development and policy review.

- A4.28 The main costs associated with increasing capacity are borne by providers and consumers. In Annex 1, we discuss these cost elements when considering the impact of geographic number management on our stakeholders. In paragraph A1.32 we estimate the costs to an operator of the data-build associated with the introduction of a conservation area as between nine and 31 engineer hours per area, varying according to the size and network topology of the area. This estimate represents the cost for a single network operator and does not include the additional costs of data-build required by interconnected communications providers, who may also need to make changes.
- A4.29 When numbers change both communications providers and consumers incur costs. Business research suggests that on average businesses incur costs of £4,100 following a number change. Consumer research has suggested that consumers would pay £6 to avoid a number change and at the same time would require £600 from an operator before they would agree to change their number. These apparently contradictory results highlight the intangible costs consumers associate with number changes. It is worth noting that two of the options for increasing the numbering supply, overlay codes and closing the numbering scheme, involve no number changes as such but would give rise to other consumer detriment such as misdialling, additional dialling and loss of geographic meaning.
- A4.30 The principle of cost reflection would suggest that Ofcom should seek to include as many of the marginal or incremental costs associated with numbering as possible, including those costs incurred by consumers and industry. However we would need to consider the implications of raising charges in excess of our internal costs in the context of the legislative framework. In addition, the difficulties in obtaining accurate estimates of costs incurred elsewhere may lead us to being prudent in setting charges, i.e., setting them towards the lower end of the likely cost range.
- A4.31 In introducing a cost-based charge we would also need to consider which categories of costs might be included. A purely ‘administration’ charge would reflect some or all of the first category of costs. A ‘capacity’ charge would reflect the wider costs of increasing the supply of numbers or range of tariffs. It is worth noting that it would not be Ofcom’s aim to unnecessarily limit the range of services or tariffs available. Ofcom recognises that service features and tariff points are an essential part of effective competition. Reflecting the costs of opening new tariff bands in a charge would encourage communications providers to take these costs into account when designing their services. An overall charge that sought to incentivise efficient utilisation of numbers could be made up of a combination of the different charging elements identified above.

### *Frequency and timing of charge and its introduction*

- A4.32 The frequency of any charge would be an important factor in the way in which it incentivised efficient utilisation of numbers:

- a charge payable on allocation, i.e., a one-off payment, would provide an efficiency incentive to those providers who require a new allocation. It would not however provide an efficiency incentive to those providers who already hold numbers; or
  - a charge payable annually would provide an efficiency incentive in relation to all number blocks held by communications providers.
- A4.33 Note that the timing of the introduction of any charge also has important incentive properties, especially in relation to charges payable on allocation. An announcement in advance that such a charge was likely to be introduced at some point in the future would incentivise providers to apply for numbers before they were genuinely required, and therefore may provide a perverse incentive for inefficient use. A simultaneous announcement that an annual charge would be levied as well could help mitigate this perverse effect because by requesting numbers earlier than would otherwise have been the case providers would not have avoided charges. The effectiveness of the mitigation will depend on the relative levels of these two charges.
- A4.34 Providers should also note that Ofcom would continue to use administrative means to meet our obligation to promote efficient utilisation in the period between the suggestion of a charge and its introduction. Ofcom recognises that providers may have to change internal processes and systems to support charging for numbers. Ofcom would welcome views on the extent of these internal changes and how best to mitigate them.
- A4.35 The timing of any charge could also have competitive consequences:
- a charge payable on allocation could in some circumstances be regarded as disadvantaging new entrants, who do not yet have allocations of numbers, in favour of existing providers who can provide for their numbering needs from their existing stock of numbers;
  - on the other hand, a charge payable annually could be regarded as disadvantaging existing providers, who have historically had no incentive to use numbers efficiently, and who may now have limited flexibility to restructure their operations to so do.
- A4.36 While the size of the respective effects is unclear, they would tend to act in opposite directions and so tend to offset one another if both forms of charging were introduced.
- A4.37 It is worth noting that the introduction of any charge may have a greater impact on smaller providers than on larger communications providers. This is because of the current technical constraints requiring allocations to be in large blocks; small providers may not be able to spread any charges over as large a customer-base as larger communications providers. However small providers might manage to minimize this potential disadvantage by resorting to sub-allocation and pooling.

### *Unit of charge*

- A4.38 We would need to consider whether charges should be per block or per number. The size of block allocated varies (see above) leading to differences in impact:

- a charge per block might better reflect the costs associated with individual allocations of numbers, whereas a charge per number might better reflect the cost associated with maintaining capacity;
- the deployment of NGN and VoIP networks means that the block size in which allocations will be made in the future is increasingly arbitrary. In the future it may therefore be difficult to justify a specific charge per block;
- a charge per block might in certain circumstances operate against other Ofcom numbering objectives. For example, we state in Annex 1 our desire to be able to allocate smaller blocks to new entrants than those allocated to established communications providers, however if they were charged the same amount irrespective of their block size this could favour established providers or reduce the incentive of small communications providers to accept smaller blocks.

### *Variability by service categories and geographic areas*

A4.39 We would need to consider whether charges should be different for different service categories (i.e., different parts of the numbering range), and for different geographic areas. Ofcom's administration costs vary by number type – for example it takes more time to review an application for geographic numbers in conservation areas than other geographic areas. Numbering capacity costs also vary by geographic area – for example requesting blocks in conservation areas is more likely to give rise to capacity costs than those in areas where there is no scarcity. Allocative efficiency is likely to be maximised if charges are higher for service categories and/or geographic areas where numbers are in short supply and the costs of expanding numbering capacity are significant, and this does suggest we vary the charge level. There are however other arguments to consider:

- a charge that varies by service/geography could be more costly to calculate and administer, although this would depend on the level of complexity proposed;
- the scarcity of numbers for a particular service category or geographic area depends not just on demand for that class of numbers, but also on the supply made available by Ofcom through the Numbering Plan. This will in turn depend on demand pressures elsewhere in the Numbering Plan. The benefits of conservation are therefore distributed across the entire Numbering Plan. For example, the capacity available for FRIACO services (on 080899) was limited to 100k numbers, as compared to the ten million numbers available on each of the NTS ranges (0844, 0845, 0870, 0871), and this was done in order to conserve '08' numbers more generally. If demand for FRIACO numbers were to prove greater than anticipated, then a charge that varied by service might place a higher charge on FRIACO providers, whilst it could be argued their decisions were not the direct cause of that cost; and
- different networks and services may be in competition with each other but use different parts of the Numbering Plan. A charge which varies by service type or geographic area might therefore be regarded as discriminatory. For example, a high charge for FRIACO as compared to NTS numbers would increase the cost base for FRIACO-based internet service providers as compared to NTS-based internet service providers. This would be justifiable if the higher cost is considered an intrinsic part of the FRIACO cost



environment, but is more difficult to justify in this case, as it is considered to be caused by an artificially-induced scarcity.

### *How and when charges are reset/reviewed*

A4.40 The charge would need to be reviewed periodically as the numbering environment changes to reflect developments in the demand and supply of numbers, even if indexed to reflect the general change in costs and prices. The length of the period before the charge is reset should be a balance between the desire for stability in charges and the time over which the charges are considered to continue to reasonably reflect the costs (for example the period over which unexpected growth might lead to scarcity in the capacity of a number range which is currently in abundant supply). The charges could be:

- reviewed periodically (e.g., every three or five years);
- reviewed in response to significant changes in the market or in Ofcom's cost base;
- for geographic ranges, be automatically linked to the conservation status (and so change if the conservation status of the particular area code changes); or
- a combination of these approaches.

A4.41 Unless there was a structural change to the way that numbering was allocated (for example allocation by Ofcom at the individual number level), it is likely that the structure of charges for numbering would be held constant for the medium to long term (say ten years) to provide stability over the longer term and encourage communications providers to engage in long term planning over their use of numbering capacity.

### *Granularity of the charge*

A4.42 There is thus the potential for considerable complexity in the charging mechanism. There is a trade-off between the cost-reflectivity of the charge (more granular charge) and the complexity, comprehensibility and ease of implementation of the charge (more averaged charge). For example, a charge for a geographic number block could reflect costs that are specific to the area code that it is in, or to all area codes with certain properties (e.g., all Conservation Areas), or there could be only one charging level for all geographic number blocks.

### *Summary of charging options*

A4.43 Figure A4.1 summarises the different attributes identified here and the options considered in relation to each. Ofcom seeks views on these options.

**Figure A4.1 Options for number charging**

Attribute	Options
Charge components	Include administrative costs Include capacity costs Include service and tariff costs Include value based charges (see below)
Frequency	Charged on application Charged annually
Unit	By number By block
Variance by service type	Varies by service type Constant by service type
Variance by geo area	Varies by geo area Constant by geo area
Granularity	Constant across number ranges/service types Small number of different charge levels Large number of different charge levels
Review period	Pre-determined Automatically in response to changes to conservation status In response to change

*Question 49* What are your views on Ofcom's assessment of the issues to be considered in setting and reviewing number charges? For example, should other issues be considered in developing charging proposals?

### *Incentive effect of charging*

A4.44 As explained above the objective of introducing a charge for numbers would be to signal to providers the costs associated with making numbers available and provide an incentive to providers to take these costs into account when deciding on their allocation requests. The incentive effect of a charge would depend on the size and structure of the charge, the ability of communications providers to respond to the costs that it imposes on them and the details of how it is combined with other elements of the allocation and numbering management processes. For example, by ensuring that the allocation charge reflects cost causation, it incentivises providers to request number blocks only when their benefits from doing so exceed the allocation costs. By signalling these costs, the allocation charge might in some cases encourage providers to seek sub-allocation from other providers in order to reduce allocation charge payments through sharing. This would be expected to also improve number utilisation rates. If the majority of providers have no scope to make more efficient use of numbers, then charging for numbers would

deliver little efficiency benefit. However, Ofcom is familiar with examples of number applications where the economic value of numbers has clearly not been considered, for example the simultaneous request for a national set of geographic numbers by new market entrants without national capability or the assignment of ten numbers to one line to provide different ring tones. It is not for Ofcom to decide whether national coverage or multiple ring tones are sound business decisions in these circumstances, but to seek to ensure that the associated costs are taken into account. Ofcom believes that providers could respond to appropriate economic signals in these and similar situations and therefore there is a case for charging to disincentivise economically inefficient behaviour.

- A4.45 Ofcom recognises that providers may have to change internal processes and systems to support charging for numbers. At the same time, any increased efficiency in number utilisation as a result of charging is expected to enable Ofcom to postpone, if not avoid, new conservation measures and potential number changes, and do so in a manner that is less intrusive than the conventional 'command and control' approach. This would also benefit providers because they themselves would be able to postpone, if not avoid, the implementation costs that any introduction of conservation measures and number changes are known to generate. Ofcom would welcome views on the extent of the internal changes that charging would require and how best to mitigate them as well as on the implementation costs of conservation measures and number changes that charging seeks to avoid.
- A4.46 We also need to consider whether charging for numbers might have negative consequences. For example, in the geographic number range, providers with aspirations for national coverage need to obtain an allocation of numbers in every national code area, and will obtain these from Ofcom in fixed block sizes (they will almost certainly be unable to obtain a sub-allocation from another provider because they are unlikely to be interconnected with just one other provider). Charging such a provider for these numbers should provide an incentive to use numbers more efficiently, but the only means of them doing so, given the block size constraint, would be through growth in their subscriber base or through new and innovative measures such as number pooling (see paragraph A1.38). Under such circumstances, charging for numbers may introduce a new source of scale economy (and therefore a new barrier to entry) but may not at first result in new entrants using numbers more efficiently. Alternatively these providers might review their aspirations for national coverage, and the resulting improvement in numbering efficiency might be at the cost of reduced competition in areas with either higher costs or on which the providers place lower value. The impact of this type of consequence will depend on the size of the charge compared to the other costs of entering the market and providing the relevant service.
- A4.47 Providers charged a premium for numbers in particular areas (e.g., Brighton) or for particular services (e.g., FRIACO) might argue that the scarcity of those numbers is not intrinsic, but is due to a decision by Ofcom to limit their supply in order to make more numbers available elsewhere or to avoid number changes. Since the benefits of limiting supply in one number range are shared by providers using other ranges, then they could argue that it is not equitable for the costs associated with conservation measures in one number range to be recovered only from providers using that range.

- A4.48 Generally the efficient use of numbers by a given operator depends on a number of factors including size of market, size of subscriber base, allocated block size, speed of implementation of new numbers and efficiency of processes supporting number recycling, portability and sub-allocations. Ofcom invites views on the extent to which communications providers can influence these factors when faced with the right incentives to do so.

*Question 50 Do you agree that charging for numbers could disincentivise economically inefficient behaviour, and incentivise economically efficient utilisation?*

*Question 51 What internal changes would communications providers have to make, and at what cost, to support charging for numbers? Would these changes be preferable to earlier and more widespread use of conservation measures and (limited) changes to increase geographic number supply?*

*Question 52 How might existing number allocation rules be reduced if charging for numbers was introduced?*

### **Allocating numbers to providers who value them most: value-based charging**

- A4.49 In economic terms, cost-based charging mechanisms incentivise allocative efficiency - efficiency in the use of numbering capacity, but where demand exceeds supply for particular number blocks, they may not lead to distributive efficiency - the distribution of the number block to the provider who values it most. Distributive efficiency is important where the resource is limited and non-replicable, as in the case of 'golden numbers': numbers which have a special value, generally because they are easy to remember or are considered 'lucky'. One example from the mobile range might be 0777777777. Golden numbers are, by definition, scarce. Demand may well exceed supply and therefore we must consider the best way of allocating this scarce resource. In theory, the value that providers place on specific number blocks will relate to the value that they can generate from allocating those numbers to users (from providing services to those users) and the alternative ways they might have of supplying those users (for example using numbers from alternative number blocks).
- A4.50 To promote distributive efficiency in numbering, cost-based charging could be supplemented by a value-based charging mechanism. This would attempt to allocate number blocks for which demand exceeds supply to those who value them most. Ofcom is unlikely to have sufficient information to either identify which number blocks are likely to include 'golden numbers' or to ascertain the operator who values the block most. Ofcom invites views on the most effective process for identifying such numbers.

### **Example charging structure**

- A4.51 As set out above, there are a number of different factors that could be included when designing a charge. An example of a charging mechanism is given below to improve clarity on some of the factors discussed. This is for illustrative purposes only and is not indicative of the current state of Ofcom's thinking.

- A4.52 The discussion in this annex would suggest to Ofcom that a cost-based charge should aim to incentivise providers only to request a new number blocks where they value the block more than the costs of provision (allocation costs) and only to continue holding a block where they continue to value it greater than the cost of capacity enhancement that it would give rise to. This suggests charges reflecting the different decision processes: an allocation charge could reflect the administrative costs of allocating new number blocks, and an annual charge could reflect the long run costs of using up numbering capacity of that number type. There could also be an additional allocation charge for opening up new tariff bands reflecting the long run costs of allocating that numbering capacity.
- A4.53 The allocation charge could be the same for all types of number block. Annual charges for geographic number blocks could depend on conservation area status, averaged across a given type (standard or conservation area if the proposals put forward in this Consultation are implemented). Annual charges for non-geographic number blocks could be averaged across number types (many may be zero reflecting the lack of scarcity of numbering capacity). An additional charge could be payable where an operator wished to open up a new (non-geographic) tariff band based on the long run costs of assigning the extra numbering capacity to that tariff and the direct costs (primarily to communications providers) of opening up a new tariff band.
- A4.54 This could give the following charging structure:
- either an allocation fee or an annual charge, based on the direct administrative costs to Ofcom of the allocation of number blocks, and the same for all blocks; and
  - an annual charge, paid on all blocks allocated, based on the costs of increasing capacity in that particular range (which could be zero) and for geographic numbers split between area code types.

*Question 53 What are your views on this illustrative charging mechanism, and would you suggest any changes or alternatives to it?*

### **The impact on consumers and others of introducing charging for number blocks**

- A4.55 As well as changing operator behaviour as identified above charging for number blocks might have an impact on:
- *Final customers' bills:* the impact on final customers' bills is likely to depend on the net increase in communications providers costs. This in turn would depend on the level and structure of the charge, and the extent to which it was offset by reductions in other costs experienced by communications providers, such as number changes or the section 38 fee imposed by Ofcom<sup>43</sup>. At this stage in our analysis, Ofcom can say that the intention in introducing a charge would not be to raise revenue or increase the cost base of the industry, but to increase efficiency; and
  - *The secondary market:* the secondary market is likely to shrink as some of the value currently available to the players from allocating golden number blocks to final customers is captured by the value-based charging

<sup>43</sup> administrative charges levied by Ofcom under section 38 of the Act

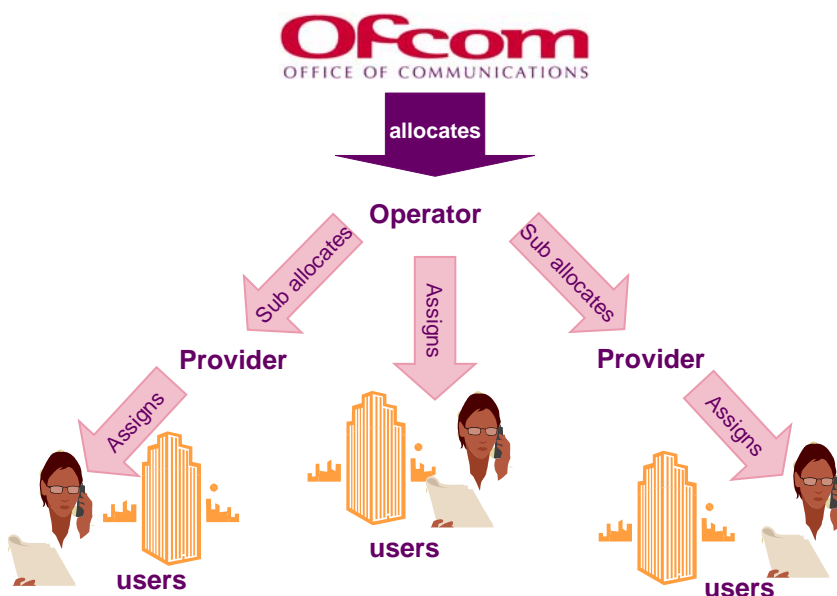
mechanism. However there will still be an important role for the secondary market to play both because the value of different numbers may change over time and Ofcom’s proposal will only affect the primary allocation and more importantly because for some years to come, primary allocation is likely to be principally at the 10k block level while the secondary market allows individual numbers to be allocated (so two or more users/intermediaries who want different numbers from the same block cannot be served solely by the primary market). The impact on the secondary market is likely to be influenced by the relationship between charging and sub-allocation, as discussed below.

**Question 54** *How would charging for number blocks affect consumers?*

### Number sub-allocation

A4.56 Number sub-allocation is the process by which numbers already allocated by Ofcom to a primary allocatee are further transferred to other providers or resellers. This is represented visually below. Numbers are allocated to providers (who may also be network operators) who then assign them to end users (individuals or businesses).

**Figure A4.2** Number sub-allocation system



A4.57 Ofcom’s policy of not directly allocating numbers to those network operators and communications providers who do not require a direct allocation has the effect of encouraging sub-allocation from other communications providers. Sub-allocation is also the mechanism which facilitates the secondary market where golden numbers exchange hands. The secondary market allows companies (or individuals) to acquire the use of particular telephone numbers or numbers that have a value to them and ‘number intermediaries’ to benefit from any premium that the final users are prepared to pay for the

specific numbers they want to use. At the moment, the secondary market values certain golden numbers at many thousands of pounds.

A4.58 Currently there are no constraints or limits imposed by Ofcom on:

- how many numbers are to be sub-allocated – it can be a whole block, part of it or just a single number;
- how many layers of sub-allocation there can be – it can vary between none (i.e., the block is held by the primary allocatee) or several; and
- how much is charged for sub-allocation.

A4.59 A key feature of sub-allocation is that the number block typically remains implemented on the allocatee's network infrastructure. This frees the sub-allocation process from the technical constraints which oblige Ofcom to allocate in blocks of 1,000 or 10,000 numbers. Sub-allocation therefore has the advantage of operating on a smaller scale than allocation. This can lead to two efficiency gains. Firstly, it contributes to a better number utilisation rate since providers may obtain numbers in a quantity that better matches their needs - increasing allocative efficiency. Secondly, sub-allocation increases distributive efficiency. It does this in two ways. Firstly, because the sub-allocation unit is smaller, providers can better identify the numbers they value, and this increases the likelihood of numbers going to the providers or users who value them most. In addition, a smaller sub-allocation unit makes it easier for numbers to be re-allocated over time, according to changes in the value of a number and changes in the user who values a particular number.

A4.60 When sub-allocation takes place, Ofcom retains all rights of redress against the primary allocatee. There is a risk that sub-allocation and especially repeated sub-sub-allocation could lead to a distancing of the relationship between Ofcom and the final service provider and make it harder to address any consumer protection concerns. Although Ofcom, and where appropriate ICSTIS, may seek to enforce compliance against the sub-allocatee as well, the distancing of the relationship can make enforcement more difficult and time-consuming. Sub-allocation might also weaken the ability and effectiveness of consumer protection measures suggested elsewhere in this consultation, such as any consumer protection tests (See Annex 5).

A4.61 There is a relationship between sub-allocation and charging for numbers. Charging for numbers may encourage sub-allocation as providers seek to make more efficient use of their numbering stock. In particular, an allocation charge may encourage providers to seek numbers already allocated, instead of applying to Ofcom for new numbers. At the same time the allocative and distributive benefits generated by sub-allocation complement the incentives that could be generated by charging.

A4.62 At this stage, it is Ofcom's view that any introduction of charging would not affect the existing rights and obligations relating to numbers. In the case of sub-allocation, Ofcom would expect the primary allocatee to continue to have the responsibility of paying any annual charge, but for this to be recognised in the commercial sub-allocation negotiations between that provider and the sub-providers.

- A4.63 Sub-allocation is crucial to the operation of the existing secondary market, where numbers are already exchanged for a fee. One consequence of facilitating sub-allocation might be to encourage the secondary market, for example by increasing the number of transactions. Ofcom will need to consider whether the current process of sub-allocation would best meet the requirements of communications providers following any introduction of charging for numbers. There might, for example, be increased demand for numbers to be 'traded', raising complex and difficult issues around rights and obligations.

*Question 55* What impact do you think charging for numbers would have on sub-allocation? Should Ofcom encourage or facilitate sub-allocation and, if charging were introduced, would changes be needed to the process of sub-allocation to facilitate trading?

### Next steps

- A4.64 Ofcom will review the responses to this initial consultation and continue to build the evidence base particularly with reference to the gaps identified in this annex. If appropriate, Ofcom envisages consulting again in summer 2006 with detailed proposals on charging and the measures necessary to facilitate trading. Depending on the responses to this second consultation, a charge could be introduced in the following year (2007).

### International benchmarking

- A4.65 Ofcom has undertaken preliminary international benchmarking to compare different approaches to charging for numbers. Figure A4.3 indicates the types of charges made in Europe and North America (at the time of the research in Spring 2005) and whether they were based on the recovery of administration costs or the incentivisation of allocative efficiency. It would seem to indicate that there is wide-spread acceptance internationally of the appropriateness of charging however there are different approaches to it in different countries.



**Figure A4.3 Approaches to charging across Europe and North America**

	Allocation Charge	Annual Charge	Based on admin costs	Based on allocative efficiency	No charges made
AUSTRALIA	✓				
BELGIUM	✓	✓			
BULGARIA	✓	✓	✓		
CANADA					✓
CROATIA		✓			
CYPRUS	✓	✓	✓		
CZECH REPUBLIC	✓	✓			
DENMARK		✓	✓	✓	
ESTONIA		✓			
FINLAND		✓			
FRANCE		✓	✓		
GERMANY	✓		✓	✓	
GREECE	✓	✓			
HUNGARY	✓	✓		✓	
IRELAND					✓
ITALY		✓			
LITHUANIA	✓	✓	✓		
LUXEMBOURG	✓	✓			
NETHERLANDS	✓	✓	✓		
NEW ZEALAND					✓
NORWAY		✓	✓		
POLAND		✓	✓		
SLOVAKIA	✓	✓			
SLOVENIA		✓			
SPAIN		✓	✓		
SWEDEN		✓		✓	
SWITZERLAND	✓	✓	✓		
UNITED STATES					✓

## Annex 5

# Protecting consumer interests

## Introduction

A5.1 Ofcom exists to further the interests of citizens and consumers through a regulatory regime that, where appropriate, encourages competition. Effective competition delivers choice and lower prices as well as opportunities for new services and providers. However, consumers may need protection from inappropriate behaviour by certain providers that may undermine confidence in the market as well as causing individual consumer detriment.

A5.2 Consumer protection can benefit residential and business customers through the establishment of clear rules against harm caused either by the use of communications networks and services or by providers of those networks. In the absence of such measures, consumers' asymmetric position relative to suppliers would make them far less likely to enter the market and means that they could be subject to harm and detriment from unscrupulous suppliers.

A5.3 Consumer interests in numbering can be promoted through both consumer information and consumer protection measures. As explained elsewhere in this document, Ofcom is concerned about potential consumer detriment due to limited understanding of the Numbering Plan, and is proposing a simplified Plan, which is described in Section 5. However, Ofcom also proposes to promote consumer interests in other ways, which relate to the rules and policing of the Numbering Plan:

- consumer information:
  - the current Plan has some loopholes in terms of the services that can be offered using each type of number. This undermines the message given by any Numbering Plan;
  - the tariffing provisions set out in the current Plan apply only to calls which originate on lines which are associated with BT's retail business. This is a weakness in terms of customer understanding of the Numbering Plan, because BT Retail's share of the market has fallen (to about 60 per cent of fixed line call volumes alone<sup>44</sup>). As a result, fewer customers get the benefit from measures taken to promote transparency and limit abuses; and
- consumer protection: consumer confidence and welfare have been damaged by the misuse of certain types of number by those that provide consumers with services. This can undermine consumer confidence for all services offered on such numbers. Many consumers no longer trust certain telephone numbers, notably NTS, PRS and personal numbers. Some consumer reactions to PRS, from focus groups run for Ofcom, include:
  - “They're a total scam, I don't know why they're allowed, all they do is rip unsuspecting people off – have you ever been able to read the small print?”; and

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<sup>44</sup> Ofcom market intelligence data

“They’re numbers to be avoided – there’s a terrible image associated with them, dishonest and preying on the innocent”

A5.4 This annex will consider these three ways to promote consumer interests, especially the abuse of number allocations, to consider how to reduce the scope for consumer detriment in numbering. In particular, Ofcom sets out its initial thinking on consumer protection tests that might apply when determining which service providers can use number allocations.

### **Harm and abuse in communications markets**

A5.5 Harm in communications markets takes many forms, including financial harm, physical harm or anxiety, annoyance or inconvenience. Every year, many complaints are made to suppliers about problems caused either by the use of communications networks and services, or about the behaviour of the companies involved in their provision. Most complaints are resolved satisfactorily by suppliers, but some are not, and these may require regulatory intervention.

A5.6 The rapid pace of technological change in many communications markets, coupled with the ease of market entry, means that the potential for harm is greater in the communications sector than in many other markets. This includes the following types of abuses:

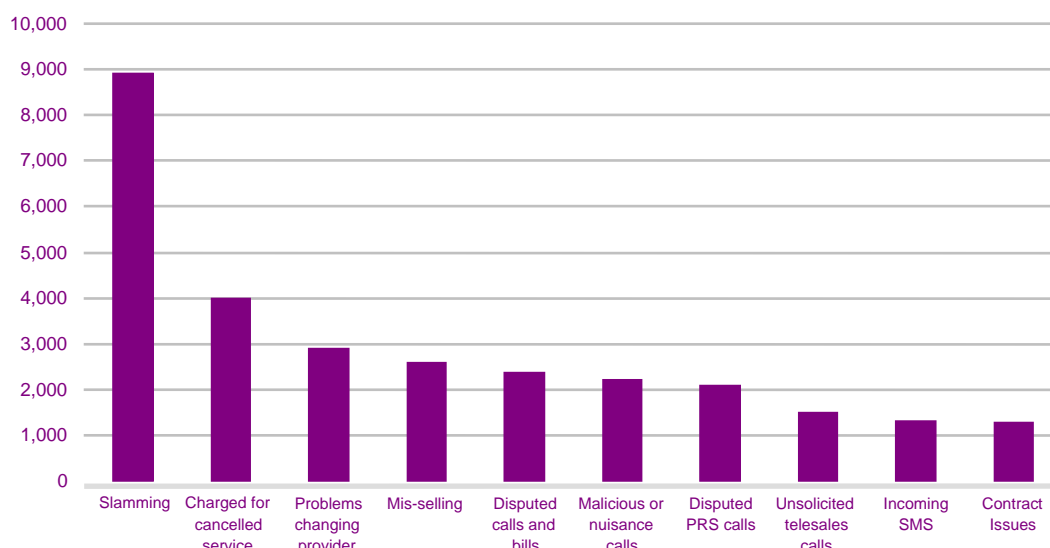
- consumer abuse that may result from technological innovation (e.g., rogue internet diallers, silent phone calls);
- possible exploitation of consumers’ lack of understanding of different technologies (e.g., mis-selling of fixed line phone calls by doorstep salesmen, rogue internet diallers);
- services which collect very small amounts of money individually, but can generate large profits due to their ability to reach substantial numbers of consumers using communications networks (e.g., rogue internet diallers on ‘087’ numbers, TV prize scams); and
- recently liberalised markets with low entry and exit barriers which enable dishonest suppliers to cut and run (e.g., denial of cancellation rights from fixed line phone suppliers).

A5.7 The most common issue raised with Ofcom by consumers in November 2004-October 2005 is mis-selling and ‘slamming’ (where customers are simply switched from one company to another without their express knowledge and consent). However, a wide variety of issues were raised (see Figure A5.1). Disputed PRS calls, with over 2000 calls in that period, refers to abuses related to one specific number range for which Ofcom would like particularly to apply stronger consumer protection.

A5.8 However, the data gathered by Ofcom provide only a partial picture of the problems facing consumers, for various reasons. Firstly, the proportion of complainants who escalate a complaint varies according to how suppliers respond to complaints. Also, complaints are made to a variety of organisations, which define and log complaints differently. Finally, consumers’ awareness of complaints processes varies, with many not raising complaints at all.

A5.9 Consumer abuses can result in immediate detriment to the specific consumers involved as well as broader, longer-term detriment to consumers in general due to the consequential loss of confidence. There are several particular number ranges that providers have used to confuse or deceive consumers.

**Figure A5.1: Complaints to Ofcom November 2004 - October 2005**



Source: Ofcom

- A5.10 The 070 personal number range is one of those for which trust has been eroded. These numbers have been used for a variety of services other than those originally intended, including the delivery of premium rate content at high charges. As a result of such misuse, action has been taken to ban revenue sharing with the end user on these number ranges. Annex 3 of this document describes further proposals for this number range.
- A5.11 The 0845 and 0870 number ranges have also been problematic, due to their increasing use to deliver content services, such as adult services, which are typically provided on '09' numbers. This has allowed providers to evade the PRS regulatory regime and, in particular, ICSTIS regulation. It also undermines the effectiveness of call barring as a consumer protection mechanism. These concerns are currently being addressed as part of Ofcom's review of the regulatory framework for NTS<sup>45</sup>.
- A5.12 Abuse of premium rate services, delivered on 09 numbers, is a major concern. The UK is currently the world's leading market for premium rate charging, with tens of thousands of services in operation at any one time. Services using premium rate charging generated estimated revenues of approximately £1 billion in 2005. It is essential that consumers should be

<sup>45</sup> *Number Translation Services: A way forward*  
[\(http://www.ofcom.org.uk/consult/condocs/nts\\_forward/\)](http://www.ofcom.org.uk/consult/condocs/nts_forward/)

able to use premium rate services in good faith, and without the risk of incurring high bills unexpectedly or unfairly.

- A5.13 However, there has been in recent years a series of examples of unethical and potentially fraudulent behaviour, including problems related to ‘rogue’ internet diallers, which have caused considerable consumer detriment and damaged consumer confidence in the PRS sector. In 2004 Ofcom reviewed the regulatory framework for PRS to assess whether consumers were adequately protected from the potential for consumer detriment involving PRS<sup>46</sup>. That review produced a number of recommendations whose implementation will, it is anticipated, significantly reduce the scope for consumer detriment and restore consumer confidence in the PRS industry. But beyond the steps already being taken by ICSTIS and Ofcom, numbering policy can have a role both by increasing tariff transparency (see Annexes 2 and 3 of this document) and by setting a framework for how service providers are allocated numbers.

*Question 56 Which types of consumer abuse do you think Ofcom should particularly attempt to address through its numbering policy decisions?*

### **Consumer information: applying numbering descriptions in practice**

- A5.14 In this document we have set out detailed proposals for how different number ranges should be used in the longer-term. We are trying to clarify the meaning of number ranges such as 08 and 09 numbers so that consumers can know and trust each number range to a reasonable degree.
- A5.15 However, as described in Section 4, the problem in terms of transparency to customers is not simply that the service descriptions for each number range are difficult to understand. Consumer confidence is also related to the degree to which the intended service descriptions for each number range have been applied in practice. This has two aspects:
- there have been loopholes in the service descriptions, which have allowed some providers to offer services that were not intended to be provided on certain number ranges. The best example of this is adult services being provided on 08 numbers, as described in paragraph A5.11; and
  - only calls from BT lines have had to follow the tariff descriptions in the Numbering Plan. But as BT’s share of the retail market has fallen, it has become less likely that the numbers customers dial will reflect, in practice, the actual prices and services described in the Numbering Plan.
- A5.16 It is therefore important to ensure that the service definitions are sufficiently tightly-written that each type of service is provided only on the intended number ranges. If this is not the case, there will be potential for scams based on consumer misunderstanding of the services provided. Ofcom therefore proposes to revise service definitions across the Numbering Plan in order to ensure that they adequately protect and inform consumers. For this to be the case service definitions must:
- accurately and precisely describe the service being offered;

<sup>46</sup> *The Regulation of Premium Rate Services – an Ofcom report for the DTI*  
[http://www.ofcom.org.uk/telecoms/loi/nwbnd/prsindex/ntsprsdti/prs\\_review.pdf](http://www.ofcom.org.uk/telecoms/loi/nwbnd/prsindex/ntsprsdti/prs_review.pdf)

- exclude those services which are not to be offered; and
  - do so in language which is comprehensible to consumers.
- A5.17 This review of service descriptions is expected to be carried out during summer 2006. It will also review the service definitions for other reasons:
- to encourage competition, by ensuring that service definitions do not inappropriately favour particular types of communications provider, or particular networks and technologies, and by removing barriers to market entry; and
  - to correct unintended consequences that are contrary to Ofcom policy, such as the use of mobile numbers to deliver non-mobile services.
- A5.18 Tight service definitions will make it easier to take enforcement action against communications providers who allow their number allocations to be used in ways that do not comply with the Numbering Plan. This should tend to tighten the contractual requirements that communications providers place on those to whom they supply numbers.
- A5.19 But even with clear service definitions, a new Numbering Plan will have most effect on transparency only if it is relevant to all UK consumers. However, most of the provisions in relation to tariff transparency which are contained within the current Plan apply only to calls which originate on BT lines. Historically, this may have been acceptable, as almost all calls did originate on BT lines. But BT has lost a large share of some retail communications markets. The growing use of competing fixed communications providers, and of mobile phones, mean that a declining share of retail traffic is covered by the Numbering Plan. By mid-2005, BT retail customers accounted for about 60 per cent of all retail fixed call volumes alone. The rising use of carrier pre-selection and recent improvements to wholesale line rental should increase further the degree to which consumers use fixed competitors to make all types of UK calls rather than just specific call types (such as international calls).
- A5.20 It is possible that the tariffing provisions which apply to BT lines would be followed by its competitors, but relying on that possibility gives no guarantee that the steps taken to simplify the Numbering Plan will be widely applied. Ofcom considers that the success of other providers in increasing their traffic has made them far more important for guaranteeing trust in the Numbering Plan.
- A5.21 We therefore consult on whether the tariffing provisions in the Numbering Plan should be extended to apply to all providers of publicly available communications services which originate calls. This could be achieved by extending the current conditions which attach to the adoption and use of numbers by communications providers. Ofcom has a number of options for widening the application of the tariffing provisions in the Numbering Plan. The two dimensions to consider are:
- which other service providers should be covered by the obligations: some other fixed services providers, all other fixed service providers, or all providers - including mobile services providers and payphone service providers?; and

- for which number ranges should other providers have obligations: just those number ranges most prone to consumer abuses, or all number ranges?
- A5.22 Ofcom's preferred starting position is to extend the tariffing provisions within the Numbering Plan as far as possible, to all originating providers, on all types of network. This is the best way to ensure that the whole Numbering Plan is not weakened by inconsistencies in consumers' experiences.
- A5.23 Ofcom's intention in proposing this is not to use the Numbering Plan to regulate the prices which communications providers charge. communications providers should be free to determine what price they wish to charge for their services, subject only to any price controls imposed following an SMP finding, and then choose a number range which is consistent with that price. Of course, this may not always be possible, since the Numbering Plan can only support a limited set of number ranges. However, Ofcom believes that the tariff transparency provisions in the Numbering Plan are written in a sufficiently general manner that most pricing models can be supported. Where this is not the case, it may be acceptable for communications providers to provide tariff transparency through other means, such as via a pre-announcement of the call tariff that supercedes the tariff information provided by the Numbering Plan, made free of charge at the start of every call.
- A5.24 We also recognise that there are a number of practical issues, and that the best approach may vary between different number ranges. Ofcom would welcome views on such issues, including the following ones:
- it might be more appropriate to extend obligations to number ranges for which retail prices are typically much higher than others, and in which consumers have less confidence. Alternatively, a broader scope might be more desirable in order to increase transparency and deter potential for scams across all number ranges;
  - extending obligations to calls from mobile phones would have to recognise the higher retail prices involved, which could complicate the consumer message. For example, service definitions might have to include a statement that the customer's standard mobile rates would be charged in addition to the rate quoted in the number range service description;
  - call announcements could be necessary for some or all of the ranges to which obligations were extended, to avoid imposing price regulation on other providers. If such announcements were used, there are questions of whether or not they should be free to customers, and of how far customers would welcome them for some or all of the number ranges involved; and
  - whilst the current Numbering Plan service definitions are written such that other providers may comply with them in practice in terms of the prices and services they offer on each number range, some migration costs may be involved in extending the service descriptions.

*Question 57 Which number ranges and types of originating communications provider do you think should be covered by an extension of the Numbering Plan's tariffing provisions? What practical issues are involved, and how would this vary according to the number ranges and service providers involved?*

## Consumer protection and Ofcom’s legal duties in number allocation

- A5.25 Ofcom’s current approach to numbering policy focuses on the efficiency with which numbers are allocated to communications providers. This approach essentially looks to the dynamics of competition to promote consumer interests by passing on the benefits of innovation and increased efficiency. Ofcom therefore allocates numbers to a broad range of providers. However, some of those providers may be involved in certain types of consumer abuses. This raises the question of whether Ofcom might assess the risk of abuse and the potential consumer detriment involved before it allocates numbers to providers.
- A5.26 Ofcom has a number of duties under the Act. Section 63 requires us “to secure that what appears to Ofcom to be the best use is made of the numbers that are appropriate for use as telephone numbers” and “to encourage efficiency and innovation for that purpose”. Ofcom is also obliged, under section 60, to act in a manner that is objectively justifiable and does not unduly discriminate. Under section 61, Ofcom can also withdraw allocated telephone numbers in certain specified circumstances. Such duties and powers are clearly consistent with our role as an economic regulator.
- A5.27 However, Ofcom also has duties under sections 3 and 4 of the Act, which include broad consideration of consumer interests. Ofcom considers that, in fulfilling its duty under section 63, it should also take into account all of its general duties under both sections 3 and 4 of the Act, including consideration of the consumer interest. In particular, we should consider whether market failures prevent the benefits of competition being passed on to the consumer and the extent to which consumer interests are effectively promoted by the market.
- A5.28 Any general consumer protection test used to assess numbering applications would need to have several characteristics to fulfil its legal requirements under section 47 of the Act. Specifically, this means that any test would have to be:
- proportionate;
  - non-discriminatory;
  - objectively justifiable; and
  - transparent.

## The general principle of consumer protection tests for numbering

- A5.29 Ofcom’s consumer research supports our view that consumer abuses have done significant harm to the reputation of certain number ranges. Apart from causing harm to consumers, such abuses also affect the majority of providers (who do not commit abuses) by discouraging consumers from using their services. Ofcom considers that its legal duties support the use of consumer protection tests, as long as the specifics of any test meet the required legal standards. Ofcom therefore proposes to develop consumer protection tests to apply when deciding about the allocation and use of numbers by communications providers. Our objective is to ensure that numbers are not used in a manner that may cause consumer detriment,



whether that is financial, associated with the misuse of private information, or linked to some other form of nuisance.

A5.30 Some procedures already exist to deter consumer abuses for premium rate services. ICSTIS regulates such services provided on 09 numbers, and Ofcom has proposed an extension of ICSTIS's remit to regulate 0871 revenue-sharing numbers<sup>47</sup>. However, Ofcom can also strengthen current consumer protection through its numbering administration procedures. Specifically, we propose consumer protection tests that could:

- be applied to deny number allocations to providers that have persistently and/or seriously abused consumers in the past; and
- apply to 03, 06, 07 and 08 numbers as well as 09 numbers, in order to reduce the potential for consumer abuses on other number ranges.

A5.31 The denial of number allocations is potentially a very effective tool for preventing consumer abuse. Practical issues must be addressed in devising an effective test, and Ofcom would welcome views on the following points in order that any test would not impose a disproportionate burden in relation to the benefits achieved:

- the test must identify accurately those organisations and individuals that seek to conceal previous abuses when applying for numbers;
- the test must be straightforward to implement as part of the normal process of administering number allocations, whilst any review or appeal process must be both rapid and effective; and
- enforcement must work equally effectively against those that are allocated numbers directly and those that may use sub-allocated numbers. This relates to the issue of which party should be held accountable for misuse.

A5.32 In considering the potential for consumer detriment associated with '09' numbers, it is relevant to consider the outcomes of Ofcom's recent review of PRS regulation. Its recommendations included greater traffic monitoring and information-sharing by communications companies; a requirement that no monies be paid to service providers until at least 30 days after a service is provided; increasing the maximum fine that ICSTIS can impose for breaches of its Code; and better provision for consumer refunds. Ofcom expects that this package of measures will significantly reduce the potential for consumer detriment in the premium rate industry.

A5.33 Also relevant to potential consumer detriment is the NTS consultation, which has proposed extending to 0871 numbers the same protections currently provided by the regulatory framework for 09 PRS numbers. Following the logic of the NTS consultation's proposal, any consumer protection test should also apply to other numbers regulated by ICSTIS.

A5.34 Consumer protection tests for numbering would add to these initiatives by actually denying to specific providers the numbers that they need to provide services and commit consumer abuses. At this stage we are mainly interested in getting stakeholders' views on the principle of using a consumer protection test, how it may be applied, the forms it might take and the

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<sup>47</sup> *Number Translation Services: A way forward*  
([http://www.ofcom.org.uk/consult/condocs/nts\\_forward/](http://www.ofcom.org.uk/consult/condocs/nts_forward/))

practical issues involved. To help inform these views, we propose below an example of how a consumer protection test might be applied in relation to the allocation of numbers. We also introduce the idea of a consumer protection test in relation to the use or withdrawal of numbers. We do not intend to finalise or apply any consumer protection tests until after a second stage of consultation this summer, in which we expect to consult on more specific proposals in this area.

### Proposed consumer protection test to apply when allocating numbers

A5.35 This test would seek to prevent the allocation of numbers in a way that Ofcom considers contrary to the interest of consumers. The potential conditions that Ofcom proposes to apply when allocating numbers are described below. Any additional conditions for number allocation of course imply some extra regulatory requirement on those providers requesting numbers (e.g., a requirement to provide more information).

**Condition 1: All applicants for numbers should provide full contact details to Ofcom, within set time limits, of the communications providers to whom any numbers within their control are sub-allocated, transferred or ported, and advise those communications providers receiving numbers of their obligations in using those numbers**

A5.36 Where numbers obtained under the application process are sub-allocated, transferred or ported to another communications provider, investigation of consumer abuses could be delayed while the relevant communications provider is traced. To avoid this, Ofcom proposes that applicants for numbers provide to us full contact details about the Communication Providers to whom any numbers within their control are sub-allocated, transferred or ported, as well as advising those receiving numbers of their obligations in using those numbers. This requirement would increase the due diligence that numbering applicants perform where numbers are sub-allocated to other communications providers.

A5.37 Ofcom would welcome comments on appropriate information requirements, for example whether additional information is required beyond the contact details in Figure A5.2. Types of additional information about the company receiving sub-allocated numbers may include details about directors and contact arrangements for customer services.

#### Figure A5.2 Proposed minimum contact details for sub-alloctees

Name: Business Address (i.e., registered office): Telephone (Daytime): Telephone (Mobile): Email: Fax Number:
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A5.38 It might be appropriate for such contact details to be provided for only certain number ranges, in order to limit the administrative requirements to those number ranges most prone to incorrect use of numbers. However, Ofcom could reserve its ability to extend this requirement to all number ranges, to allow it to capture changes in the use of different number ranges.

A5.39 A related concern arises when numbers are transferred from one communications provider to another when a subscriber asks to keep their number when switching provider. Currently there is no obligation on communications providers to inform Ofcom when this occurs. This is currently being taken forward separately by ICSTIS for premium rate numbers, through a proposed amendment to its Code to oblige terminating communications providers (TCPs) to notify ICSTIS before premium rate numbers are ported.

**Condition 2: Numbers should not be provided to anyone who has a particular track record of persistent and/or serious consumer abuse**

A5.40 Ofcom considers that a crucial part of its consumer protection test should be the ability to identify those persons to which we would wish to deny number allocations on the basis that they had persistently and/or seriously abused consumers in the past. Ofcom would propose that the scope of ‘persons’ under this criterion includes both the companies providing communications services and the directors of those companies. By identifying such persons, it would be more difficult for numbers to be provided to persons with little interest in providing legitimate services.

A5.41 In practice, this is one of the more difficult issues to resolve in developing an effective consumer protection test. This is partly because of the way in which numbers are sub-allocated after Ofcom allocates them to applicants. Ofcom needs to target those providers who use sub-allocations of numbers directly to abuse consumers, whilst promoting a responsible approach by those to whom it allocates numbers directly. Ofcom could, therefore, allocate numbers to providers on the condition that they apply similar tests to sub-allocations that Ofcom applies to direct allocations.

A5.42 Ofcom could facilitate this process by maintaining a list of communications providers who would not currently pass the test to receive number allocations or sub-allocations. In taking any decision not to allocate numbers to an applicant because of their connection to a pattern of consumer abuse, Ofcom also would need to take a proportionate and case-by-case approach.

A5.43 Various criteria could be applied by Ofcom to help decide whether a particular applicant should not be allocated numbers on the grounds of their involvement in, or connection with, consumer abuse. Ofcom would welcome suggestions of appropriate criteria. Some possible ones could be:

- whether applicants have received a criminal record for an offence involving the misuse of an electronic communications network (ECN) or electronic communications service (ECS);
- whether applicants have committed repeated and/or severe breaches of the ICSTIS Code or are, at the time of the application, prohibited by ICSTIS from operating services for a specific period;
- whether applicants have been found to have breached any legislation, rules or regulations designed for the purpose of consumer protection;
- whether applicants applying for numbers have sub-allocated numbers to persons who were, at the time of sub-allocation, on an Ofcom or ICSTIS list of providers who should not receive numbers (on the grounds of involvement or connection with serious or repeated consumer abuse); and

- whether applicants have provided inaccurate or incomplete information concerning any of the above-mentioned proposed criteria.
- A5.44 Ofcom would have to consider each case on its merits in order to take a fair and proportionate decision. For example, the level of consumer harm caused, the frequency of offences/abuses, how long ago they occurred and their similarity to abuses that might be conducted using number allocations, could all be relevant factors. Having considered the options for criteria, Ofcom proposes that it would conduct a review of whether a provider should receive numbers based on a number of triggers:
- where communications providers have committed at least two breaches of ICSTIS Code rules in the previous 12 months, or are prohibited by ICSTIS from operating services at the time of the application. Note that in the year to December 2005, sample data supplied by ICSTIS show that 27 out of the 179 service providers that were found to have been in breach of the ICSTIS Code in that period had breached the Code on more than one occasion (although, in practice, we would not take action against all such companies, instead focusing on the more serious breaches);
  - where applicants have received a criminal conviction within three years prior to the date of application for an offence involving the use of an ECN/ECS;
  - where applicants have sub-allocated numbers within the previous 12 months to providers that are on an Ofcom or ICSTIS list of providers who should not receive numbers; and
  - where applicants have consistently provided inaccurate or incomplete information concerning any of the earlier above-mentioned proposed criteria.
- A5.45 Ofcom would aim to set standards for this condition that would act as a clear deterrent to potential consumer abuse, whilst perhaps causing only a limited number of providers to be denied number allocations. Ofcom would welcome comments from stakeholders on these issues and proposals for alternative criteria that might achieve the desired policy aim of targeting offenders in an effective and proportionate way.

**Condition 3: Numbers should not be provided to anyone who has a particular track record of using numbers in a way that is not consistent with the requirements of the Numbering Plan**

- A5.46 Strengthening consumers' understanding of the Numbering Plan is an important element of this review of numbering policy. However, the steps that Ofcom is taking to simplify the Numbering Plan could be undermined if services are provided on numbers that are different to those for which they were intended.
- A5.47 This proposal would support the measures referred to elsewhere in this document to simplify and define more precisely the service descriptions in the Numbering Plan. It would do this by providing a clear and strong sanction, in the form of denying number allocations, where this requirement is not met. This would deter actions such as revenue-sharing on any number ranges where that is not permitted.
- A5.48 As with Condition 2 for number allocation, Ofcom's approach to this would:

- promote a responsible approach by both companies that are allocated numbers directly and those that receive sub-allocations of numbers;
- consider each case on its merits in order to take a fair and proportionate decision. For example, we could consider specific divergence from the Numbering Plan, the frequency of such divergence and how long ago it had occurred; and
- review whether a provider should receive number allocations based on a number of triggers, for example, where revenue-sharing services were provided on the new '03' number range, or where adult services were provided on numbers other than designated numbers.

*Question 58 What do you think of the potential conditions proposed by Ofcom for inclusion in a consumer protection test for number allocation, including the proposals that numbers should not be provided to anyone with a particular track record of persistent and/or serious consumer abuse?*

*Question 59 Are there any other circumstances in which it may be appropriate for Ofcom to refuse number allocations?*

## **Consumer protection and the withdrawal of numbers**

- A5.49 Ofcom could also consider withdrawing numbers based on a consumer protection test. Number withdrawal is a more complex issue, both in practical terms and because it could potentially disrupt many consumers currently receiving services. Below we outline the legal issues and some other considerations that are relevant to any consumer protection test that might be developed for the withdrawal of numbers.
- A5.50 The Act allows conditions to be set which relate to the use of telephone numbers: section 58 in relation to providers, and section 59 in relation to non-providers. This provision could be used either to modify the Numbering Condition<sup>48</sup> or to set a new condition binding communications providers and non-providers to specific conditions of use for the purpose of consumer protection.
- A5.51 Under section 58 of the Act, Ofcom has powers that might be used for consumer protection purposes:
- section 58(1)(i) allows Ofcom to set out in general conditions, or determine in accordance with provisions made by general conditions, a duty on communications providers to secure compliance by their customers with rules relating to the use of phone numbers;
  - section 58(2)(e) allows Ofcom to regulate procedures to be followed, the system to be applied and charges to be imposed, for the purposes of, or in connection with, the adoption of phone numbers by a communications provider once allocated;
  - section 59 allows Ofcom to set conditions relating to allocation of telephone numbers to persons other than communication providers, the transfer of

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<sup>48</sup> General Condition 17 covers the allocation, adoption and use of telephone numbers. It applies to all communications providers.

allocations to and from such persons, and their use of telephone numbers;  
and

- section 61 allows Ofcom to withdraw allocated telephone numbers in certain specified circumstances.

A5.52 Therefore, Ofcom can, in principle, amend the Numbering Condition or set a new general condition that requires communications providers to ensure that their customers do not use their allocated numbers in particular ways that would abuse consumers. Ofcom therefore could attach conditions on number use to those companies to which Ofcom allocates numbers. Where those conditions were breached, the withdrawal of numbers could then be governed by clear rules.

A5.53 Were Ofcom to develop a consumer protection test for the withdrawal of numbers, some of the relevant issues would be similar to those that would apply to a consumer protection test for number allocation, in terms of the considerations we would and the way in which we would make our decisions. For example, we would wish to promote responsible behaviour both by those to whom numbers are directly allocated, and those receiving sub-allocations of numbers. Also, in process terms, we would wish to take decisions on a case-by-case basis, according to a number of factors, whilst using some triggers to investigate particular cases in which numbers might be withdrawn.

A5.54 Some other issues would be more specific to the withdrawal of numbers. For example, a test that allowed number withdrawal could be used to deter situations in which numbers are simply transferred to a company from another one that has dissolved voluntarily in order to escape any liability for its actions and to continue further abuses under a different company name. To tackle this, Ofcom might, for example, attach conditions to number use that allow it to withdraw numbers from any company that received numbers, where the transferring company had abused numbering conditions and the receiving company has any directors in common with the transferring company. This approach could allow numbers to transfer to companies that are simply seeking to provide them with a legitimate, uninterrupted service following a company failure, whilst allowing Ofcom to take action against companies whose directors were associated with past abuses.

*Question 60 Would you support the use of a consumer protection test as a basis for withdrawing number allocations? What kind of considerations should Ofcom apply in any such test, and what would be the practical issues involved in applying such a test?*

### **Possible future abuses**

A5.55 As new technologies evolve and traditional telephone networks migrate towards NGNs, it is likely that new consumer protection issues will arise. Three areas of concern are identified here: directory services, the security risks inherent in IP-based systems and issues related to services offered on NGNs.

A5.56 The transition to NGNs will result in the development of new directory services such as ENUM. ENUM allows all contact information for a subscriber to be accessed via a single E.164 format number. There are two implementations of ENUM of relevance to subscribers: public (or user) ENUM (publicly available and administered by the Internet Assigned Number

Authority), and private (or infrastructure) ENUM (administered by commercial sector service providers). The ready availability of so much contact information for a single subscriber is open to abuse by, for example, direct marketing organisations or hackers. Although data protection rules will apply, the operational issues associated with regulating this information across multiple networks and territories have not yet been properly understood.

- A5.57 NGNs as IP-based networks are subject to the same privacy and security vulnerabilities inherent in all IP networks. Examples of vulnerabilities which have led to consumer abuse include fraudulent phishing emails<sup>49</sup>, identity theft and viruses. Although security is a key objective for the developers of NGNs, no system can be made completely secure. As NGN technology becomes more pervasive the opportunity for attacks by malicious users may increase.
- A5.58 As new services develop in NGNs new consumer protection issues will emerge. One new service that may be open to abuse is the presence service, which allows a subscriber to register their preferred mode of communication and contact at a point in time. It may also support information about the subscriber's physical location at a point in time. This information could be detrimental to the subscriber's personal security, and protection of this information is of prime importance. Currently there is in place a voluntary industry code of practice regarding the use of mobile phone technology to provide passive location services in the UK, but it is limited to the mobile industry and does not cover the full range of location services which might be available on NGNs.

*Question 61 What consumer abuses do you think might occur in the future, and what steps might Ofcom take now in its numbering policy in order to reduce the potential for such abuses?*

### Next steps

- A5.59 During the consultation period, Ofcom will work on developing more specific conditions that might be used in a consumer protection test for number allocation, and assess further the various issues involved. We will also consider further the possibility of a consumer protection test relating to number withdrawal.
- A5.60 Ofcom will then incorporate the views of consultation respondents into its thinking, and we expect to consult on more specific proposals in this area in summer 2006.

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<sup>49</sup> 'Phishing' is the act of sending an e-mail to a user falsely claiming to be an established legitimate enterprise in an attempt to trick the user into surrendering private information that will be used for identity theft. Bank and credit card details are commonly targeted.

## Annex 6

# Glossary

**Area Codes:** The area code is that part of the telephone number that specifies the local telephone exchange to which a subscriber is attached. Telephone numbering plans assign area codes to local exchanges to enable the routing of calls between subscribers attached to different local exchanges.

**AXE 10 Switches:** A PSTN exchange, which can be used in local, transit or international configurations.

**Barring:** Enables a user to restrict or bar certain or all types of calls to and from their phone, e.g., calls to premium rate numbers, outgoing calls, outgoing international calls. Barring is activated with a personal code.

**CLI:** Calling Line Identity is an identifier that allows a subscriber to determine the telephone number of the party who has called or is currently calling them. The Calling Line Identity is sent from the calling subscriber to the called subscriber during call initiation.

**Closed Numbering Scheme:** in this document, this term refers to a scheme where there is no local geographic number dialling (i.e., where the full number must be dialled at all times irrespective of caller and called party proximity)

**Communications Act 2003:** This established Ofcom, set out its duties, and the powers which Ofcom has to discharge those duties.

**CP: Communications Provider:** a Person who provides an Electronic Communications Network or Electronic Communications Service.

**DDI:** Direct Dial-In is a feature offered by telephone companies for use with a customer's PBX system, whereby the communications provider allocates a range of numbers to the PBX. A call to a number allocated to a PBX is routed directly to the called party's telephone extension number without the need for the intervention of a switchboard operator.

**DECT:** Digital European Cordless Telecommunications. European standard for digital cordless telephones used within a domestic or corporate environment.

**DNS:** Domain Name System is a system that stores information associated with domain names in a distributed database on networks such as the Internet. It enables the translation between domain names, other Universal Resource Identifiers and/or their associated IP addresses,.

**ECN/ECS:** Electronic Communications Networks/Services.

**ENUM: TELEPHONE NUMBER Mapping (ENUM)** is a mechanism, used in conjunction with the Domain Name System to enable the translation between E.164 telephone numbers and Universal Resource Identifiers, which are used as identifiers within IP networks, including the Internet.

**European Directive:** European Directive is the (mutually binding) collective decision



made by the member states, acting through their national Government Ministers in the Council of the European Union and the Parliament.

**FRIACO:** Flat Rate Internet Access Call Origination is an unmetered interconnection service that provides virtual capacity from originating customers to the point of connection of another communications provider.

**Geographic Number:** A telephone number from the national Numbering Plan where part of its digit structure contains geographic significance used for routing calls to the physical location of the network termination point of the subscriber to whom the number has been assigned.

**ICSTIS:** The Independent Committee for the Supervision of Standards of the Telephone Information Services is the industry-funded regulatory body for all premium rate charged telecommunications services.

**IMS:** IP Multimedia Subsystem, is a component of a standardised Next Generation Network (NGN) architecture that enables communications providers to provide mobile and fixed session-based multimedia services.

**ITSPA:** Internet Telephony Services Providers' Association represents network operators, service providers and other businesses involved with the supply of VoIP services to business and residential customers within the United Kingdom.

**MVNO:** Mobile Virtual Network Operator is a mobile service provider that does not own its own spectrum and usually does not have its own network infrastructure. Instead, MVNOs have business arrangements with mobile network operators to buy minutes of use (MOU) for sale to their own customers.

**National Telephone Numbering Plan:** Plan of the allocation and re-allocation of telephone numbers, originally specified by Oftel and made available for public inspection.

**NRA - National Regulatory Authority:** Body or bodies charged by an EC Member State with any regulatory tasks assigned in the EC 'Framework' Directive for electronic communications networks and services.

**NGN - Next Generation Network:** An IP-based electronic communications network which is able to provide electronic communications services and to make use of multiple broadband and quality of service-enabled transport technologies, and in which service-related functions are independent of underlying transport-related technologies

**NICC:** The Network Interoperability Consultative Committee is a pan-industry body that acts as a co-ordination forum in which key players in the telecommunications sector (communication providers, service providers, manufacturers, the regulator, etc) address and agree necessary technical arrangements for interconnection and interoperability for networks and services in the UK.

**Non-geographic number:** Numbers which are used to identify a type of service rather than a geographical location. These services are sometimes referred to as Specially Tariffed Services and include Freephone, local rate, national rate and premium rate numbers. Mobile and Personal numbers are also non geographic numbers.

**NTS:** Number Translation Service, is the service of routing a telephone call with a non-geographic number to a hidden geographic or mobile number. NTS is commonly used to describe numbers beginning with 08, although technically this description also applies to numbers beginning with 09.

**Number Portability:** Number portability is a regulated facility which enables subscribers of publicly available telephone services (including mobile services) to change their service provider whilst keeping their existing telephone number.

**Open Numbering Scheme:** in this document, this term refers to a scheme where there is local geographic number dialling (i.e., where the Geographic Area Code can be omitted when dialling between numbers in the same Geographic Area).

**OSIS:** Core database run by BT which holds directory information on all BT's customers and customers of alternative communications providers. OSIS is used for product databases and to produce other directory information services and products.

**Personal Numbering Service:** Service based on number translation which enables a customer to be called using a single 'personal' telephone number but to receive those calls at virtually any telephone number in the UK.

**PRS:** A 'Premium Rate Service' that is paid for through the telephone bill of a Subscriber and is charged at above average rates (e.g., above rates for calls to 08 numbers). The revenue for the call, which comprises the price of the telephone call plus the content, product or service, is shared between the communications provider and the provider of the content, product or non-communication service whether directly or indirectly

**PSTN:** Public Switched Telephone Network is an electronic communications network comprised of the interconnection of the world's circuit-switched public telephone networks.

**Ranges [Sub]:** A number range is a set of contiguous numbers of a specified or unspecified size. For instance 09 is the designated range for premium rate numbers, and 0908 and 0909 are sub-ranges that can currently be used for premium rate sexual entertainment services.

**SME:** Small and Medium Enterprises.

**System X:** A PSTN switch used in a local configuration in the UK.

**Tariff Ceiling:** A tariff ceiling is the highest tariff chargeable for a given range of numbers.

**UCI:** Universal Communications Identifier is a single identifier for all personal communications, replacing the e-mail addresses, mobile numbers and all the other identifiers in use today.

**URI:** Universal Resource Identifier is an identifier consisting of a string of user readable alphanumeric characters used to identify resources within IP networks, including the Internet. The syntax of a URI is specific to its use.

**Utilisation Rate:** in numbering terms, this means numbers used divided by numbers available.

**VoIP:** Voice over Internet Protocol. A technology that allows users to make voice calls using Internet Protocol, over either the public Internet or private IP networks.

**WiFi:** Wireless-Fidelity is a set of product compatibility standards for wireless local area networks (WLAN) based on the IEEE 802.11 specifications.

## Annex 7

# Responding to this consultation

## How to respond

Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 4 May 2006**.

Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 9), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.

Please can you send your response to [NumberingReview@ofcom.org.uk](mailto:NumberingReview@ofcom.org.uk)

Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Andy Montaser  
4<sup>th</sup> Floor, Ofcom  
Riverside House  
2a Southwark Bridge Road  
London SE1 9HA

Fax: 020 7783 4103

Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.

It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 10. It would also help if you can explain why you hold your views, and how Ofcom's proposals would impact on you.

## Further information

If you have any want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Nic Green on 020 7783 4154.

## Confidentiality

Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, [www.ofcom.org.uk](http://www.ofcom.org.uk), ideally on receipt (when respondents confirm on their response cover sheet that this is acceptable).

All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex, so that non-confidential parts may be published along with the respondent's identity.

Ofcom reserves its power to disclose any information it receives where this is required to carry out its legal requirements. Ofcom will exercise due regard to the confidentiality of information supplied.

Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at [www.ofcom.org.uk/about\\_ofcom/gov\\_accountability/disclaimer](http://www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer).

## Impact assessment

Impact Assessments (IAs) provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making and are commonly used by other regulators. This is reflected in section 7 of the Act, which means that generally Ofcom has to carry out IAs where its proposals would be likely to have a significant effect on businesses or the general public, or where there is a major change in Ofcom's activities. In accordance with section 7 of the Act, in producing the IA in this document Ofcom has had regard to such general guidance as it considers appropriate, including related Cabinet Office guidance.

The analyses presented in Annexes 1-3, when read in conjunction with the rest of this document, represent Impact Assessments (IAs), as defined by section 7 of the Act. You should send comments on these IAs to Ofcom by the closing date for this consultation, which is **4 May 2006**. All comments will be considered by Ofcom when it decides whether to implement its proposals.

## Next steps

Following the end of the consultation period, Ofcom intends to publish a statement, and a further consultation on some policy issues, in summer 2006.

Please note that you can register to get automatic notifications of when Ofcom documents are published, at [http://www.ofcom.org.uk/static/subscribe/select\\_list.htm](http://www.ofcom.org.uk/static/subscribe/select_list.htm).

## Ofcom's consultation processes

Ofcom is keen to make responding to consultations easy, and has published some consultation principles (see Annex 8) which it seeks to follow, including on the length of consultations.

If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at [consult@ofcom.org.uk](mailto:consult@ofcom.org.uk). We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.

If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Vicki Nash, the Consultation Champion, at:

Vicki Nash  
Ofcom (Scotland)  
Sutherland House  
149 St. Vincent Street

Glasgow G2 5NW

Tel: 0141 229 7401

Fax: 0141 229 7433

E-mail: [vicki.nash@ofcom.org.uk](mailto:vicki.nash@ofcom.org.uk)

## Annex 8

# Ofcom's consultation principles

A8.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

### Before the consultation

A8.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

### During the consultation

A8.3 We will be clear about who we are consulting, why, on what questions and for how long.

A8.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A8.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A8.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A8.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

### After the consultation

A8.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

## Annex 9

# Consultation response cover sheet

- A9.1 In the interests of transparency, we will publish all consultation responses in full on our website, [www.ofcom.org.uk](http://www.ofcom.org.uk), unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.
- A9.2 We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.
- A9.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their cover sheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A9.4 We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.
- A9.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.



## Cover sheet for response to an Ofcom consultation

### BASIC DETAILS

Consultation title: Telephone Numbering (Safeguarding the future of numbers)

To (Ofcom contact): Andy Montaser

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

### CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing  Name/contact details/job title

Whole response  Organisation

Part of the response  If there is no separate annex, which parts?

If you want part of your response, your name or your organisation to be confidential, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

### DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name

Signed (if hard copy)

## Annex 10

# Consultation questions

### Questions from Sections 1-5

*Question 1 What are your views on the strategic principles that Ofcom proposes to apply to its numbering policy decisions?*

*Question 2 What do you think are consumers' key current views on numbering, how do you think those views will change, and how should Ofcom's current decisions take those changes into account?*

*Question 3 What do you think are the main ways in which technological developments will change the focus of numbering policy decisions, and how should Ofcom's current decisions take these developments into account?*

*Question 4 Do you have any comments on Ofcom's assessment of the current challenges to the Numbering Plan, in terms of a) number availability, b) transparency, or c) consumer abuses?*

*Question 5 Do you agree that the extension of conservation measures is the best approach to take before the impact of NGNs eases the pressure on geographic number demand?*

*Question 6 Do you agree that the use of overlay codes is the best backstop approach in the event that extended conservation measures are not sufficient to meet demand for geographic numbers?*

*Question 7 Do you agree that Ofcom should continue to respect the geographic identity of numbers until consumer understanding of the impact of technology change evolves further, and what do you consider is the best way to develop that consumer understanding?*

*Question 8 Do you agree with Ofcom's proposal to open a new '03' number range for non-geographic, non-revenue sharing services?*

*Question 9 How should the '03' range be structured, in terms of tariffs and services?*

*Question 10 How should the '08' range be structured, in terms of tariffs and services?*

*Question 11 Which broad approach should Ofcom take to structuring the '09' range, and if a re-structured '09' range is preferred how would you arrange the different types of '09' services (e.g., according to price per minute, price per call, inclusion of adult content)?*

*Question 12 Should any specific PRS service categories be identified or segregated in order that parents can block access by their children (e.g., sexually explicit content, gambling)? Is there merit in having a general 'adults only' classification, including a range of services to which access might be*

*restricted on the grounds of content, or might consumers wish to apply different rules for different types of content?*

*Question 13 Are there any practical means by which the Numbering Plan could provide improved mobile tariff transparency?*

*Question 14 Do you agree that personal numbers should have a tariff ceiling (or recorded message) to restore trust in those numbers? If so, what level, and should that ceiling include the cost of recorded messages?*

*Question 15 Do you agree with Ofcom's proposals to move personal numbers (with the same consumer protection provisions) to the '06' range and to pursue the direct allocation of numbers to end users as proposed at some point in the future?*

*Question 16 Do you have any comments on the use of the 05 number range?*

*Question 17 Do you agree that Ofcom's overall proposals for a future Numbering Plan are coherent and comprehensive, and do you have any comments on the timescales in which the changes should be implemented?*

*Question 18 Do you agree with the principle of using consumer protection tests in numbering in order to limit consumer abuses, as long as the relevant legal tests are met? Do you have any suggestions for what tests would be appropriate or any conditions that should be met to pass such tests?*

*Question 19 Do you support the proposal to extend the tariffing provisions of the Numbering Plan so that they apply to customers of all providers on all types of network?*

*Question 20 How do you think the new Numbering Plan could be effectively communicated to consumers?*

*Question 21 What are your views on Ofcom's analysis and the different options for number charging?*

*Question 22 Which, if any, numbers might appropriately be allocated using a value-based charge?*

*Question 23 Do you have any other comments on Ofcom's proposals for numbering as discussed in Section 5, or any other suggestions for how Ofcom might revise the current Numbering Plan or its administration?*

### **Detailed questions from Annexes 1-5**

*Question 24 What do you think of Ofcom's proposed general approach to managing geographic numbers?*

*Question 25 Do you have detailed evidence or suggestions on the variables likely to influence demand for geographic numbers, how those variables will change over time, and how Ofcom should develop a demand model?*

*Question 26 Do you agree with the specific proposal for how to extend conservation measures, including the extension to areas with a number shortage predicted in the next five (rather than two) years?*

*Question 27 Do you consider there to be any upper limit, in terms of technical feasibility, on the number of areas in which conservation measures could be used?*

*Question 28 Do you agree with Ofcom's assessment of the impact of conservation measures on stakeholders?*

*Question 29 Do you agree that Ofcom should pursue these additional ways to improve number utilisation and, if we do, how would stakeholders be impacted and what practical issues are involved?*

*Question 30 What are your views on overlay codes, and Ofcom's assessment of them, as a fallback option to increase number supply? What should be the maximum number of areas where overlay codes are introduced?*

*Question 31 What are your views on closing the scheme, and Ofcom's assessment of it, as a fallback option to increase number supply?*

*Question 32 What are your views on wide area codes, and Ofcom's assessment of them, as a fallback option to increase number supply?*

*Question 33 Might wide area codes be appropriate in regions with a strong identity and, if so, which specific regions are suitable for wide area codes?*

*Question 34 Do you agree with Ofcom's assessment of the problems with current 08 and 09 in terms of information clarity and consumer perceptions?*

*Question 35 Which of these options for current 08 services do you think is best in terms of a) increasing consumer transparency and b) minimising the costs of re-structuring the 08 range?*

*Question 36 How might early migration to the '03' range be encouraged?*

*Question 37 Is it more important to indicate price per minute or price per call, and does this vary for different types of PRS service? What granularity of PRS tariff information should be given to consumers by the Numbering Plan?*

*Question 38 Should there be any PRS number ranges with no tariff ceiling?*

*Question 39 What is the typical turnover of 09 numbers, and what does this mean for migration timescales to a new 09 Plan? How could Ofcom structure the 09 range or take other steps to promote voluntary migration of 09 services?*

*Question 40 Do you agree that that part of the 07 range which is currently unused (071-075) should be reserved for mobile services, with the aim of establishing 07 as a mobile 'brand'?*

*Question 41 Should Ofcom reserve specific sub-ranges within the 071-075 range for new mobile multimedia services, in the interests of promoting consumer awareness and tariff transparency, and if so how?*

*Question 42 Do you support the use of 100,000-number blocks in allocating mobile numbers to new mobile voice providers?*

*Question 43 Based on the above analysis, if Ofcom were to introduce a charge ceiling on calls to 070 numbers, which of the following levels should be adopted; i) 10 ppm ii) 15 ppm iii) 20 ppm iv) something else ?*

*Question 44 Would a requirement to make tariff information clearly available to purchasers of personal numbering services at the point of sale, either in addition to, or instead of a call ceiling, be an effective means of providing tariff transparency on personal numbers?*

*Question 45 If a new sub-range is made available for personal numbering services, how long should the current '070' sub-range remain available for existing providers, in order to minimise migration costs?*

*Question 46 What issues do you think would need to be resolved before Ofcom makes individual numbers available for direct allocation to end users?*

*Question 47 What do you consider to be the main strengths and weaknesses of the current rules-based system of UK number allocation?*

*Question 48 Do you agree with these principles for number charging?*

*Question 49 What are your views on Ofcom's assessment of the issues to be considered in setting and reviewing number charges? For example, should other issues be considered in developing charging proposals?*

*Question 50 Do you agree that charging for numbers could disincentivise economically inefficient behaviour, and incentivise economically efficient utilisation?*

*Question 51 What internal changes would communications providers have to make, and at what cost, to support charging for numbers? Would these changes be preferable to earlier and more widespread use of conservation measures and (limited) changes to increase geographic number supply?*

*Question 52 How might existing number allocation rules be reduced if charging for numbers was introduced?*

*Question 53 What are your views on this illustrative charging mechanism, and would you suggest any changes or alternatives to it?*

*Question 54 How would charging for number blocks affect consumers?*

*Question 55 What impact do you think charging for numbers would have on sub-allocation? Should Ofcom encourage or facilitate sub-allocation and, if charging were introduced, would changes be needed to the process of sub-allocation to facilitate trading?*

*Question 56 Which types of consumer abuse do you think Ofcom should particularly attempt to address through its numbering policy decisions?*

*Question 57 Which number ranges and types of originating communications provider do you think should be covered by an extension of the Numbering*

*Plan's tariffing provisions? What practical issues are involved, and how would this vary according to the number ranges and service providers involved?*

*Question 58 What do you think of the potential conditions proposed by Ofcom for inclusion in a consumer protection test for number allocation, including the proposals that numbers should not be provided to anyone with a particular track record of persistent and/or serious consumer abuse?*

*Question 59 Are there any other circumstances in which it may be appropriate for Ofcom to refuse number allocations?*

*Question 60 Would you support the use of a consumer protection test as a basis for withdrawing number allocations? What kind of considerations should Ofcom apply in any such test, and what would be the practical issues involved in applying such a test?*

*Question 61 What consumer abuses do you think might occur in the future, and what steps might Ofcom take now in its numbering policy in order to reduce the potential for such abuses?*