Personal numbering – Review of the 070 number range

Final Statement

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About this document

070 numbers are designed to be used for personal or 'follow-me' services. When someone calls a 070 number, their communications provider pays a wholesale termination charge to the 070 service provider for the call to reach the recipient. The caller is then charged a retail price by their communications provider for making that call.

As part of the Call Cost Review, announced in May 2017, we conducted a review of the 070 number range looking at the cost of calling 070 numbers and the frequent misuse of the number range. We found that communications providers who hold 070 numbers can set high wholesale termination rates for calls made to their numbers. This harms consumers, as it leads to high retail prices. Consumers are generally unable to distinguish 070 numbers from calls made to mobile numbers (which begin with '07x' and are much cheaper to call), resulting in 'bill shock'. In addition, high wholesale termination rates provide incentives for the fraudulent misuse of 070 numbers. This has contributed to the 070 number range gaining a poor reputation.

In this statement we set out our final decision on how we will regulate the 070 number range.

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1. Executive summary

1.1 Personal or 'follow-me' numbers, which operate in the 070 number range, allow consumers or businesses to offer a single contact number which they can route to a fixed or mobile number. They were established before the availability of mobile roaming to offer a single number which could be used while travelling in the UK and abroad.

1.2 Since their introduction, the cost of calls to mobile numbers has fallen significantly and is now generally[1] included in inclusive call allowances, but costs for calling 070 numbers remain high.

1.3 The key attributes of a personal numbering service include:

- a single contact number;
- a follow-me-anywhere service that is easy to use; and
- value-added services such as voicemail and messaging.[2]

1.4 When someone calls a 070 number, their communications provider pays a wholesale termination charge to the service provider for the call to reach the recipient. The caller is then charged a retail price by their communications provider. The caller currently pays all of the costs for a 070 call.

1.5 We believe the potential value of the 070 number range to both callers and recipients has been undermined by 070 service providers ("070 providers") with significant market power ("SMP"). These providers can use this power to set high wholesale termination rates, which harm consumers. Firstly, consumers pay high retail prices. Secondly, consumers are generally unable to distinguish 070 numbers from 07x mobile numbers and tend to be unaware that 070 calls cost much more than calls to 07x mobile numbers. These two factors distort consumer choice and lead to bill shock.

1.6 In addition, high termination rates provide incentives for the fraudulent misuse of the 070 range, in particular:

- **Service provider fraud:** For example, missed call scams, where a consumer may return a missed call from a 070 number as they mistake it for a mobile number, or the promotion of fake job advertisements with a 070 contact number.
- **International artificial inflation of traffic:** Some 070 providers, or those with an agreement to benefit from the termination rate of 070 numbers, can arrange to have large numbers of 070 calls made from countries where telephone companies do not recognise that 070 is different to a normal UK 07x mobile number. They, therefore charge less than the termination rate they will eventually pay. While UK

[1] There remain some UK mobile numbers on which UK-based providers are currently charging higher termination rates than our regulation allows (leading to consequentially high retail charges). We are planning an enforcement programme to address this issue.

[2] Examples of uses of the 070 number range which comply with the original purpose of the service include, use in classified advertisements, use of online forums by those who want to talk to new acquaintances without divulging their real phone numbers and use by hospital inpatients so that they can have their own number for the duration of their stay.

communications providers are trying to stop these schemes, identifying such calls can be difficult and intervention can be expensive.

- **Identity-related fraud:** Service providers do not usually recover the cost of termination from the recipient (their own customers). They, therefore, do not need to know the recipients' true identity or establish payment links. This means 070 numbers can be potentially used for criminal activity where a recipient's true identity is concealed.

1.7 We also have evidence that, due to high prices and the reputation for fraud, potential legitimate users of the 070 range have chosen to use other ranges or not to enter the market.

1.8 This shows the 070 range is no longer properly serving the needs of consumers and its originally intended function.

Personal numbering – review of the 070 number range

1.9 On 12 May 2017, Ofcom announced a Call Cost Review to examine the cost of calling 118 and 070 numbers, to ensure consumers are protected from high prices and unfair practices. This statement, the first published in connection with that review, focuses on the 070 number range.

1.10 On 6 December 2017, we published our proposals for regulating wholesale termination rates for 070 numbers (the "December 2017 Consultation"). We identified competition and consumer harms arising from the SMP of range holders of 070 numbers in setting high wholesale charges for calls to those numbers.

1.11 We received 20 responses to the December 2017 Consultation. We have considered those responses in reaching our final decisions.

European Commission consideration

1.12 On 15 August 2018, we notified our intended measures and an explanatory draft statement to the European Commission ("EC"), BEREC and other National Regulatory Authorities and we published our draft statement on the Ofcom website. In its decision letter of 14 September 2018, the EC stated that it had examined the notification and had no comments.

Our decisions

1.13 In summary:

- **We confirm our view that the market for 070 numbers is negatively impacted by high wholesale charges**, which has led to its reputation being undermined and harm to consumers.

- **We have defined 127 separate markets for the termination of voice calls to 070 numbers**. Each market corresponds to a provider able to set termination rates for 070 voice calls which have been allocated by Ofcom.
- **We have designated each of the 127 providers as having SMP** for terminating calls to the 070 number(s) it controls.[3] 070 providers have SMP because each has a monopoly on the termination of calls made to its number range.
- **We are imposing a charge control on all 070 providers, which will cap the wholesale termination rate they can charge.** We will impose a charge control on all 070 providers, to be set at the same rate as the mobile termination rate. This will come into effect on 1 October 2019. We anticipate that the likely effect of this will be that the cost of calling a 070 number will, in future, be shared between the person making the call and the recipient.

Our approach to this review

1.14 We have considered the appropriate approach to take to this review and the remedies we impose in light of the current circumstances and how the market will change over the period covered by this review. We aim to ensure that the outcome protects consumers' interests while imposing no more regulatory burden than is necessary.

1.15 We anticipate that our remedy will address poor consumer outcomes, as well as improving the reputation of the 070 number range.

1.16 In particular, by aligning the 070 call termination rate to that of mobile numbers, the caller will no longer bear the entire cost of the call. We anticipate that 070 providers may therefore seek to recover part of their costs from their customers, the recipients. This is likely to encourage a more efficient choice between using 070 and other options (in particular mobile roaming).

1.17 We also anticipate that aligning the 070 termination charge to that of mobile numbers will remove incentives for domestic and international fraud. It should also clear the way for retail telecoms providers to price 070 and mobile calls similarly, which should, in turn, reduce the potential for consumer harm through 'bill shock'. Providers may also start including 070 numbers in inclusive call packages. We will encourage retail communications providers to consider these options as soon as possible after implementation of the new regulation.

1.18 We understand that, as a result of the regulation, some 070 providers currently providing the type of service originally intended on the range (such as those offering services for classified advertising) may decide to move to a different number range, and therefore face transition costs. However, organisations have already moved away from the use of 070 without major disruption to their business model, and we consider that the level of

[3] This updated figure reflects changes to the number of 070 providers providing services in this market since the December 2017 Consultation.

consumer harm from this range in its current form justifies such costs, which we anticipate will mostly be limited. We have, accordingly, decided that a twelve-month transition period is appropriate.

1.19 We consider that the remedies will promote effective competition and benefit consumers, and that regulation is appropriate in this case.

2. Introduction and regulatory background

Structure of the statement

2.1 This statement consists of four main sections and nine supporting Annexes, which together set out our analysis of, and decisions regarding, the 070 number range:

- section 1 summarises our conclusions;
- in this section, we set out the background to the review including the regulatory framework, the current uses of and the problems on the 070 number range and our approach to the impact assessment and equality impact assessment ("EIA");
- in section 3 we set out our market definition and assessment of market power;
- in section 4 we set out the remedies which we are implementing in order to address the market power identified in section 3; and
- annexes 1 to 9 support the analysis in the main body of the statement and are an integral part of our reasoning.

The Numbering Plan and 070 numbers

2.2 Ofcom is responsible for the administration of the UK's telephone numbers. This is carried out as part of our regulation of the communications sector under the Communications Act 2003 ("the Act").

2.3 Ofcom is required by section 56 of the Act to publish a Numbering Plan, setting out the telephone numbers available for allocation and any restrictions on how they may be adopted or used. The Numbering Plan is available on our website.[4] It divides numbers into Geographic numbers and Non-Geographic numbers, defined as follows:

- "'Geographic Number' means a Public Network Communications Number:
  - that is Adopted or otherwise used for routing calls to the physical location of the Network Termination Point of the Subscriber to whom the Telephone Number has been assigned; and
  - the initial digits of which comprise a Geographic Area Code[5] from Appendix A of the Numbering Plan."
- "'Non-Geographic Number' means any Public Communications Network Number other than a Geographic Number."

2.4 Geographic numbers are to be found on the 01 and 02 number ranges. Non-Geographic numbers are to be found on other ranges.

2.5 The Numbering Plan reserves the 070 number range for Personal Numbers. It defines:

[4] Ofcom, 2018. *The National Telephone Numbering Plan*. https://www.ofcom.org.uk/__data/assets/pdf_file/0013/102613/national-numbering-plan.pdf. ("National Telephone Numbering Plan").

[5] A Public Communications Network Number identified with a particular geographic area.

- Personal Number as "a Non-Geographic Number, from a range of numbers in Part A of the Numbering Plan, assigned to a Subscriber by a Personal Numbering Service Provider and used to provide a Personal Numbering Service."
- Personal Numbering Service as "a service based on number translation that enables an End-User[6] to be called or otherwise contacted at a single Personal Number, and to receive those calls or other communications at almost any Telephone Number, including a Mobile Number."[7]

2.6 In contrast to certain non-geographic number ranges (i.e. 03, 080, 084, 087, and 09[8]), the Numbering Plan does not apply specific tariff principles or maximum prices to the use of 070 numbers. However, with regard to 070 numbers, the Plan notes that "those Adopting Personal Numbers shall not share with any End-User any revenue obtained from providing a Personal Numbering Service."

Oftel's and Ofcom's statements and decisions relating to the 070 number range

2.7 Since the 070 number range was introduced we have been concerned about the potential for misuse on the range and have taken a series of steps to address these concerns. These are set out below.

1997 Oftel Statement on the National Numbering Scheme

2.8 Oftel said it intended to use 07 as the 'find me anywhere' number range, including personal numbering, mobile and paging services.[9] This responded to the problem of numbers with different charging arrangements being spread across the number range.

2.9 Oftel said that restricting these services to a single number range reflected the similarity between the services and the fact that most personal numbering and mobile services had the same charging arrangements.

2.10 Oftel recognised the wish of personal numbering service providers to retain a separate identity. Therefore, 070 was restricted for personal numbering services. Oftel indicated that it might consider removing the reservation of the 070 range for personal numbering services if it became clear that mobile and personal numbering services were intersubstitutable.

[6] An 'end-user' is the individual or organisation that is the designated owner of a number. In the case of 070 numbers, the end-user controls the destination number to which calls are terminated.
[7] National Telephone Numbering Plan, page 7.
[8] We are currently consulting on the application of a maximum tariff cap on 118, the Directory Enquiries number range.
[9] Oftel, 1997. *The National Numbering Scheme: Statement*. http://webarchive.nationalarchives.gov.uk/20080715021746/http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/nnsjan97/numsch97.htm.

Subsequent reviews and statements on personal numbering

1998 Consultation on Personal Numbering Services

2.11 Prompted by a dispute between two communications providers, Oftel decided to undertake an analysis of the market for personal numbering services.[10] Within this review, Oftel also considered personal numbering in relation to mobile services and the issue of pricing in relation to service providers.

2.12 While not deciding to modify regulation related to this range, Oftel noted its perception that there was a general lack of awareness about the tariffs associated with personal numbering services and invited suggestions to address this situation.

2001 Statement on Restoring Trust in Personal Numbering

2.13 This statement followed a consultation in response to an increasing number of complaints related to abuses in the 070 number range. Oftel considered that these issues were undermining consumer and industry confidence in legitimate personal numbering services.[11]

2.14 Oftel noted an increasing number of complaints regarding non-personal numbering activities taking place on the 070 number range. In response to this high level of abuse, Oftel:

- banned revenue sharing on the 070 number range; and
- expressed its support for a Code of Practice for Personal Numbering and indicated its willingness to remove the ban on revenue sharing if such a Code of Practice proved effective in preventing the abuse of personal numbering services.

2007 Statement on Raising Confidence in Telephone Numbers

2.15 This statement presented how Ofcom would implement the strategic decisions concerning the management of telephone numbers.[12]

2.16 With respect to personal numbers, Ofcom amended the Numbering Plan so that calls to personal numbers would be subject to an obligation to include a pre-call announcement stating the maximum price paid to call personal numbers by customers of the retail telecoms provider on whose network the call was being originated. This obligation was put

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[10] Oftel, 1998. *Consultation on Personal Numbering Services*. http://webarchive.nationalarchives.gov.uk/20080715022429/http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/fair_trading/pnum398.htm.

[11] Oftel, 2001. *Restoring trust in Personal Numbering: A Statement issued by the Director General of Telecommunications on Proposals to Stop Abuse of the 070 Range*. http://webarchive.nationalarchives.gov.uk/20080715053137/http://www.ofcom.org.uk/static/archive/oftel/publications/numbering/pers1001.htm.

[12] Ofcom, 2007. *Statement on Raising Confidence in Telephone Numbers: Amending General Condition 17*. http://stakeholders.ofcom.org.uk/binaries/consultations/numbering03/statement/gc17statement.pdf.

in place for all calls to personal numbers that exceeded 20 pence per minute ("ppm") or 20p per call.

2007 Removal of the Requirement for Pre-call Announcements on 070 Numbers

2.17 The pre-call announcement obligation was withdrawn for 070 services in December 2007, following complaints that use of the pre-call announcement had caused automated calling services to fail because of the dialling delay. It was considered that the failure of hospital and burglar alarms endangered the life and security of people who depend on the reliability of such services.[13]

2009 Review of the 070 Personal Numbering Range

2.18 In this statement (the "2009 070 Statement"), Ofcom responded to continuing concerns about the 070 number range.[14] These concerns included a relatively high level of complaints on the 070 number range in comparison to call volumes. They also included the fact that scamming activity was continuing on the range, although we noted that levels of such activity were no longer sufficiently high to consider closing the number range.

2.19 However, we did note that the number of complaints about 070 numbers had fallen since the statement on safeguarding the future of numbers in 2006.[15] We attributed this to PhonepayPlus (now the Phone-paid Services Authority ("PSA")) starting to take enforcement action in this area.

2.20 It was not clear to us that current consumer detriment would be significantly reduced by migration of personal numbering services to another range. We considered that confusion and scamming activity would persist on any new range to which personal numbering services migrated because, by itself, migration would not have addressed the price transparency issues or incentives for misuse. Given this, we also noted that an assessment of the costs associated with migration indicated that these would heavily outweigh any benefits from reduced consumer detriment.

2.21 We decided to impose a number of other measures that we considered more appropriate:

- to support and monitor PhonepayPlus' monitoring programme;
- to require retail communications providers ("CPs") to publish the cost of calls to 070 numbers more prominently and make them easier to understand; and
- to provide new guidance to ensure personal numbering service providers carried out due diligence of sub-allocatees to ensure that the latter complied with General Condition 17 and the Numbering Plan.

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[13] Ofcom, 2007. *Removal of the Requirement for Pre-call Announcements on 070 Numbers.* http://webarchive.nationalarchives.gov.uk/20160704070444/http:/stakeholders.ofcom.org.uk/consultations/numbering03/070precall/.

[14] Ofcom, 2009. *Statement on the Review of the 070 Personal Numbering Range.* http://stakeholders.ofcom.org.uk/binaries/consultations/070options/statement/statement.pdf.

[15] Ofcom, 2006. *Statement on Telephone Numbering: Safeguarding the Future of Numbers.* http://stakeholders.ofcom.org.uk/binaries/consultations/numberingreview/statement/statement.pdf.

2009 Guidance on the Acceptable Use of 070 Numbers

2.22 In 2009, we published revised *Guidance on the Acceptable Use of 070 Numbers*.[16] In addition to follow-me services, the Guidance gave three further examples of acceptable uses for 070 numbers:

- 070 numbers allocated to users of online forums who want to talk to new acquaintances without divulging their real phone numbers;
- 070 numbers allocated solely for the purpose of selling, for example a number given in a classified advertisement; and
- 070 numbers allocated to hospital patients so that they can have their own number for the duration of their stay.

2.23 Our Guidance specifies the due diligence process that we expect 070 allocatees to follow before sub-allocating 070 numbers. It also specifies the criteria that Ofcom will use to assess whether a use of a 070 number falls within the definition of Personal Numbering Service in the Numbering Plan. These are:

- the Personal Numbering Service benefits the person being called;
- the end-user must be in charge of the destination number;
- promotional material must reflect the key characteristics of a Personal Numbering service; and
- the use of 070 numbers for administration of individuals' Personal Numbers may not constitute a Personal Numbering Service in itself.

2013 Statement on Simplifying Non-Geographic Numbers

2.24 The 2013 *Statement on Simplifying Non-Geographic Numbers* ("2013 NGS Statement") was a response to evidence that suggested that, due to the way the market was functioning, when it came to non-geographic numbers, consumers in general had poor awareness of prices and were deterred from using non-geographic numbers, and that availability of these numbers was undermined. Since our analysis indicated that the market was not working well for consumers or those being called, we considered it necessary to intervene.[17]

2.25 However, when it came to personal numbers, in this statement we said that, following responses to our 2010 consultation on non-geographic numbers, we were of the view that the issues relating to the 'non-standard' (070 and 076) number range were substantially different from those relating to those of other non-geographic numbers. This was because of the confusion of 070 numbers with standard mobile numbers ("07x") as well as the occurrence of fraud on the range.

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[16] Ofcom, 2009. *Personal Numbering – Guidance on the Acceptable Use of 070 Numbers*. http://stakeholders.ofcom.org.uk/telecoms/numbering/guidance-tele-no/070-guidance.

[17] Ofcom, 2013. *Simplifying Non-Geographic Numbers: Final Statement on the Unbundled Tariff and Making the 080 and 116 Ranges Free-To-Caller*. http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-no/statement/final-statement.pdf.

2.26 We said that issues arising with regard to 070 numbers required a different regulatory response than other non-geographic ranges, and signalled our intention to treat 070 numbers separately and to consult in due course.

2017 Call Cost Review

2.27 On 12 May 2017, we announced the launch of a *Call Cost Review*.[18] The review is examining the cost of calling 118 and 070 numbers, to ensure that consumers are protected from high prices and unfair practices in relation to the use of those numbers. We are considering whether consumer harm is arising and, if so, whether this is as a result of deliberate misconduct or market failure, and what action may be appropriate.

2.28 With respect to 070 numbers, we stated that the review would, in particular, take account of our concerns about the cost of calling 070 numbers and the frequent misuse of the number range.

The December 2017 Consultation

2.29 In December 2017, we published our proposals for the regulation of the market for wholesale call termination services for voice calls to 070 numbers (the "December 2017 Consultation").[19] We proposed to identify 126 separate markets, each corresponding to a communications provider able to set the termination rate for calls to 070 numbers allocated to it by Ofcom ("070 provider"). We proposed to designate each 070 provider holding a 070 number range(s) as having significant market power ("SMP") with respect to the (wholesale) market for terminating voice calls to 070 numbers.

2.30 We proposed that all 126 070 providers designated with SMP should be subject to a charge control on the termination rate applied to calls to 070 numbers. We proposed that the termination rate should be benchmarked against the Mobile Call Termination ("MCT") Rate ("MTR").[20]

Stakeholder responses to our December 2017 Consultation

2.31 We received 20 responses to our December 2017 Consultation. All non-confidential responses are published on the Ofcom website.[21] We have considered points made by stakeholders in their responses and summaries and addressed them in the relevant sections of this statement.

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[18] Ofcom, 2017. *Telephone Review to Ensure Value for Callers*. https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2017/telephone-review-value-callers.

[19] Ofcom, 2017. *Personal Numbering: Review of the 070 Number Range*. https://www.ofcom.org.uk/__data/assets/pdf_file/0020/108245/consultation-070-number-range.pdf.

[20] Ofcom, 2018. *Final Statement on Mobile Call Termination Market Review 2018-2021.* https://www.ofcom.org.uk/__data/assets/pdf_file/0021/112458/Final-Statement-Mobile-Call-Termination-Market-Review-2018-2021.pdf. ("MCT 2018 Statement").

[21] Stakeholder responses to the December 2017 Consultation are available at: https://www.ofcom.org.uk/consultations-and-statements/category-1/review-070-number-range.

Amendments to our proposed list of 070 providers designated with SMP

2.32 Following the December 2017 Consultation, we have updated our list of the 070 providers which we intend to designate with SMP.

2.33 We intend to include the following additional 070 providers on the list of providers designated with SMP, each of whom also hold 070 numbers:

- Barritel Limited;
- Cloud9 Communications Limited; and
- Yim Siam Telecom.

2.34 We propose to amend the company names of the following 070 providers to reflect Companies House records:

- Sala Limited will now be listed as Sala Trading Limited;
- Level3 Communications Limited will now be listed as CenturyLink Communications UK Limited;
- Coretx Communications Limited will now be listed as Ide Group Voice Limited.

2.35 Following liquidation, the following companies have been removed from the list of 070 providers to be designated with SMP:

- Teledesign Limited; and
- TeleMagic Limited.

2.36 The complete list of 070 providers designated with SMP is set out in Schedule 1 of Annex 3 of this statement.[22]

Draft statement on Personal numbering – Review of the 070 number range

2.37 On 15 August 2018, we notified our intended measures with respect to the 070 number range and an explanatory draft statement to the European Commission ("EC"), BEREC and other National Regulatory Authorities. We published our draft statement on the Ofcom website.[23] On 23 August 2018, the EC requested further information regarding the notified draft statement, which we provided on 3 September 2018.

2.38 In its decision letter of 14 September 2018, the EC stated that it had examined the notification and had no comments.[24]

[22] There have been no amendments to this list since the publication of the draft statement on 15 August 2018 (See footnote 23).

[23] Ofcom, 2018. *Draft statement on Personal numbering – Review of the 070 number range*. https://www.ofcom.org.uk/__data/assets/pdf_file/0024/118464/Draft-statement-Review-of-the-070-number-range.pdf.

[24] European Commission, 2018. Commission Decision concerning Case UK/2018/2106: Market for wholesale voice call termination to telephone numbers starting with the prefix '070' in the United Kingdom. https://circabc.europa.eu/d/d/workspace/SpacesStore/f8798d47-414f-4acc-93c5-31f1b4abc032/UK-2018-2106%20Adopted_EN_Redacted.pdf.

Evidence-gathering for this review

2.39 We have based our analysis on evidence gathered during this review and note throughout the statement the sources upon which we have relied. This evidence includes information gathered using our statutory powers. We have issued notices under section 135 of the Act ("Notices") requiring various stakeholders to provide specified information as set out in the Notices. These included:

- Notices of 6 July 2017 sent to two originating providers regarding 070 traffic volume and costs ("OCP Notices").
- Notices of 10 July 2017 sent to six 070 providers to determine how the allocated 070 number range is used by the 070 providers. This included information regarding the types of 070 services offered, details of the functionality of the 070 networks, the costs of terminating calls to 070 numbers and the 070 termination charges to originating communications providers ("July 2017 Notices").
- Notice of 7 September 2017 and a further Notice of 15 May 2018 sent to BT regarding the artificial inflation of traffic ("AIT Notices").
- Notices of 15, 18 and 20 September 2017 sent to nine 070 providers to determine how the allocated 070 number range is used by the 070 providers, on the same basis as the 10 July 2017 Notices ("September 2017 Notices").[25]

2.40 The following Notices were sent further to stakeholder comments received in response to the December 2017 Consultation:

- Notices of 4 May 2018 sent to seven 070 providers relating to how the proposals set out in the December 2017 Consultation would affect the recovery of the costs for the provision of 070 services and the implementation costs that would be incurred to bill end-users of 070 numbers ("4 May Notices"). We also asked some CPs follow-up questions about the costs they incur to administer 070 numbers as part of this Notice.
- Notices of 9 May 2018 sent to three 070 providers and one association regarding the length of the proposed implementation period ("9 May Notices"). We also asked three further providers for information relating the proposed implementation period, in the 4 May Notices.[26]
- Notices of 15 May 2018 sent to fourteen 070 providers which included questions about whether they provide any other services that require billing of end-users customers and the number of 070 end-users ("15 May Notices").

2.41 We have also relied on evidence received from the National Fraud Intelligence Bureau, the Serious Organised Crime Agency, the PSA and information from academic reports, as well as our own internal complaints data (see Annex 7, Evidence of Concerns for more information).

[25] We note that one communications provider did not provide a response to the September 2017 Notices.
[26] [✂].

Impact assessment

2.42 Impact assessments 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. This is reflected in section 7 of the Act, which means that generally we have to carry out an impact assessment where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy we are committed to carrying out impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines *Better Policy-Making: Ofcom's Approach to Impact Assessment*, available on our website.[27]

2.43 Our December 2017 Consultation comprised an impact assessment, as defined in section 7 of the Act, of our proposed course of action. In reaching a final decision, we have taken account of the responses to the December 2017 Consultation, and considered the impact of our final position as set out in this statement.

Equality impact assessment

2.44 Annex 1 sets out our EIA for this market review. Ofcom is required by statute to assess the potential impact of all our functions, policies, projects and practices on the following equality groups: age, disability, gender, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation. EIAs also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity.

2.45 For the reasons explained in Annex 1, we do not expect any of the equality groups to be negatively affected by our proposals to a material extent. We have not carried out separate EIAs in relation to the additional equality groups in Norther Ireland: religious belief, political opinion and dependents. This is because we anticipate that our proposals will not have a differential impact in Northern Ireland compared to consumers in general.

[27] Ofcom, 2005. *Better Policy Making: Ofcom's Approach to Impact Assessment.* https://www.ofcom.org.uk/__data/assets/pdf_file/0026/57194/better_policy_making.pdf.

3. Market definition and SMP assessment

Introduction and summary

3.1 In this section we set out our assessment of market definition and SMP in relation to the provision of wholesale call termination services for voice calls to 070 numbers ("070 WCT").

3.2 In the December 2017 Consultation we proposed to define the following markets:

"wholesale termination services that are provided by [named terminating communications provider] (TCP) to another communications provider, for the termination of voice calls to 070 numbers within the range which has been allocated to that TCP by Ofcom, for which that TCP is able to set the termination rate."

3.3 BT, [✂], Franzcom, Lexgreen, [✂], Individual 1 [✂], Individual 2 [✂] and Telecom2 either agreed with our market definition or said that it did not raise concerns for them. We received no further substantive comments and have adopted the market definition set out above.[28]

3.4 We proposed in the December 2017 Consultation that each 070 provider has SMP within the relevant 070 WCT market applicable to that CP. The relevant market involves the provision of wholesale call termination for voice calls to 070 numbers within the range allocated to each 070 provider.

3.5 We discuss stakeholder comments on our SMP assessment at paragraphs 3.85 to 3.96 and 3.105 to 3.108. Having considered these comments, we have decided to confirm our December 2017 Consultation proposals. Annex 6 lists the CPs we have determined as having SMP in the provision of 070 WCT within the number ranges allocated to them by Ofcom. We set out the remedies to address competition concerns stemming from SMP in the provision of 070 WCT in section 4.

3.6 In this section we first discuss the regulatory background, including the legal framework and our analytical approach to market definition. Then we set out our reasoning (as outlined in the December 2017 Consultation) in relation to:

- market definition;
- assessment of SMP; and
- application of the three-criteria test.

3.7 Where appropriate we discuss stakeholder comments to our December 2017 Consultation proposals and set out our response and conclusions.

[28] Netcollex stated that it could not see why we defined the market this way but provided no further comment.

Regulatory and analytical framework

3.8 This sub-section:

- summarises the relevant legal framework, including the relevant European Commission ("EC") Guidelines and Recommendations of which we must take account;
- considers the three-criteria test for applying *ex ante* regulation to markets that are not included in the list of markets susceptible to *ex ante* regulation in the 2014 EC Recommendation on the relevant markets;[29] and
- in light of the legal framework, outlines the basic principles of our overall approach to market definition.

3.9 The legal framework requires that, before making a market power determination, we must identify the markets that, in our opinion, are appropriate in the circumstances applying to the UK. Ofcom must undertake market definitions in accordance with competition law principles[30] and must take "utmost account" of the 2014 EC Recommendation and the SMP Guidelines.[31]

3.10 The EC's Framework requires that we conduct our assessment using a 'modified Greenfield approach.'[32] This involves assessing market power in the relevant market in a hypothetical scenario in which there is an absence of any current or potential regulation in each of the markets being assessed and the markets downstream of it that depend, or would depend, on a finding of SMP in that market. However, we still take into account any regulation which is independent of an SMP finding in the market concerned and any regulation that will continue to exist throughout the five-year period assessed in this review.

3.11 The analysis also needs to be forward-looking. Therefore, we evaluate the expected and foreseeable technological and economic developments likely to affect the candidate market(s). Where relevant, we have regard to the revised working paper on SMP published by the European Regulators Group (now: BEREC) in 2005 (the "ERG SMP Position").[33] In the

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[29] European Commission (EC) Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex-ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (2014/710/EU), which replaces the corresponding Commission Recommendation of 17 December 2007 (2007/879/EC) ("2014 EC Recommendation"). http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014H0710.

[30] Section 79(1) of the Act; Article 15(3) of Directive 2002/21/EC of the European Parliament and of the council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive"). https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32002L0021.

[31] European Commission Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services (2018/C 159/01). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.159.01.0001.01.ENG&toc=OJ:C:2018:159:TOC, together with the Commission Staff Working Document accompanying these Guidelines. https://ec.europa.eu/digital-single-market/en/news/staff-working-document-guidelines-market-analysis-and-assessment-smp-under-eu-regulatory (the "SMP Guidelines").

[32] See section 2.5 of the *Explanatory Note to the 2014 EC Recommendation*. https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets and paragraph 17 of the SMP Guidelines.

[33] European Regulators Group, 2005. *Revised working paper on the SMP concept for the new regulatory framework*. http://berec.europa.eu/doc/publications/public_hearing_concept_smp/erg_03_09rev3_smp_common_concept.pdf.

relevant sub-sections below we set out how we have taken the ERG SMP Position into account in reaching our conclusions.

The three-criteria test

3.12 The 2014 EC Recommendation identifies those service markets which, at the European level, the European Commission has identified as being susceptible to *ex ante* regulation. These markets are identified on the basis of the cumulative application of the following three criteria (the 'three-criteria test'):

- the presence of high and non-transitory structural, legal or regulatory barriers to entry;
- a market structure which does not tend towards effective competition within the relevant time horizon, having regard to the state of infrastructure-based and other competition behind the barriers to entry; and
- competition law alone is insufficient to adequately address the identified market failure(s).

3.13 The 070 WCT market is not a market specifically listed by the European Commission in the 2014 EC Recommendation. However, the Recommendation recognises that there may be other markets, aside from those specifically identified, in which it is appropriate to impose *ex ante* regulatory obligations according to national circumstances.[34] The 2014 EC Recommendation states:

> "National regulatory authorities may identify other markets than those listed in this Recommendation and apply the three-criteria test."[35]

3.14 We present the assessment that underlies our view that 070 WCT markets meet the requirements of the three-criteria test at the end of this section (see paragraphs 3.98 to 3.109).

3.15 In the UK context, Ofcom has identified 070 WCT markets as warranting *ex ante* regulation. We have based our analysis on projections over a five-year period, taking account of anticipated longer-term developments of relevance to the provision of 070 WCT (and of downstream retail 070 services).

Our approach to market definition

3.16 There are two main aspects of market definition: 'product' and 'geographic.' In describing our approach to market definition, we focus on product market definition as this is where the key issues in relation to market definition in this review arise.

3.17 Product market definition begins with consideration of the narrowest relevant identifiable set of products, termed the candidate market. We then consider whether a price rise of 5-10% above the competitive level undertaken by a hypothetical monopolist of this

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[34] See Recital 5 of the 2014 EC Recommendation.
[35] See Recital 21 of the 2014 EC Recommendation.

candidate market would be profitable. This is known as the 'Small but Significant Non-Transitory Increase in Price' ("SSNIP") test.

3.18 There are two sources of competitive constraint that could render a SSNIP unprofitable:

- **demand-side substitution** where consumers switch to other products in response to the SSNIP or;
- **supply-side substitution** where suppliers of other products respond to the SSNIP by starting to provide products in competition with those in the candidate market.

3.19 If either form of substitution would render a SSNIP unprofitable, then the relevant market is likely wider than the initial candidate market. The test is then repeated including the next best substitute product in the new candidate market and a SSNIP is applied to this new market. If the SSNIP is found to be profitable, the set of products defining that candidate market then becomes the relevant product market.

3.20 While it is often difficult to directly apply a SSNIP in practice, we consider that the SSNIP test provides a useful conceptual framework. Hence, we have used this framework as our guiding conceptual approach to define the product market.

3.21 In many cases, the set of products defined at the end of the SSNIP test constitutes the relevant product market. However, in some cases it may be appropriate to aggregate several sets of products defined by the SSNIP test because they are subject to similar competitive conditions or a common pricing constraint. Due to these factors it is common, when reviewing termination markets, to define termination of calls to all numbers for which a terminating provider is able to set the termination rate, and which are in the ranges covered by the review, as a single market.

3.22 The 2014 EC Recommendation identifies the starting point for the overall assessment of wholesale product markets to be the definition of the relevant retail markets.[36] This is because wholesale demand is derived from demand for retail services.

3.23 It is also necessary to define the geographic dimension of a market. In principle, geographic markets can also be defined using a SSNIP test to assess whether buyers of a service in one location would respond to a SSNIP in that location by switching their purchases to another location where prices had not gone up. However, as users of telecoms services are generally unlikely to change their location in response to a SSNIP, a SSNIP test will often produce impractically small geographic markets. Hence, consistent with the BEREC Common Position, distinct geographic areas may be included in the same relevant market if competitive conditions in these areas are sufficiently similar, for example because prices are uniform across the areas concerned.[37]

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[36] See Recital 7 of the 2014 EC Recommendation.

[37] BEREC, 2014. *Common Position on Geographical Aspects of Market Analysis (Definition and Remedies)*. https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/common_approaches_positions/4439-berec-common-position-on-geographic-aspects-of-market-analysis-definition-and-remedies.

Starting point for market definition

3.24 Market definition is a means to an end – we seek to address the competition concerns that we identify (by means of imposing remedies), and market definition is an exercise intended to support this objective. As such, the market definition in any particular case depends on the issues at hand and should take account of the concerns that we seek to address.

3.25 Our key concerns in relation to 070 markets are set out at paragraphs 1.5 to 1.7 (and discussed in more detail at paragraphs 4.9 to 4.29). We consider that these concerns are caused by high wholesale call termination rates for 070 calls which lead to: inefficient choices (because end-users do not face the true costs of using 070 numbers); misuse of the number range (due to fraud and scams); and ultimately to high retail prices and bill shock, as well as CPs being discouraged from including 070 calls as part of call packages. As our concerns relate predominantly to the wholesale level, our focus in this review is to assess whether it is appropriate to impose remedies at this level.[38]

3.26 As we recognise that wholesale demand is derived from retail demand (and in line with the 2014 EC Recommendation), we begin by considering whether substitution by retail customers provides an indirect constraint on wholesale charges. Thereafter, we consider any direct constraints reflecting substitution at the wholesale level. The candidate market for this purpose may be thought of as wholesale call termination services for the termination of voice calls to an individual 070 number.

Retail services (indirect constraints)

3.27 We assess the potential for demand-side substitution by considering whether a hypothetical monopolist supplier of voice calls to 070 numbers could impose a SSNIP on 070 WCT charges above the competitive level without losing sales to such a degree as to make this price rise unprofitable. For the purposes of this analysis, we assume that the SSNIP at the wholesale level is passed on to the retail level.[39]

3.28 Consumers' sensitivity to 070 call charges depends on their ability to understand the number range and associated charges, as well as their ability to detect increases in the call charges. Below, we consider evidence related to:

- consumers' awareness of 070 call charges; and
- consumers' ability to distinguish between 070 and 07x mobile numbers.

3.29 We also discuss:

- potential retail substitutes; and
- constraints arising from end-users' ability to respond to a wholesale SSNIP.

[38] As explained in section 4, we expect reductions in 070 TRs to be passed on in the 070 call charges that retail telecoms providers set.

[39] A necessary condition for the SSNIP to be unprofitable is that at least some of the SSNIP be passed on to retail callers, who may then switch away. Full pass-through is a conservative assumption in the sense that, as it tends to widen the scope of the market, a finding that a narrow market definition is appropriate even with full pass through is robust.

Consumers' awareness of 070 call charges

3.30 Survey evidence suggests that consumers have low awareness of 070 call charges and may expect them to be similar to those for calls to 07x mobile numbers (which consumers know to be low or to be part of their bundle). Awareness of charges is a necessary condition for a demand-side response to a SSNIP. If consumers believe they are calling a mobile number instead of a 070 number, this may make them less likely to respond to a SSNIP on the price of 070 call charges.

3.31 Following our 2012 consultation on Simplifying Non-Geographic Numbers ("2012 NGS Consultation")[40] we collected evidence which suggests that consumers have low awareness of the charges that calls to 070 numbers attract[41]:

- In 2012, only 21% of adults with telephones were aware of 070 numbers.
- Of this 21%, 59% thought that 070 numbers were in the mobile telephone range.
- Overall, only 1% of people with telephones were directly aware of and correctly understood the nature of the 070 number range.[42]
- When asked to estimate the price of calls to 070 numbers, most consumers said they did not know the price (around six in ten of all people with a telephone and just under four in ten of those who said they were aware of 070/07 numbers).[43]
- Eighteen per cent of telephone users thought that the cost of calling 070 and mobile numbers was the same and a further 4% thought that calling 070 numbers would be less expensive.[44]

3.32 As part of the 2014 consultation in relation to the 2015-2018 review of the MCT market ("MCT 2015-2018 Review"), we also collected evidence which suggests that consumers have low awareness of the charges that calls to 070 numbers attract. Kantar Media surveyed consumers' awareness of call charge differentials across the 07x number range and asked questions aimed at testing consumers' awareness of (potential) differences between 070 and other 07x number call charges[45]:

- only 42% of respondents thought that not all 07x calls cost the same; 37% thought that all 07x calls cost the same; and 22% did not know[46]; and

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[40] Ofcom, 2012. *Consultation on simplifying non-geographic numbers, detailed proposals on the unbundled tariff and Freephone*. https://www.ofcom.org.uk/__data/assets/pdf_file/0017/63440/parta.pdf.
[41] We have not seen any evidence to suggest that the findings of our 2012 survey are no longer valid. In particular, no measures have been taken since 2012 which would increase awareness of charges for calls to 070 numbers.
[42] Ofcom, 2012. *Non-Geographic Telephone Numbers Omnibus Survey*, page 10 ("Omnibus Survey 2012"). https://www.ofcom.org.uk/__data/assets/pdf_file/0026/44891/omnibus-survey2012.pdf.
[43] Omnibus Survey 2012, page 13.
[44] Omnibus Survey 2012, page 14.
[45] Kantar Media (on behalf of Ofcom), 2014. *Mobile Call Termination Omnibus*, Annex 18 of MCT 2015-2018 Review. http://stakeholders.ofcom.org.uk/binaries/consultations/mobile-call-termination-14/annexes/Annex_18_Consumer_survey.pdf.
[46] Q15A (When making calls to numbers starting with 07 and followed by other digits, do you think that all calls will cost the same?) and Q15B (Which of the following types of calls do you think have different rates?).

- of the 42% of respondents that thought that not all 07x calls cost the same, only 30% (13% of total) thought that 070 call charges differ from charges for calls to other 07x services.[47]

3.33 This survey evidence suggests that most consumers are not aware of the differentials in call charges between 070 and 07x mobile numbers (despite the fact that 070 has been operating alongside 07x for around 20 years). Consumers' greater familiarity with 07x mobile numbers also makes it likely that they regard charges for calls to 070 numbers as similar to those for calls to mobile 07x numbers. This suggests that consumers may expect calls to 070 numbers to be included in their mobile bundles (like mobile calls) or that the charges would involve very low rates.

3.34 While in principle consumers may learn about 070 call charges over time (as a result of incurring higher than expected charges for calls to 070 numbers), the infrequent nature of calls to 070 numbers means that in practice most callers will have no (or only limited) opportunity to do so. Moreover, even when making calls to 070 numbers, consumers would only learn about the charges that such calls attract when reviewing their (monthly) bills on a by-item basis (which many consumers do not do).

Implications for consumers' sensitivity to 070 call charges

3.35 The above evidence on consumers' limited ability to distinguish 070 numbers from 07x mobile numbers, and their low awareness of 070 call charges, suggests that the large majority of (potential) callers to 070 numbers are unlikely to be sensitive to changes in 070 call charges. Consumers' limited price sensitivity has significant implications for our assessment of the constraint that substitution at the retail-level (involving callers using alternatives to 070 calls) exerts on 070 WCT. Our assessment below takes this into account.

Consumers' ability to respond to increased 070 call charges

3.36 Under the UK's Calling Party Pays ("CPP") arrangement, retail telecoms providers bear the charges for terminating 070 calls (which they can recover through their retail call charges). In the context of 070 WCT, this means that indirect constraints are likely to be ineffective as those calling the numbers are unlikely to have the ability to respond to a wholesale SSNIP (even when there is full pass-through of increases in 070 WCT charges to the retail level). This is because:

- a caller who wants to speak to a particular person will not find a call to a different individual a close substitute;
- the CPP arrangement means that, while callers pay for termination of 070 calls, end-users select the terminating provider that controls the termination charge; and
- as we explain below, potential alternative means of contact are also not close substitutes for a 070 voice call.

[47] Q15B (Which of the following types of calls do you think have different rates?).

Potential retail substitutes

3.37 We now consider four potential retail substitutes to 070 calls:

- direct calls to end-users on numbers in a range other than 070 (for example mobile or geographic numbers);
- calls using over-the-top ("OTT") services;
- text-based services; and
- call-back arrangements.

Direct calls to end-users on numbers in a range other than 070

3.38 Callers have, in principle, an alternative means to contact an end-user: they can call the number to which the 070 call is forwarded. This may be a UK geographic or mobile number, or alternatively an international fixed or mobile number. However, this alternative will only be usable if the caller knows the number to which the 070 call is forwarded (i.e. the alternative number). In most cases, the caller is likely to know only the 070 number because end-users take the 070 number in order to avoid providing the underlying number.[48]

Calls using OTT services

3.39 Another potential substitute for 070 calls may be the use of OTT voice call services such as Skype, FaceTime, WhatsApp or Viber. These services can be accessed from any location, for example by a smartphone using mobile broadband, they (like 070 calls) support voice calls and they allow callers to contact end-users without the latter being tied to a particular phone or SIM.

3.40 The use of OTT (voice call) services has expanded materially over recent years,[49] in part supported by the growing ownership of smartphones which provide access to use such services.[50] These developments suggest that there could be an increasing potential for OTT services to be used for voice calls, and this may make such services an increasingly practical alternative to 070 calls.

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[48] This may be for a number of reasons, for example, to avoid roaming charges, to benefit from the 'follow-me' functionality (which we note is the key use of 070 services) or to preserve the confidentiality of their alternative number.
[49] Data from several providers of unmanaged Voice over Internet Protocol ("VoIP") show those volumes growing at an annualised rate of 40% per year. Ofcom, 2017. *Narrowband Market Review: Statement,* page 79. https://www.ofcom.org.uk/__data/assets/pdf_file/0020/108353/final-statement-narrowband-market-review.pdf ("Narrowband Market Review 2017").
[50] Ownership of smartphones increased from 66% of adults in 2015 to 78% of adults in 2018 (Ofcom, 2018. *Communications Market Report*, Figure 5.1. https://www.ofcom.org.uk/__data/assets/pdf_file/0022/117256/CMR-2018-narrative-report.pdf). Figure 5.1 also shows that 48% of internet users in 2018 regard their smartphone as the most important device for going online (an increase from 33% in 2015).

3.41 However, we do not consider OTT services will be a sufficiently close substitute for 070 voice calls to act as a competitive constraint on 070 WCT charges over the next five years because[51]:

- Not all end-users will be able to access these services. They may not have the required device (tablet or smartphone) and/or the broadband connection needed may be unavailable, costly or insufficiently stable.
- The caller and end-user need to exchange contact details and this may require an initial call to the 070 number in any case.
- OTT services do not provide all the functionality of 070. For example, end-users of 070 numbers do not need to reveal their personal fixed/mobile numbers which can be used to preserve anonymity. OTT services require the users to exchange their personal telephone number or email address.
- Not all OTT services are compatible with each other. A caller and end-user may find they use incompatible OTT services.
- When relying on mobile broadband, both caller and end-user need to be willing to use data from their data allowance or to pay extra for data for an OTT call.[52]
- As noted above, awareness of 070 call prices is low.
- A SSNIP on the 070 WCT charge above the competitive level, even if passed on in full, would be a very small proportion of the price of a retail 070 call or retail service bundle.[53]

Text-based services

3.42 Non-voice forms of communication (for example, instant messaging, email or social media), that are widely used by UK consumers may, in some cases, offer an alternative to voice calls to 070 numbers. When a broadband connection is available, these forms of communication can be used at no or very low costs to the caller and end-user. We refer to these forms of communication as text-based services to distinguish them from voice calls using OTT services above.

3.43 However, we do not consider text-based services to be a sufficiently close substitute for voice calls to 070 numbers to act as a competitive constraint on 070 WCT charges because:

- these services provide a qualitatively different type of communication: communication is often not in real-time; callers and end-users may not be able to check that the message was received in the same way as they can with a voice call; and people tend to

[51] Similarly, we have concluded that OTT services are not a sufficiently close substitute for calls to UK mobiles to constrain mobile call termination charges (MCT 2018 Statement, paragraphs 3.31 to 3.62).
[52] By extension, this also means that 070 end-users may prefer to avoid data charges or the use of OTT voice call services eating into their data allowance.
[53] An analogous point applies to charges for mobile call termination (MCT 2018 Statement, paragraphs 3.25 to 3.26 and 3.41). Note that the SSNIP test concerns the ability of a hypothetical monopolist to raise prices *above the competitive level.* This is usually interpreted for these purposes as a price sufficient to cover costs including the required rate of return. We consider that both 070 retail call prices and termination charges are currently very significantly above this level and so are not an appropriate basis for the SSNIP test.

perceive benefits to a conversation that are not available from text-based services (such as flow of conversation and establishing rapport and interaction);

- the end-user may be unwilling to provide an alternative number to text, for example, where confidentiality is required; and
- these services may not be available where the caller and end-user belong to different 'closed user groups' (for example use different instant message applications or social media platforms).

3.44 As patterns of communication change and smartphone ownership grows, text-based services may become available to a wider set of consumers. However, this does not mean that switching from 070 voice calls to text-based communication in response to a change in relative prices (which is relevant for assessing substitution in the context of market definition), will necessarily become significant. For the reasons explained above, we consider that text-based services are unlikely to exert a material constraint on 070 voice calls over the next five years.

Call-back arrangements

3.45 A further potential substitute could involve short calls to the end-user's 070 number for caller and end-user to agree on and exchange details needed for another method of communication followed by the end-user initiating a new call using that new method (i.e. call-back arrangements).[54] This requires a degree of co-ordination between the caller and end-user and would typically require an initial call to the 070 number to be made.

3.46 We note that call back has been an option since the outset of 070 numbers. We consider it is most likely to be used where the caller is a friend or family member, and the end-user may call back in order to limit the caller's costs.

3.47 We have not seen any evidence that call back is currently used on a large scale or will increase going forward. Evidence gathered for the MCT 2015-2018 Review suggests that call-back arrangements are not widely used as a substitute for calls to mobile numbers.[55] In a similar vein, we would not expect call-back arrangements to be used on a material scale as an alternative to 070 calls, nor would a small increase in the charges for calls to 070 numbers (above the competitive level) be likely to lead to materially greater use of such arrangements.

[54] Alternatively, caller and end-user could agree on the caller initiating a new call to a mobile or fixed number held by the end-user. This option is discussed as part of the alternative of calling the number to which 070 calls are routed (see above).

[55] MCT 2015-2018 Review, Annex 18. Kantar Media's survey explored whether respondents ever used their mobile phone to call someone back to save the caller money. 38% of respondents stated that they had done this, whereas 62% had never done so (Q21). Whilst ad hoc call-back arrangements may be significant for some users, they are not widespread across all users and they are likely most prevalent where the caller is a family member or close friend of the end-user.

Response of end-users to a wholesale SSNIP

3.48 It is also relevant to consider whether end-users may have incentives to respond to a wholesale SSNIP on 070 WCT charges in a way that could render that SSNIP unprofitable.[56] However, because the 070 WCT charge is borne by callers, a material response by end-users is unlikely unless they are concerned about the charges that callers incur when calling 070 numbers or about the implications of such charges (for example a reduction in the volumes of calls to their 070 numbers).[57] If end-users are not (materially) concerned about charges incurred by callers, they will not have incentives to respond to an increase in 070 call charges passed through from a wholesale SSNIP.

3.49 We recognise that end-users' incentives to respond to a SSNIP may depend on the particular use they make of 070 services:

- **For follow-me services**, incentives are likely to be very low as, in many cases, end-users take up such services to avoid incurring costs to themselves such as roaming charges and thus accept that callers will bear the costs of calls.
- **For short-term uses** where the end-user does not want to disclose his or her own (mobile or fixed) number (for example sales platform, dating site), use of a 070 number suggests a strong desire for confidentiality and hence suggests that users are unlikely to respond sufficiently to a SSNIP on the 070 WCT charge to render the SSNIP unprofitable. However, end-users may wish to receive as many calls as possible in order to maximise the chances of selling an advertised item on a sales platform, or the number of contacts on dating sites. In these circumstances end-users may oppose a rise in call charges if they anticipate that higher charges would lead to a decline in the number of calls they receive on their 070 number.[58] The evidence discussed above, however, suggests that most callers are not price sensitive, not least because they have limited ability to distinguish 070 numbers from 07x mobile numbers and limited awareness of 070 call charges. To the extent that end-users anticipate callers to be insensitive to prices, they are unlikely to materially respond to a wholesale SSNIP as they do not expect higher call charges to lead to them receiving fewer calls. For this reason, we focus on callers' response to a SSNIP.
- **For hospital bedside telephony** (offered by Hospedia and Premier Telesolutions[59]) end-users are more likely to care about the charges that callers, often family member or close friends, incur when calling their 070 numbers. It appears reasonable to consider

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[56] After all, end-users decide to take a 070 number and select the 070 provider that provides them with the 070 number and accompanying services (such as the interface to select the number to which calls to 070 numbers should be forwarded).

[57] More specifically, it requires the end-users' concern to be sufficiently significant for them to be willing, in response to a SSNIP on the 070 WCT charge, to switch 070 provider or to propose a means of communication that avoids callers incurring 070 call charges.

[58] One respondent, [✂], suggested that the current high cost to the calling party helps protect advertisers against unwanted calls.

[59] Hospedia and Premier Telesolutions are providers of bedside communication and entertainment in UK hospitals. As part of its offering, Hospedia and Premier Telesolutions allocate a 070 number to the fixed phones on the bedsides of its customers bedside tables. Callers to these 070 numbers incur the call charges as set by their origination providers.

that end-users (to the limited extent they are likely to be aware of call charges) will have some regard to the charges incurred by those calling them. However, in the hospital environment, there may be restrictions on the use of alternative calling methods such as mobile phones which may not be permitted in all areas of a hospital.[60]

Conclusions on retail services

3.50 We conclude that demand-side substitution at the retail level is unlikely to materially constrain the price of 070 WCT. This is because end-users of 070 numbers have little or no incentive to drive 070 WCT rates down and callers to 070 numbers lack alternatives and tend not to be aware of 070 call charges. This means that we do not believe there are any effective indirect constraints from the retail level on 070 WCT charges. Therefore, a SSNIP on the 070 WCT charge would not be rendered unprofitable by retail-level switching.

Wholesale product market

3.51 Constraints that arise from substitution at the wholesale level are referred to as direct constraints:

- Demand-side substitution at the wholesale level could constrain 070 termination charges if retail telecoms providers were able to switch to an alternative termination service in response to a SSNIP on the 070 termination charge.
- Supply-side substitution could be a relevant constraint if a CP other than the current terminating provider could begin to terminate calls to a given 070 number in response to a SSNIP on the WCT charge for that number.

3.52 We consider that direct constraints support a wholesale market definition of 070 WCT at the level of individual 070 numbers:

- There are no opportunities for demand-side substitution at the wholesale level by the retail telecoms provider because, when a 070 number is called, the retail telecoms provider has no alternative other than to purchase 070 termination on that number.
- Supply-side substitution is also not effective as the only CP that can supply termination to a given 070 number is the 070 provider to which that number has been allocated.[61] Whilst it may be possible to begin offering 070 termination services relatively easily once an allocation of 070 numbers has been acquired, such entry would not constrain 070 termination charges. Calls to different 070 numbers, belonging to different individuals, are not substitutes for each other, and callers would not switch to calling a different 070 number with a lower termination rate in response to a SSNIP on the WCT charge for the number they wanted to call.

[60] The NHS has published guidance on this. NHS, 2018. *Can I use my mobile phone in an NHS hospital.* http://www.nhs.uk/chq/Pages/2146.aspx?CategoryID=68&SubCategoryID=162.

[61] In theory, a 070 provider could allow another CP to terminate 070 voice calls to numbers within the range allocated to them. However, we consider that 070 providers would not have an incentive to allow such competition as it would reduce the revenues they could earn from providing call termination to the numbers within their range.

Homogeneous competitive conditions and common pricing constraints

3.53 The absence of demand- and supply-side substitution possibilities means that a separate market could be defined for the provision of 070 WCT to individual 070 numbers. As this would lead to a very large number of markets, we consider it pragmatic to aggregate the provision of termination on 070 numbers within the range allocated to each 070 provider in operator-specific markets. This is reasonable because competitive conditions are homogeneous within markets defined in this way – the terminating provider in question has a monopoly on the termination of calls to the 070 numbers within their range.

3.54 Aggregation of numbers by terminating provider is a common step in the definition of fixed and mobile termination markets as these numbers tend to be subject to similar competitive conditions or a common pricing constraint.[62] We also consider this to be the case in relation to the provision of 070 WCT.

Two-sided markets

3.55 In the discussion above, we considered whether there were any effective constraints on charges for 070 WCT. We found that the absence of such constraints meant that 070 WCT on each terminating provider's number range could be defined as a market in its own right.

3.56 However, 070 providers do not only provide 070 termination to callers, they also provide a service to 070 end-users. Viewed in this way, the function of the 070 provider appears to be to bring callers and 070 end-users together on a 'platform.' Where a firm brings different groups of customers together on a physical or virtual 'platform' in this way, it may be appropriate to treat both groups as part of a single 'two-sided' market.[63]

3.57 In the case of termination of calls to certain non-geographic numbers, in 2008 Ofcom concluded that it was appropriate to analyse both sides of the market simultaneously.[64] However, this was not simply because the services in question were calls to 'non-geographic' numbers. Rather, this conclusion was based on the following four specific features of the non-geographic calls that were the subject of the 2008 complaint[65]:

[62] MCT 2018 Statement, paragraphs 3.70 to 3.73.
[63] There is more than one definition of a 'two-sided market' in the economics literature but most share this feature. Newspaper advertising is often regarded as an example of a two-sided market including advertisers and readers.
[64] Ofcom, 2008. *NCCN 500 - Determination regarding complaint from Energis Communications Ltd about BTs charges for NTS call termination*, paragraph 4.75 ("NTS Call Termination Determination"). http://webarchive.nationalarchives.gov.uk/20160704065459/http://stakeholders.ofcom.org.uk/binaries/enforcement/competition-bulletins/closed-cases/all-closed-cases/cw_823/NCCN_500.pdf.
[65] NTS Call Termination Determination, paragraph 4.77. In the terminology of the 2008 determination, markets with these features were referred to as 'single(-sided) platform' markets, a special case of 'two-sided markets'. We used the term 'two-sided markets' more generally to refer to markets in which there were interdependencies between the two sides. We considered that, in the general two-sided markets case, "it is possible…that market power on one side of the market leads to a distortion in the price structure and therefore it is generally appropriate to analyse the two sides of the market separately," and it was only in the special 'single(-sided) platform' case that we considered it appropriate to consider the two sides together (NTS Call Termination Determination, paragraph 4.86).

- The pricing structure (the balance of charges between the two sides) was determined by regulation on the termination side of the market, and competition on the hosting side. This meant that the market outcome was unlikely to produce a price structure which was a long way from the optimum, and structure was not therefore an issue in this case.
- There was no obvious means of determining the 'competitive' level of the charge on each side of the market, which varied according to the number range, which was selected by the service provider. A variety of different price structures therefore existed in the market (0800 calls were contrasted with 09 calls for example).[66]
- Callers to some ranges benefited from a low or negative price for hosting, that is, the outpayment to the service provider, as this enabled the revenue sharing mechanism to function as a micro-payment mechanism and encouraged the development of new services (for example dial-up internet access).
- Service providers on the 08/09 revenue-sharing number ranges were likely to be directly concerned with the price on both sides of the market (the call price and the outpayment or charge to themselves).[67]

3.58 We do not consider that these features apply to the 070 range for the following reasons:

- The pricing structure of the 070 range (balance of charges between callers and end-users) is not determined by regulation on the termination side. This suggests that the 070 market structure is likely to produce a suboptimal pricing structure.
- Callers to 070 numbers do not benefit from a low or negative price to the end-user as no value-added service is provided in return. Revenue-sharing is prohibited for the 070 range.
- 070 end-users (analogous, as the called party, to the premium rate service provider on a 09 call, for example) are unlikely to be concerned with the price paid by callers for the reasons set out earlier in this section.

3.59 Charging structures in which one side participates for nothing whilst the other side bears all the costs (or other asymmetric charging structures) are not uncommon in two-sided markets. Such structures may be efficient if it is necessary to have a low or zero charge to one side in order to get them on board and provided the benefits to the other side are sufficient.[68] This asymmetric charging structure is typically efficient for number ranges with the conditions of the non-geographic calls that were the subject of the 2008 investigation, discussed above.

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[66] There have been a number of significant changes to the regulation of calls to non-geographic numbers since 2008 (see 2013 NGS Statement).

[67] The service provider in this context is the organisation or individual receiving the 08 or 09 call and providing voice or data services to callers of 08 and/or 09 numbers, for example, a provider of entertainment services. On number ranges where revenue sharing is permitted, the price to the call recipient may be negative, that is, an outpayment may be made to cover the costs of a value-added service which is provided to callers.

[68] In a two-sided market, adding a customer on one side of the platform benefits customers on the other side, that is, there are 'externalities' between the two sides. The existence of these externalities means it may be efficient for prices to one side to be low or zero.

3.60 The current structure of 070 charges has the characteristics of an asymmetric charging structure in that 070 callers bear all the costs of the 070 service and end-users typically pay nothing. It is also the case that, in principle, callers may benefit from the 'find me anywhere' function of a 070 number, for example, or for the dating and small-ad services the confidentiality that a 070 number facilitates.

3.61 However, callers could generally obtain similar benefits from alternative services.[69] Moreover, in the case of 070 termination, we believe that the charging structure leads to significant harm as the high termination rates lead to high retail prices, bill shock and increased vulnerability to fraud (see paragraphs 4.9 to 4.29). This suggests that the current 070 charging structure is in fact inefficient.[70]

3.62 Therefore, we consider that defining a two-sided market including both the provision of call termination (to callers) and of 070 services (to end-users) is not appropriate as it would obscure the market power in wholesale 070 termination markets which is the source of the concerns we have identified in these markets.

Geographic market definition

3.63 As noted above, and consistent with the relevant BEREC guidance on geographic market definition, we define geographic markets so that competitive conditions within the market are broadly homogeneous and, at the same time, distinct from those in the surrounding geographic area.[71] Product market definition typically precedes geographic market definition.

3.64 Consistent with our product market definition (separate markets for 070 terminations on each network), we conclude that the geographic extent of each market is defined as the area served by that provider. The competitive conditions a provider faces in providing termination services are not affected by the number of other operators in a particular geographic area since, as set out above, voice termination provided by one provider is not a substitute for termination provided by another. Consequently, we conclude that the relevant geographic market is determined by reference to the area in which the provider offers termination services. This geographic market definition reflects the area in which 070 providers can determine 070 WCT rates for the UK 070 numbers allocated to them.

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[69] The end-user must first decide to use one of these alternatives rather than a 070 number. As noted above, if the end-user does take a 070 number, the substitution possibilities available to the caller are likely to be severely limited.

[70] Note that this is not per se because one side participates for nothing but because the benefits over available alternatives appear small whilst the costs associated with high termination charges appear to be large. Mark Armstrong (*Competition in Two-Sided Markets,* May 2005), develops a model of two-sided markets (without market expansion effects) in which one side 'multi-homes' and is always charged excessive prices, whilst the other (single-homing) side pays low or zero prices, and this charging structure is inefficient. The model can be applied to call termination markets. Termination is the 'single-homing' side because end-users typically subscribe to only one network whilst callers in effect multi-home because they can call any number, on any network.

[71] See the BEREC Common Position on geographical aspects of market analysis (definition and remedies).

Our conclusions on market definition

3.65 Our conclusion is that the relevant markets are:

"wholesale termination services that are provided by [named terminating communications provider] (TCP) to another communications provider, for the termination of voice calls to 070 numbers within the range which has been allocated to that TCP by Ofcom, for which that TCP is able to set the termination rate."

Market power assessment

3.66 Having defined the relevant markets, we must assess competition in those markets in accordance with the Act and the EU regulatory framework and impose regulation where competition in those markets is found to be ineffective, i.e. where one or more undertakings have SMP.[72]

Definition of SMP

3.67 An undertaking has SMP if "…either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say, a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers."[73]

Our approach to assessing market power

3.68 In our assessment of market power we take account of the SMP Guidelines, in accordance with section 79 of the Act, and of the European Regulators Group (now BEREC) working paper on SMP that builds on the SMP Guidelines.[74]

3.69 The SMP Guidelines suggest market shares are an important proxy for market power but they also recognise that high market shares are not, of themselves, sufficient indicators of market power, and therefore set out other criteria relevant to an assessment of SMP.[75] In the light of the SMP Guidelines, we focus our assessment on the four criteria that we regard as most pertinent to the markets involving the provision of 070 WCT under consideration, namely:

i) market shares (current and future);

ii) barriers to entry;

[72] Framework Directive.
[73] Section 78 of the Act, Article 14(2) of the Framework Directive, and paragraph 24 of the European Commission's SMP Guidelines.
[74] The ERG SMP Position, pages 3-8.
[75] Paragraph 54 of the SMP Guidelines discusses market shares as an important indicator of market power. In addition to market shares, the SMP Guidelines refer to a number of additional criteria – a full list is included at paragraphs A2.21 to A2.22.

iii) countervailing buyer power; and

iv) evidence on prices and pricing behaviour.[76]

Market shares

3.70 Although a high market share alone is not sufficient to establish SMP, it is unlikely that an undertaking could have SMP if it does not have a substantial share of the relevant market.

3.71 As we defined termination on each 070 provider’s network as a separate market, we consider that each 070 provider has a 100% share in the relevant market. In other words, each 070 provider is, in effect, a monopolist in the supply of 070 WCT for voice calls to 070 numbers within its range. This suggests that each 070 provider has SMP in the relevant market for 070 termination on its network.

3.72 As we do not anticipate changes in the ability of other CPs to provide WCT for 070 numbers within the range allocated to a 070 provider, we expect that each 070 provider will retain a 100% share in its relevant market over the next five years.

Barriers to entry

3.73 Next, we consider whether there is scope for a third-party CP to enter the relevant market by offering 070 WCT within the number range of an existing 070 provider. If such entry were possible, this could undermine the SMP of the existing 070 provider, by actual entry or by the threat of entry. As noted above, entry to the provision of 070 services in general may be relatively easy if a terminating provider can acquire a 070 number range. However, it could not terminate calls to an end-user that was a customer of another 070 provider, which holds its own range of 070 numbers. Hence it could not constrain the market power that a 070 provider has in setting the rates for WCT for voice calls to 070 numbers within its allocated number range.

3.74 Entry into the market for 070 WCT on an individual 070 provider’s network is not possible without the agreement of the existing 070 provider. The latter has no incentives to allow a third-party CP to offer 070 WCT at lower rates.[77] Therefore we consider that very significant barriers to entry will remain over the next five years. The combination of 100% market shares and barriers to entry makes it very likely that a 070 provider has SMP in its relevant market.

[76] Whilst pricing is not listed as one of the criteria in the SMP Guidelines, excessive pricing is listed in the ERG SMP Position. In particular, “...the ability to price at a level which keeps profits persistently and significantly above the competitive level is an important indicator for market power.” *The ERG Working Paper on the SMP concept for the new regulatory framework*, paragraph 20.

[77] 070 providers do sometimes sub-allocate numbers in their ranges to other providers, but this does not put downward pressure on termination rates because calls to different numbers are not substitutes for each other.

Countervailing buyer power (CBP)

3.75 Countervailing buyer power ("CBP") is the degree of restraint that a buyer is able to place on any attempt by the seller to set its prices above the competitive level. When significant, CBP can offset any market power that the seller may have had.

3.76 To rebut the presumption of SMP arising from very high market shares and barriers to entry, it is not sufficient for a retail telecoms provider purchasing 070 WCT (the 'buyer') simply to have a degree of CBP. The retail telecoms provider needs to be able to exert sufficient CBP such that the 070 provider offering WCT for calls to its 070 numbers (the 'seller') is unable to act to an appreciable extent independently of its competitors, customers and consumers.

3.77 Even if a retail telecoms provider has the ability to exert CBP (and thus is able to extract benefits from 070 providers), rebutting the presumption of SMP requires that benefits extend ('spill-over') to a substantial proportion of all callers to 070 numbers thus including the retail customers of other retail telecoms providers.[78]

Evidence of retail telecoms providers' ability to exert CBP

3.78 Generally, whether a buyer has CBP will depend on whether (a) it is sufficiently important to the seller, in terms of purchasing a significant proportion of the total volume of the seller's output, and (b) it can credibly threaten to buy less from that seller in response to a price rise. This usually requires it to have an alternative potential supplier. In the context of mobile or fixed geographic call termination, the prospect of CBP also arises where providers both supply and receive termination services to and from one another, and so (absent regulation) they could potentially restrain the termination rates charged to them by other providers by threatening to raise their own rates. 070 providers offering termination to their 070 numbers, however, may not originate calls or purchase 070 termination from other networks.

3.79 BT is clearly large, relative to any 070 provider, but is subject to regulation which limits its ability to exercise CBP. Firstly, BT's end-to-end connectivity obligation means that it is obliged to agree a contract for termination of calls to 'normal telephone numbers' (which includes 070 numbers) on fair and reasonable terms.[79] In addition, BT's provision of wholesale services (in markets where it has SMP) is generally regulated in ways which would prevent it from credibly threatening either to raise charges or to refuse to supply a service. Hence its ability to use these as a bargaining tool is limited and we consider it unlikely that BT has sufficient CBP to constrain 070 termination charges. [80]

3.80 Therefore, the levers by which a retail telecoms provider could attempt to exert CBP, in principle, would be by threatening to block calls to 070 numbers or by setting the retail charges of 070 calls so high as to deter its customers from making calls to 070 numbers.

[78] That is, they should not be confined to the customers of the originating CP that has effective CBP.
[79] Whilst BT could reject terms it considered not fair and reasonable, the likely result would be that a dispute would be brought to Ofcom for resolution.
[80] Consistent with the modified Greenfield approach, we assume that 070 providers can purchase fixed geographic and mobile call termination at charge-controlled rates.

We consider that retail telecoms providers have few incentives to block 070 calls. Similarly, retail charges for 070 calls are currently high but this does not appear to have had the effect of reducing the termination rates charged by 070 providers.

3.81 Nonetheless, we have considered whether there is any evidence of CBP in practice. A detailed analysis of every single bilateral negotiation between each retail telecoms provider and individual 070 provider is clearly not possible. The evidence we gathered shows that retail telecoms providers pay the same rates (with rates varying between charge bands) for termination of 070 calls.[81] The fact that 070 providers set the same termination rates (and that these rates do not vary across retail telecoms providers) is consistent with retail telecoms providers having the same (very limited) ability to exert CBP.

Conclusions on CBP

3.82 In the light of the considerations set out above, we have found that CBP does not exert a sufficiently material constraint on the market power that 070 providers may have in their relevant markets.

Evidence of prices and pricing behaviour

3.83 The evidence we gathered on the rates paid for 070 WCT via our OCP Notices, set out in greater detail in Annex 4, indicates that these rates are high relative both to the costs of providing 070 services and to the rates for termination of UK mobile calls.[82] Such high rates are consistent with the ability of terminating providers to set 070 WCT rates which are not materially constrained.

3.84 As discussed in Annex 4 (paragraph A4.49), we estimate the incremental cost of providing a 070 call to range from 1.093 ppm for termination to a UK fixed number to 5.951ppm for termination to an international mobile number. Based on volume and termination rate data from transit providers we also estimate the associated profit to range from 22.083ppm (95%) to 17.226ppm (74%).[83]

Stakeholder comments and our response

3.85 Given our view that there are separate markets for 070 termination on each 070 provider's network, and based on our assessment above, we proposed in our December 2017 Consultation that each 070 provider has SMP in its relevant market, namely the provision of WCT to the 070 numbers which have been allocated to it.

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[81] See Annex 4 for the evidence on the rates paid to terminating CPs for termination of calls to 070 numbers.
[82] Average rates of 38.84ppm (UK originated calls) and 12.40ppm (international originated calls) for the pn2 Rate based on BT's transit data. The pn2 rate accounts for the largest proportion of UK (95%) and international originated (44%) calls to 070.
[83] These figures were calculated by taking the 2016 estimates of 070 termination revenues (£8.98m) divided by 070 volumes (38.7m) to provide an average revenue per minute of around 23p. The incremental call costs are then subtracted from this number to estimate the profit range.

3.86 BT, [✂][84], Individual 1 [✂], Individual 2 [✂], Individual 3 [✂], Lexgreen and Telecom2 agreed with our proposed SMP analysis.

3.87 AIMM, Premtext, Netcollex and Telecom2 disputed some aspects of our analysis, which we discuss below, together with our response.

3.88 We understand AIMM was concerned that some of the providers of 070 WCT which we found to have SMP were also active as suppliers of retail calls, which it claimed meant our analysis was distorted. It is possible that the same CPs originate and terminate calls to 070 numbers (or indeed all types of numbers). However, it is normal for communications providers to sell (outgoing) retail calls to their subscribers and also to terminate calls to those same subscribers. The main providers of fixed geographic and mobile calls do so, for example. However, in each case, we have defined markets for fixed geographic and mobile call termination and made SMP findings with no suggestion that any distortion has resulted. We explain why we define separate termination markets for 070 WCT in paragraphs 3.55 to 3.62 above.

3.89 AIMM suggested that SMP had arisen from a lack of consumer pricing transparency. Whilst we have concerns about consumers' low awareness of retail 070 call prices, we consider that the root cause of the harm to 070 callers is the market power exerted by 070 providers in the termination of calls to 070 numbers, which leads to high 070 WCT rates, rather than simply a lack of transparency.

3.90 We have also made attempts to improve consumer awareness and transparency which are likely to be complementary to regulation of 070 WCT charges. In the 2009 070 Statement we set out rules requiring origination providers to publish their tariffs for calls to 070 numbers more prominently and to make them easier to understand for consumers with the aim of improving the level of pricing transparency associated with 070 numbers.[85] However, despite these rules being in place for several years, problems around bill shock and high retail prices persist. Further, rules around price transparency are unlikely to deal with identity fraud because it will not require service providers to have the details of the call recipient's true identity. Nor will they address the structural problems – high market shares, entry barriers and low CBP – we identified in 070 WCT markets. We consider that transparency measures alone are insufficient to deal with the problems we have identified.

3.91 Premtext, Netcollex and Telecom2 thought that the problems stemmed from market power in the retail market, rather than in the wholesale market for 070 call termination. We do not agree because, in general, and in contrast to fixed geographic and mobile call termination markets, we have found that fixed and mobile retail call markets are effectively competitive. Thus, for mobile retail calls we determined that no operator held SMP in 2003.[86] We removed retail regulation from BT (in the UK excluding Hull) and KCOM

[84] [✂] disagreed with our remedies – we discuss these points in section 4.
[85] 2009 070 Statement, paragraph 1.6.
[86] Oftel, 2003. *Annual Report*, page 17. https://www.ofcom.org.uk/__data/assets/pdf_file/0023/5927/annual_report.pdf.

(in Hull) for retail voice call markets in 2009[87] and 2013[88] respectively.[89] We could not impose retail price controls under an SMP framework unless we have found that one or more operators has SMP in the relevant market.

3.92 Retail call providers generally provide their customers with the ability to make calls to all number ranges including 070 numbers as part of a retail package, which may also include a number of other services in a 'bundle.'[90] Retail competition occurs at the level of the package therefore, even if the focus of retail call price competition is on the most commonly used call types (for example calls to mobiles and geographic numbers that are often part of inclusive 'call bundles'). As we have found that the voice calls markets are competitive we do not consider it likely that any retail provider has SMP in the provision of retail calls to 070 numbers.

3.93 We consider that the regulation we are implementing could mitigate 070 retail pricing issues because setting 070 termination rates ("070 TRs") at the same rate as MTRs removes a significant barrier to treating 070 calls the same as mobile calls, including with respect to call bundles (see paragraph 4.79). We expect reductions in 070 TRs to be passed on in the 070 call charges that retail telecoms providers set. To the extent that reductions in 070 TRs are not, or are only partially, passed on in lower 070 call charges, we may need to consider our options for taking further regulatory intervention to protect consumers (see also paragraph 4.138).

3.94 Telecom2 made a number of detailed points which we discuss below:

a) It said that a number of the available termination rates are lower than our estimated minimum profit per minute figure of 17.166ppm quoted in the December 2017 Consultation.[91] There are many 070 TR bands that are used to varying degrees. The pn2 rate is the most widely used and has the highest TRs (see paragraphs A4.14 and A4.16). This is reflected in the profit per minute figure referred to by Telecom2 which is not a minimum as it is based on average termination revenue. Rather, it is the lower bound

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[87] Ofcom, 2009. *Fixed Narrowband Retail Services Market – Identification of Markets and Determination of Market Power.* https://www.ofcom.org.uk/__data/assets/pdf_file/0023/51836/statement.pdf.

[88] Ofcom, 2013. *Review of the Fixed Narrowband Services Markets – Statement on the Proposed Markets, Market Power Determinations and Remedies*. https://www.ofcom.org.uk/__data/assets/pdf_file/0014/50720/final_statement.pdf.

[89] We subsequently proposed in 2017 that BT has SMP in the retail market for voice only customers who purchase landline telephone services on a standalone basis. Our particular concerns in this case were the divergence between wholesale and retail line rental prices and the disengagement of voice only customers who were "often elderly people who have remained with the same provider for many years" (Ofcom, 2017. *Standalone Landline Telephone Services Review Statement*, paragraph 1.2 ("2017 Standalone Landline Statement")). https://www.ofcom.org.uk/__data/assets/pdf_file/0015/107322/standalone-landline-statement.pdf). However, BT agreed to implement voluntary proposals to address our concerns and in the light of this we did not consider it necessary to reach a formal determination of significant market power at that time. We do not consider that the issues in 070 calls markets are related to the characteristics of 070 callers in a comparable way.

[90] In the 2017 Standalone Landline Statement (paragraph 2.2), we noted that "many consumers have moved towards buying services in bundles, and this is where we have seen the focus of competition. In 2017, 88% of households reported buying at least two of their communication services in a bundle, with dual-play packages of landline and broadband triple-play packages of landline, broadband and pay-TV being the most popular."

[91] Paragraph 3.91 of the December 2017 Consultation. An updated estimate is included in this statement at paragraph 3.84.

of the range we use to illustrate the effect of differences in the costs of terminating calls to UK fixed geographic numbers and to international mobile numbers.[92] The high average profit and the fact that the band with the highest charges is the most widely used, despite the existence of alternative bands with lower rates, strongly suggests a lack of competition.

b) It stated that high 070 TRs reflected the additional costs 070 providers incur compared to mobile services (such as administration of numbers), and that these costs have increased. We recognise that, in some cases, there are costs associated with managing a pool of 070 numbers. These are only likely to be relevant where an organisation is reusing 070 numbers for different customers on a frequent basis for example use in advertising, hospital patients or dating websites. They are not likely to be material for customers that use 070 numbers on a long term basis.

c) We gathered information from CPs on the costs of providing 070 calls (which we expect to include number administration) in the July and September 2017 Notices.[93] Our analysis (set out in Annex 4) shows that the incremental calls costs are significantly lower than the 070 TRs (see paragraph A4.49). Therefore, we do not consider that additional 070 costs justify the current high termination rates.

d) It thought that barriers to entry was not a reason to regulate 070 TRs because this was the case for all numbers. We already regulate termination rates in other markets where we have found high entry barriers and SMP (including fixed and mobile termination markets). Regulation of 070 TRs is entirely consistent with this.

3.95 Telecom2 disputed our comment in paragraph 3.52 of the December 2017 Consultation that, "end-users often take a 070 number specifically to avoid costs to themselves, with little or no concern for the cost to callers." The context for this point was an assessment of the likelihood that call-back arrangements might be seen as a close substitute for 070 calls. We consider that this is unlikely, except in particular circumstances where the user does care about the call price because the caller is a family member or friend of the end-user. We also noted evidence that call-back arrangements are not widely used. In general, given the level of 070 call charges, use of a 070 number strongly suggests little concern for the cost to callers. In any case, the main question of interest is whether users are sufficiently sensitive to the call price to prevent a WCT charge above the competitive level being sustained. The evidence that this is not the case is in our view compelling.

3.96 Netcollex thought we proposed that the origination providers had SMP. We can confirm that it is not our view that the originating provider has SMP (see paragraphs 3.91 to 3.92).

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[92] The range of profit figures is determined by the difference between the charge for termination on UK fixed geographic numbers and the charge for termination on international mobile numbers, combined with our estimate of average 070 WCT revenues. It is not intended to show how profit might vary between 070 charge bands.

[93] [✂] has confirmed that its current number management activity costs were included within the cost information it supplied and it is one of the three CPs included in our cost analysis.

Conclusion on market power

3.97 Having reflected on stakeholder responses we remain of the view that each 070 provider has SMP in its relevant market, namely "wholesale termination services that are provided by [named terminating communications provider] (TCP) to another communications provider, for the termination of voice calls to 070 numbers within the range which has been allocated to that TCP by Ofcom, for which that TCP is able to set the termination rate."

Three-criteria test

3.98 As noted above, the market for 070 WCT is not specifically listed by the European Commission in the 2014 EC Recommendation as a market in which *ex ante* regulation may be warranted. To decide whether it is appropriate to impose such obligations in the 070 WCT market, we therefore need to assess whether the three-criteria set out in the 2014 EC Recommendation are satisfied. We set out below why the requirements of this three-criteria test are, in our view, met.

Presence of high and non-transitory barriers to entry

3.99 We have concluded that the relevant product market comprises wholesale termination services that are provided by each 070 provider to another CP for the termination of (voice) calls to UK 070 numbers allocated to that 070 provider. Given this definition, we consider that:

- there is an absolute barrier to any other operator entering the market – the 070 range holder has a monopoly on the provision of termination on numbers within that 070 number range; and
- as noted in our assessment of barriers to entry in our SMP analysis above, whilst an existing 070 provider may sub-allocate numbers it holds to a third-party terminating provider, this would not constrain the rates it could charge for termination on the numbers it retained.

3.100 For these reasons, we consider the barriers to entry are likely to remain high and non-transitory over the next five years.

A market structure which does not tend towards effective competition

3.101 We have analysed competition in the 070 WCT markets as part of our assessment of market power above. We consider the factors set out there are also relevant for the assessment of this criterion. In particular:

- We consider that end-users of 070 numbers have little or no incentive to drive 070 WCT rates down, and that callers to 070 numbers are not able to effectively constrain 070 WCT rates as they lack alternatives and tend not to be aware of 070 call charges.

- Competition between 070 providers leads to increased customer acquisition costs which are borne by callers. End-users do not have incentives to switch to alternatives to 070 numbers which are cheaper for callers.
- Termination rates for calls to 070 numbers have remained consistently high, despite a fall in input costs (for example the cost of onward routing in the form of termination rates to fixed and mobile numbers has decreased over time), suggesting that competition is ineffective.

3.102 For these reasons, we consider that the market structure will not tend towards effective competition in the next five years.

Competition law alone would not adequately address the market failure(s)

3.103 We consider that competition law would not be sufficient, by itself, to address concerns in this market – barriers to entry will persist and relevant markets will not tend towards competition within five years. We also consider that intervention based on competition law would not be sufficiently fast and effective to prevent harm stemming from anti-competitive or exploitative behaviour.

3.104 In contrast, *ex ante* regulation would not only be more effective in preventing 070 providers from setting excessive rates prone to distort competition, but it would also be less costly to enforce and would (through appropriately drafted SMP remedies) provide clarity to both 070 providers and the market as to the types of practices which would be regarded as (non)-compliant. We therefore consider that *ex ante* regulation is necessary to maintain effective competition.[94] We set out our further analysis as to why *ex ante* regulation is justified in section 4 of this statement.

Stakeholder comments and our response

3.105 Lexgreen disagreed with our assessment of 'barriers to entry.' It considered that barriers to entry into the 070 market are not that high and noted that it has no problem acquiring ranges on a number of different price points, even though it is not an interconnected operator.

3.106 With respect to barriers to entry, we agree that there may be no significant obstacles to new or existing providers acquiring number allocations on the 070 range. However, we do not accept that such entry would constrain 070 termination charges for these reasons:

- When a 070 number is called, the caller (via the retail CP) has no alternative other than to purchase 070 termination on that number to complete the call. In other words, purchasing termination for a 070 number allocated to a different CP is not a viable substitute.

[94] We note that the Competition Appeal Tribunal has stated "Generally, price control is better left to sectoral regulators, where they exist, and operated prospectively; *ex post* price regulation through the medium of competition law presents many problems" (*Flynn Pharma Ltd, Flynn Pharma (holdings) Ltd, Pfizer Inc and Pfizer Ltd vs Competition and Markets Authority*, (2018) CAT 11, paragraphs 3 and 462. http://www.catribunal.org.uk/files/1275-1276_Flynn_Judgment_CAT_11_070618.pdf.

- In theory a 070 end-user could move to a different CP that offered lower termination charges. However, we consider that in most cases the end-user would have limited incentive to do this because it is not them, but the caller, that pays the termination charges. Further we note that if the end-user wanted to port their number (to avoid the costs of number change) then the termination rate would continue to be set by the CP that was originally allocated the number and the retail charges for that number would remain the same.
- In theory a 070 provider could allow another CP to terminate 070 calls to numbers within its allocation. However, we consider that a 070 provider would not have an incentive to do this in a way that would put downward pressure on 070 TRs, because to do so would reduce the revenues that it could earn from providing call termination.

3.107 For the reasons above we consider that there is a barrier to entry with respect to provision of wholesale termination on a 070 number.

3.108 Lexgreen considered that the lack of effective competition was due to fixed and mobile CPs setting high retail prices. We recognise that retail prices are relatively high. However, we consider that this is driven at least in part by high wholesale termination rates, and that there is a lack of competitive pressure on wholesale termination rates due to the presence of SMP. As set out at paragraph 3.93, we consider that the regulation we are implementing could mitigate retail pricing issues by reducing the high 070 TRs that are a barrier to including 070 numbers within call bundles.

Conclusion

3.109 In the light of the analysis set out above and having reflected on stakeholder responses, we consider that our 070 WCT market definition satisfies the criteria set out in the 2014 EC Recommendation and thus that it is appropriate for Ofcom to analyse these markets in order to determine whether any undertaking has SMP, and thus whether remedies (can and) should be imposed to address competition problems stemming from SMP.

4. Remedies

Introduction

4.1 In section 3, we identified 127 relevant markets, each relating to a single 070 provider and set out our reasons for designating a particular 070 provider in each of those markets. In this section, we draw our conclusions on the appropriate remedies to address the harm arising from SMP in the provision of 070 termination services.

4.2 In particular, we confirm our December 2017 Consultation proposals to remedy the competition concerns arising due to SMP by setting a single maximum cap on 070 TRs which will apply to all 070 providers. Figure 4.1 below sets out the cap which is equivalent to the MTRs set out in the MCT 2018 Statement, which have been modelled on a long-run incremental cost ("LRIC") basis.

4.3 In light of stakeholder comments, we have extended the implementation period from three months (as proposed in the December 2017 Consultation) to twelve months.

4.4 We consider that the decision set out in this section achieves our statutory duties and satisfies the relevant legal tests. In reaching this decision, we have also taken into account our regulatory experience from previous market reviews and recent developments in this market based, in particular, on information gathered under our statutory powers.

Figure 4.1: MTR caps (ppm)[95]

	From 1 June 2018	From 1 April 2019	From 1 April 2020
MTR (nominal) [96]	0.489	0.480 (forecast) [97]	0.471 (forecast) [98]

Source: Ofcom 2018 MCT model.

The case for regulation: harm arising from SMP and the insufficiency of *ex post* competition law

4.5 In section 3, we conclude that each of the 070 providers listed in Annex 6 has SMP in its relevant market and therefore that these markets for 070 termination are not effectively competitive. We need to assess the nature and scale of the problems arising from SMP in these markets in order to decide if competition law remedies are sufficient to address the problem and, if not, to impose appropriate *ex ante* remedies.

[95] MCT 2018 Statement, Table 7.
[96] Note that the nominal rates to apply from 1 April 2019 and 1 April 2020 are forecasts.
[97] To be calculated in accordance with the formula set out in the legal instrument at Annex 3 of this statement, where the current forecast is indicative only.
[98] To be calculated in accordance with the formula set out in the legal instrument at Annex 3 of this statement, where the current forecast is indicative only.

4.6 In our December 2017 Consultation, we explained that our primary concern is that, without regulation, the relatively high wholesale termination rate for calls to 070 numbers, and the fact that callers are not generally well attuned to distinguishing 070 ranges from the mobile ranges, has led to the following poor outcomes:

- excessive retail prices for calls to 070 numbers;
- bill shock for consumers;
- distorted choices between using 070 and alternatives;
- service provider fraud;
- international artificial inflation of traffic; and
- identity-related fraud.

4.7 This section describes the assessment underlying our decision to impose a charge control on 070 TRs, and how we think applying a cap at the MTR will deal with our concerns. We summarise stakeholder comments to our December 2017 Consultation proposals and respond to these.

4.8 This section is structured as follows:

- our competition concerns and the impact on consumer welfare;
- sufficiency of *ex post* competition law;
- overall conclusion on the harm arising from SMP absent regulation and insufficiency of *ex post* competition law;
- legal tests for setting an SMP condition;
- appropriate regulation to deal with our concerns;
- our approach to setting a charge control;
- evaluation of charge control options;
  - recovery of costs between called and recipient parties;
  - how to set the charge control;
- implementation period;
- impact of our remedy;
- alternative proposals;
- legal tests; and
- conclusion.

Competition concerns and impact on consumer welfare

4.9 As discussed in section 3, we consider that, as a result of their SMP, 070 providers have the ability and incentive to set termination charges at excessive levels. We are concerned that the exploitation of this market power through excessive charges for terminating calls to 070 numbers leads, in turn, to a number of different types of consumer harm. Below, we describe the concerns, and then set out stakeholders' responses to the December 2017 Consultation in relation to these concerns and our response.

High call prices and bill shock

4.10 Wholesale 070 TRs are high, relative to the costs of providing the termination service (see paragraph A4.49). These high rates are, in turn, reflected in relatively high retail call prices (compared to prices for calls to geographic numbers, mobile numbers and many international calls). In particular, as the termination rates are materially above mobile and fixed rates, retail telecoms providers do not include such calls in inclusive call bundles, given the risk of high volumes distorting the cost of such bundles. So, while retail 070 call prices are not in every case dissimilar to mobile 'out of inclusive call bundle' charges per minute, exclusion from inclusive packages means that for most people in most circumstances the effective call charge is very high.

4.11 As shown in Figure 4.2 below and in Annex 7, maximum retail prices for calls to 070 numbers range between 45ppm to 110ppm.[99]

Figure 4.2: Maximum[100] retail call prices for 070 (including VAT) (ppm)[101]

	Mobile Pay monthly	Mobile PAYG	Fixed
Tesco Mobile	50.00	50.00	-
Vodafone	55.00	45.00	-
Giffgaff	-	50.00	-
O2	55.00	66.00	-
Virgin Media	75.00	75.00	51.07
EE	75.00	75.00	59.00
Plusnet Mobile	76.60	-	-
Three	104.00	104.00	-
Sky	110.00	-	50.88
BT	-	-	48.51
TalkTalk	-	-	50.88
Post Office	-	-	51.52

[99] We note that the maximum retail price for calls to 070 numbers has decreased from 150ppm to 110ppm since the publication of our draft statement on 15 August 2018, our final statement has been updated to reflect this change. Quoted prices are correct as of 27 September 2018.
[100] In most cases this is the standard call charge but some providers have a range of charges.
[101] These prices have been updated to reflect the changes which have taken place since the publication of the December 2017 Consultation and the draft statement of 15 August 2018 and are correct as of 27 September 2018. Although the upper end of the price range for mobile calls has reduced from 250ppm to 110ppm, this figure is still substantially higher than our estimate of the cost of terminating the calls and does not alter our view as to market definition, SMP or consumer harm.

Vonage	-	-	83.00

Source: Operator websites, 27 September 2018.

4.12 Further, the evidence from market research set out in Annex 7 shows that, when calling a 070 number, callers often believe they are calling a mobile (i.e. another '07') number. Thus, callers are unlikely to be aware of the true cost of using the 070 range.

4.13 The fact that retail prices are much higher than callers believe them to be means that customer confusion can lead to considerable harm through 'bill shock.' Such confusion is also likely to mean that usage of 070 numbers will tend to remain higher than if callers were aware of the true price. In fact, and as outlined in Annex 7, Ofcom received 90 complaints between January 2013 and July 2018 relating to the price of calls to 070 numbers, and an additional 43 which related to surprise at receiving a higher than normal bill following a call being made to a 070 number.

Distorted choice between 070 and alternatives

4.14 In Annex 4 we set out our analysis of current 070 TRs and the wholesale costs incurred by providers operating in this market. It shows that termination rates charged to retail telecoms providers are far in excess of costs. This means that 070 providers can offer the service free to the end-user and still make a high rate of profit. The profits available on 070 call termination also give 070 providers incentives to promote the service in order to acquire end-user customers.

4.15 We consider that this may lead to a distortion of end-users' choice between 070 numbers and the available alternatives. End-users seeking a similar functionality have other options to 070 numbers, for example the use of a mobile phone domestically or via roaming or OTT services, such as Skype.[102] However, end-users do not bear the costs of choosing a 070 number and may not take account of the costs to the caller when they try to reach them. As a result, their choices may be distorted and usage of 070 may be higher than is socially optimal given the level of call prices.[103] This distortion could be reduced or even removed if end-users bore the additional costs caused by using 070 numbers as they would then take account of the costs of the service when deciding whether to use a 070 number.

Reputation of the 070 range undermining its use

4.16 There is evidence that the high cost of calls and examples of misuse of the 070 range presented above have undermined the use of these numbers for innovative delivery of electronic communications services.

[102] However, as noted in section 3 we do not consider that these services are sufficiently close substitutes to constrain a SSNIP on 070 TRs – see paragraphs 3.39 to 3.41.

[103] Usage of 070 numbers could also benefit callers by enabling them to reach call recipients more often (for example, using the 'follow-me' functionality described in paragraph 1.1). However, we consider that the ready availability of alternatives means that in the absence of 070 the call recipient is likely to arrange to continue to receive calls by another means.

4.17 For example, we were approached [✄] by [✄] and [✄] to discuss a potential joint venture for the development of a [✄] application using mobile numbers. The parties' intention was that they would use a mobile network and numbers to provide a personal numbering service ("PNS"). [✄.]

4.18 In fact, the parties considered alternative numbering options, including using the 070 range; however, 070 numbers were rejected as an option due to a) their negative reputation and b) as calls to 070 numbers were being charged by mobile operators in excess of 50ppm and were not included in bundled minutes.

4.19 Volumes of 070 minutes have declined over time which may partly reflect a decline in interest in using the range.[104] For example, we note that Auto Trader, who formerly offered private customers 070 numbers to include in advertisements they placed, no longer uses the 070 number range and instead now uses 'Protect Your Number' based on geographic numbers matched to the geography of the advertiser.[105]

4.20 Stakeholder input to our review suggests that some CPs are reluctant to innovate and invest in services operating on the 070 range because of a negative reputation with both CPs and customers but have suggested that they would be open to reconsidering this once our changes are in place. For example, Digital Mail Limited noted that if fraud and retail prices are reduced then 070 numbers could be given a new lease of life.

Service provider fraud

4.21 High 070 TRs resulting from 070 providers' exploitation of SMP have the potential to lead to fraudulent use of the number range. One type of fraud arises because service providers using 070 numbers can earn a profit from termination rates for calls to these numbers while entering into a revenue share arrangement with the end-user.[106] Fraudulent users posing as service providers convince callers to ring a 070 number under false pretences (for example a text message saying they have been mis-sold payment protection insurance ('PPI')) in order to benefit from their share of the very high termination rates. For example, 88 of the 070 complaints received by Ofcom between January 2013 and July 2018 related to 'range misuse' where consumers may feel that they had been tricked into calling a 070 number. A number of these complaints related to consumers applying for a job online and receiving a response asking them to call a 070 number to discuss the job or set up an interview, while some related to the use of dating websites or missed calls from a 070 number asking for an urgent call back.

4.22 This type of traffic-generating fraud takes advantage of the low consumer price awareness of the 070 number range and, as such, a vulnerability to direct scams. As set out in Annex 7, consumers sometimes confuse 070 numbers with mobile phone numbers, which also

[104] 070 minutes were 98m in 2008 (see 2009 070 Statement, paragraph 2.9) and were ~39m in 2016, representing a decline of around 60%.

[105] https://www.autotrader.co.uk/safety_and_security_centre/protect_your_number.

[106] We note that while revenue sharing is not permitted on the 070 range, incentives for it remain while termination rates are high and it can be hard to detect.

start with ‘07’, and we are therefore concerned about evidence of scams designed to make consumers believe they are calling a mobile number.

4.23 Individuals may take advantage of consumer confusion, resulting in consumers calling a 070 number back while thinking the call will be charged at the same rate as calls to mobiles. However, call prices are typically significantly higher for 070 numbers than they are for mobiles i.e. up to £1.10[107] a minute.

4.24 According to a 2013 National Fraud Intelligence Bureau (“NFIB”) report to Ofcom, there were 4,596 offences[108] reported to ‘Action Fraud’ in the period 1 January 2011 to 31 July 2013 that related to PNS. 070 numbers accounted for 96.1% of these and 98.4% of the total victim-reported loss of over £17.1m.[109] Following the December 2017 Consultation, we have received updated information from the NFIB regarding the number of reports of fraud which relate to 070 numbers. According to this information, 6,646 instances of fraud relating to 070 numbers were reported between 1 January 2016 and 31 December 2017.[110] We also note that not all fraud is likely to be reported.

International artificial inflation of traffic

4.25 International artificial inflation of traffic (“AIT”) occurs because some international CPs fail to distinguish in their retail charging between calls to UK mobiles and 070 calls, which means that the retail call prices can be below the charge for 070 termination. Thus, fraudulent users are able to generate traffic to their own numbers at a lower cost than the revenue received.

4.26 In the December 2017 Consultation we reported evidence of AIT in that the proportion of calls to UK 070 numbers which are originated overseas is significantly higher than the proportion of calls to UK fixed geographic or mobile numbers which are originated abroad. Data from BT shows that, between January 2016 and August 2017, “there are approximately 30% more calls generated to PNS destination numbers from abroad when compared to the relative distribution for both geographic and mobile destination numbers.”[111]

4.27 The percentage of internationally originated 070 calls has fallen over time (see Figure A7.5). However, this is likely due to successful action by BT to identify AIT and the trend could be reversed if BT decides to reprioritise resources or the pattern of AIT traffic changes and becomes harder to detect (see also paragraphs A7.43 to A7.46 and A7.50).

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[107] See footnote 99.
[108] The range of 070 and 076 prefixes searched for are based on a list provided to the NFIB by Ofcom when the request was made for the information.
[109] i.e. the vast majority of the £1,300+ daily losses victims reported. The report indicated that the losses reported also include goods and services that were agreed to be delivered in the call but did not materialise – see paragraph 4.28.
[110] The NFIB obtained this figure by conducting a search of the NFIB’s database of all reports containing data prefixed with ‘070.’ The search results have been manually audited to remove reports which do not relate to 070 numbers. Whereas every effort has been made to remove unrelated reports, a limited number of non-070 number related reports may remain.
[111] BT response to September 2017 AIT Notice. See paragraph A7.48.

Identity-related fraud

4.28 A second type of fraudulent activity emerges from using 070 numbers to avoid being traced. For example, a fraudulent advert may be placed, purporting to sell goods or services (such as a car or a dog). A prospective buyer is asked to pay a deposit to secure the goods, and then the seller effectively 'disappears' without delivering it.

4.29 As 070 numbers are typically free for call recipients to use, CPs do not need to have details of an end-user's true identity for billing purposes. As noted in Annex 7, the Serious Organised Crime Agency raised the point that mass-marketing fraud exploits the fact that many callers are unaware that a call to a 070 number may not go through to somebody in the UK, due to the confusion with UK mobile numbers.[112] Hence, this allows end-users to undertake activity to defraud callers while simultaneously using their 070 numbers to hide their identity or location.

Stakeholder comments

4.30 AIMM, Netcollex, GCI, Premtext, Risk and Assurance Group and Biaas[113] ("RAG/Biaas"), Telecom2 and [✂] felt that our proposals were disproportionate given the level of harm identified. [✂] and Premtext both pointed to the statistic that Ofcom had only 20 complaints about 070 numbers in 2016 which they thought was low in comparison to overall usage.[114] Premtext also noted that the number of calls to the PSA regarding 070 numbers was low and information on fraud from Serious Organised Crime Agency was outdated.

4.31 Telecom2 believed that the level of harm was inaccurately identified and that the cost of the proposed control was not proportionate. It stated the data we relied on was outdated and not robust, and where the data was current it was not credible. It thought in some cases we had been "misled by submissions."

4.32 Netcollex thought that existing regulation in the PNS market had already solved the problems. It considered the data we relied on was outdated and not robust.

Ofcom's response

4.33 We have considered the comments from stakeholders above. However, for the reasons below, it remains our view that consumer harm is arising as a result of 070 providers exploiting their market power through setting excessive charges for terminating calls to 070 numbers.

4.34 We have set out evidence of the harm arising in relation to 070 numbers in Annex 7. Since the December 2017 Consultation we have collected updated information on maximum 070

[112] The Serious Organised Crime Agency is now know known as the National Crime Agency.
[113] RAG and Biass submitted a joint response to the December 2017 Consultation, in this response we refer to this submission as RAG/Biaas.
[114] This statistic was not included in the December 2017 Consultation but provided in a further update – see https://www.ofcom.org.uk/__data/assets/pdf_file/0020/110936/further-update-070-consultation.pdf.

call prices, the level of 070 fraud and complaints received by Ofcom. This information indicates that the problems in relation to 070 persist:

- Maximum retail call prices remain very high (see Figure 4.2 above). 070 providers have no incentive to reduce termination rates and, without regulation, we consider that 070 calls prices will remain excessive resulting in ongoing consumer harm.
- We continue to receive complaints in relation to 070 (18 complaints from 1 August 2017 to 31 July 2018). We recognise that the absolute number of complaints is low. However, we would expect this given that use of the 070 range is relatively low.[115] Further, these complaints are likely to represent only a small proportion of actual 070 issues as consumers are likely to contact their provider when they suffer bill shock or the police if they suffer fraud.
- The NFIB received 6,646 reports of fraud relating to 070 numbers over 1 January 2016 to 31 December 2017. This shows a significant level of ongoing fraud.
- In response to our December 2017 Consultation we have been provided with published and early-draft unpublished academic research which highlights the continuing role of 070 follow-me numbers in international AIT fraud and revenue sharing and misrepresentation fraud (see paragraphs A7.62 to A7.64).[116]

4.35 Recent data indicates that the reported level of AIT has declined. In particular, international AIT appears to have declined (as evidenced by the decrease in internationally originated minutes to 070 numbers (see Figure A7.5)). However, we consider that this is directly as a result of the efforts of BT and other originators and comes at a cost to the industry in terms of vigilance and targeting instances of abuse on a case-by-case basis. Any reduction in vigilance or more effective masking of the AIT approach could see a rapid increase in AIT. Without this intervention on a sustained, ongoing basis, the potential for the 070 range to be misused for fraudulent purposes will remain if the incentives for it are not tackled.

4.36 BT has undertaken a more detailed consideration of traffic and, even after the decline of international AIT, it estimated that the percentage of calls believed to involve misuse of PNS on the 070 number range would be a minimum of 20% of all 070 calls.[117]

4.37 In light of the evidence set out in the December 2017 Consultation, and the further evidence and considerations set out above and in Annex 7 of this statement, we remain of the view that there is sufficient evidence of harm to warrant intervention.

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[115] There were 38.7 million minutes to 070 numbers in 2016. This compares to 64,844 million total fixed originated minutes and 151.2 billion mobile minutes (Ofcom, 2018. *Telecommunications Market Data Update Q3 2017,* pages 4 and 14. https://www.ofcom.org.uk/__data/assets/pdf_file/0012/110154/Q3-2017-Telecoms-Data.pdf).

[116] Costin, A., Isacenkova, J., Balduzzi, M., Francillon, A. and Balzarotti, D., 2013. *The Role of Phone Numbers in Understanding Cyber-Crime Schemes*. 2013 Eleventh Annual Conference on Privacy, Security and Trust. https://www.researchgate.net/publication/259642656_The_role_of_phone_numbers_in_understanding_cyber-crime_schemes ("Cyber Crime paper"), Sahin, M. and Francillon, A., 2018 (unpublished). *Exploring International Revenue Share Fraud via Number Providers*.

[117] Correspondence between BT and Ofcom in relation to the AIT Notices, 17 July 2018.

Sufficiency of *ex post* competition law

4.38 Before considering *ex ante* regulation (i.e. SMP conditions) to remedy the problems arising from SMP in 070 call termination markets, we must determine if *ex post* competition law remedies would be sufficient to address these problems. This is because *ex ante* regulation should only be imposed where such competition law remedies are insufficient to address the competition problem(s) identified.[118] We have already explained in the context of the three-criteria test above why *ex post* competition law alone would not be sufficient to address market failures,[119] and set out our further analysis below.

4.39 Generally, the case for *ex ante* regulation in communications markets is based on the existence of market failures which, by themselves or in combination, mean that competition might not be able to become established if the regulator relied solely on *ex post* competition law powers. In 070 call termination markets, the nature of the problem (namely the ability of 070 providers to set excessive rates prone to distort competition) is one of persistent market power and so the scale of any problems likely to arise in the absence of regulation would be liable to justify *ex ante* intervention.

4.40 Furthermore, *ex post* competition law focuses on past abuses of dominance, and so is less effective in bringing about or promoting competition by itself. *Ex ante* regulation is normally aimed at actively promoting the development of effective competition.

4.41 Imposing obligations on an *ex ante* basis would also provide 070 providers with greater legal and regulatory certainty. We regard this as appropriate in the context of the impact of the detriments stemming from market power discussed above. SMP conditions enable us to intervene more quickly, if required.

4.42 We have also considered whether there may be any alternative options, aside from imposing *ex ante* regulation, which may be effective in addressing the consumer harms we have identified. Such options include, for example, the use of an alternative number range, self-regulation by industry, or adopting targeted enforcement measures. In considering these options, we have taken into account the comments received from stakeholders to our December 2017 Consultation. Our detailed assessment is set out in paragraphs 4.172 to 4.181 of this statement where, for the reasons set out that sub-section, we have concluded that the potential alternatives to *ex ante* regulation are unlikely to be sufficiently effective.

Overall conclusion on the harm arising from SMP absent regulation and insufficiency of *ex post* competition law

4.43 With regard to the period considered in this market review, we conclude that – in the absence of regulation – 070 providers have the ability and incentive to set excessive 070 TRs and exploit their SMP in relation to 070 numbers, giving rise to harm to competition

[118] Recital 27 of the Framework Directive.
[119] Paragraphs 3.103 to 3.104.

and resulting in consumer detriment. Absent regulation, such conduct would result in a structure and level of prices, in retail and wholesale markets, that would be less efficient, distort customer choice and would be liable to restrict or distort competition.

4.44 We find that *ex post* competition law, under Article 102 of the EU Treaty and Chapter II of the Competition Act 1998, would be insufficient to address the lack of effective competition in the markets defined in section 3 and prevent some of the problems we have referred to above. Therefore, we consider that *ex ante* regulation is required.

Legal tests for setting an SMP condition

4.45 There are a number of legal tests we need to consider when imposing remedies on 070 providers designated as having SMP. We set these out below.

Sections 87 and 88 of the Act

4.46 Section 87(1) of the Act provides that, where Ofcom has made a determination that a person[120] has SMP in an identified services market,[121] Ofcom shall:

- set such SMP conditions authorised by that section as Ofcom considers appropriate to apply to that dominant provider in respect of the relevant network or relevant facilities; and
- apply those conditions to that person.

4.47 Section 87(9) of the Act authorises the setting of SMP conditions to impose on the dominant provider:

- such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant network, or with the availability of the relevant facilities;
- such rules as Ofcom may make in relation to those matters about the recovery of costs and cost orientation;
- such rules as they may make for those purposes about the use of cost accounting systems; and
- obligations to adjust prices in accordance with such directions given by Ofcom as they may consider appropriate.

4.48 Section 88 of the Act states that Ofcom should not set an SMP condition falling within section 87(9) except where:

- it appears from the market analysis that there is a relevant risk of adverse effects arising from price distortion; and
- it also appears that the setting of the condition is appropriate for the purposes of:
  - promoting efficiency;
  - promoting sustainable competition; and

[120] In this case, the identified range holders.
[121] In this case, the termination of calls to 070 numbers.

- conferring the greatest possible benefits on the end-users of public electronic communications services.

4.49 In setting a charge control, section 88 also requires that we must take account of the extent of the investment in the matters to which the condition relates of the person to whom the condition is to apply.

Section 47 of the Act

4.50 Ofcom must also be satisfied that any SMP condition satisfies the test in section 47(2) of the Act, namely that it is:

- objectively justifiable in relation to the networks, services, facilities, apparatus, or directories to which it relates;
- not such as to discriminate unduly against particular persons or a particular description of persons;
- proportionate to what the condition is intended to achieve; and
- in relation to what it is intended to achieve, transparent.

Sections 3 and 4 of the Act

4.51 Ofcom must act consistently with our general duties under section 3 of the Act, including our primary duty to further the interests of citizens and consumers, where appropriate, by promoting competition.

4.52 Section 4 of the Act sets out the six Community requirements on Ofcom which flow from Article 8 of the Framework Directive.

Appropriate regulation to deal with our concerns

4.53 As we have discussed above, the competitive distortions in the 070 market have fundamentally undermined the range, leading to its decline, distorted the choices of consumers of the range and also offered an incentive for deliberate misconduct.

4.54 Accordingly, we have determined that regulation is necessary to prevent 070 providers from exploiting their market power. In our view, the central impact of 070 providers' SMP is that it affords them the ability to set termination charges (currently on an unregulated basis) substantially in excess of costs.[122] Not only does this lead to disproportionately higher retail call prices, but also to actions which undermine confidence in the range which in turn reduces its attractiveness for legitimate providers. Therefore, we consider that the most appropriate response is to address 070 TRs directly through a charge control. The rest of this section sets out our analysis of the appropriate control.

[122] See Annex 4 for evidence on the levels of wholesale costs and 070 TRs.

Our approach to setting a charge control

4.55 In the December 2017 Consultation we proposed a charge control having set out our assessment in two stages:

- Stage 1 - we considered whether call costs should be recovered from the calling party, the receiving party or a combination of the two (referred to below as a multi-party pays (“MPP”) model).
- Stage 2 - in light of our view on the first stage, we then considered how to set the level of the charge control.

4.56 We provisionally concluded that the costs should be recovered under a MPP model, and the charge should be set using the MTR as a benchmark.

4.57 Below we set out the option assessment which considers the extent to which each option would address our concerns. It also considers the objectives in Article 8 of the Framework Directive, which state that any remedy to the SMP identified must be based on the nature of the competition problem identified, proportionate, and justified. We have also taken account of section 88 of the Act, which requires that it must appear to us that the setting of the charge control condition is appropriate for the purposes of:

- promoting efficiency;
- promoting sustainable competition; and
- conferring the greatest possible benefits on end-users of public electronic communications services.[123]

Evaluation of potential charge control options

4.58 We start by considering how the costs should be recovered i.e. stage one above.

Receiving party pays (RPP)

4.59 In the December 2017 Consultation we noted that a receiving party pays (“RPP”) approach would require a dramatic shift in the current market structure to a model with a zero termination rate where all cost would be recovered from call recipients rather than the calling party as is the case today.

4.60 While such an approach would likely remove incentives for fraud on this range and would encourage a revision of retail charges, it may not be a proportionate response as it may not be necessary for the 070 providers to recover all revenue from the call recipients in order to respond to our concerns.

4.61 We also noted that an efficient choice between 070 and other forms of mobile communications could arguably be distorted against 070 if there was a zero termination rate, as in such cases the incremental cost of receiving a 070 call would need to be

[123] See our analysis on ‘Legal Tests’ further in this section.

recovered from the call recipient whereas for mobile numbers the cost is recovered from the caller.

4.62 For these reasons we discarded this option.

Calling party pays (CPP) versus multi-party pays (MPP)

4.63 In weighing up a CPP versus MPP model we considered that both could allow for full recovery of costs. A CPP model would not require much (if any) change to the current pricing structure whereby the use of a 070 number is free to call recipients and all costs are recovered from the caller. However, under MPP, 070 providers would need to charge end-users, which is generally not done currently.

4.64 Figure 4.3 summarises our assessment of these two options (see paragraphs 4.30 to 4.38 and 4.45 to 4.56 of the December 2017 Consultation):

Figure 4.3: Assessment of CPP and MPP options

Criteria	CPP Model	MPP model
Wholesale charges and retail prices	• A termination cap would reduce termination charges and this should lead to reductions in retail prices. • However, if the termination charge is above MTR it is less likely 070 call prices will be aligned with mobile or included in bundles. • The charge cap provides incentives to minimise costs.	• Lower termination rates would be anticipated under MPP[124] and we would expect this to feed through to lower retail prices (and less bill shock). • If termination rates were at or below the MTR, it could reduce the commercial disincentive to keep 070 calls outside of inclusive bundles. • Compared to CPP, there may be a greater incentive for CP's to minimise costs because these cannot be recovered in full through the termination rate. Such reductions in costs should flow through to decreases in retail call prices. • Requiring providers to recover some costs from end-users would expose them to competitive pressure.

[124] Legitimate use to 070 includes a cost to redirect the calls to another network. Hence a under a CPP model with TRs set by reference to 070 providers' costs we would expect the 070 TR to be higher than the MTR (see paragraph A4.49).

Criteria	CPP Model	MPP model
Distorted choices	• As end-users are unlikely to face charges for using 070 numbers, they are likely to continue to make inefficient choices and 'over use' 070 numbers.	• End-users facing some costs of using 070 numbers should result in more efficient choices between using 070 numbers and alternatives. • As end-users benefit from using 070 numbers it is also reasonable that they bear some of the costs.
Fraudulent activity	• Capping termination rates based on costs should reduce the incentive for some types of fraud particularly domestic AIT. • However, fraudulent users may not incur all the costs that legitimate users do, so there may still be some scope for misuse. • Under CPP, providers do not need to collect information about end-users so identity fraud may persist.	• Not allowing full recovery of termination costs from the called party would significantly reduce incentives to misuse the 070 range. With significantly lower returns there is a reduced incentive to encourage calls to these numbers domestically. Further, if the termination rate was at or below the MTR, there would be no incentive for inflated international traffic to be generated. • In addition, the need to earn revenue, or recover costs, from end-users will likely ensure that 070 providers engage in a direct contractual relationship with their customers. This could help the police to tackle identity fraud.
Additional criteria	• With CPP there would be no need to incur additional costs to bill end-users.	• MPP would require billing of 070 end-users. As part of the 15 May Notices we asked CPs whether they provide any services (including non-070 services) that require end-user billing. All of the five CPs that provided 070 services direct to end-users bill for at least some other services. Our analysis in Annex 5 suggests that CPs that

Criteria	CPP Model	MPP model
		already have billing systems in place could adapt these to include 070 end-users at relatively little cost. • However, some stakeholders indicated that organisations without existing billing relationships with end-users would have very high additional costs (see paragraphs A5.9 to A5.16). There may be some consolidation of this market if the costs of billing end-users make the stand-alone provision of 070 numbers uneconomic. This may result in some costs for end-users if they have to change providers in order to carry on using a 070 number. However, we note that 070 numbers are portable and they may be able to retain their number.[125] • If some end-users decide to give up their 070 numbers as a result of incurring charges and move numbers in a different range (for example mobile, 08, 09) they may incur switching costs including the costs of changing their numbers (see also paragraphs 4.126 to 4.128 below).

Source: Ofcom Analysis.

[125] We recognise that if a CP decides to exit the market and hand its number blocks back to Ofcom then it may not be possible for the end-user to port the number i.e. the end-user would need to change its CP and number to continue using 070 services. However, where possible, we would aim to facilitate the transfer of 070 numbers that are in use to a different CP in order to minimise disruption (for example, this may be relevant if the customers of the exiting CP were acquired by another provider).

4.65 Based on the assessment above, we consider that the MPP model is preferable to the CPP model. This is because the MPP model is better suited to addressing the identified consumer harms than the CPP model and is a more proportionate intervention than RPP.

How to set the charge control

4.66 The next stage of our remedy evaluation is to determine how costs should be allocated between the calling party and the end-user, and how to set a regulated termination rate that will be borne by the calling party.

Explicit allocation of costs

4.67 One option for allocating costs between the caller and end-user would be to review the costs associated with each component involved in the provision of 070 call services and to determine the appropriate basis for allocating the costs of network elements and/or functionalities to each party. If cost causation at a component level does not provide clear guidance, one alternative could be to allocate costs in proportion to each party's share of benefits. We consider that both caller and end-user get some benefits from use of this number range.

4.68 While it is possible to identify the relevant cost components, we considered it would be difficult to distribute these between callers and end-users on the basis of either cost causation or share of benefits (see paragraphs 4.59 to 4.62 of the December 2017 Consultation).

4.69 Even if we were to decide upon a certain component cost allocation, our analysis of data gathered under our formal powers suggests a wide range of costs between different 070 providers (see Annex 4). Therefore, even if we were to assign component costs between callers and end-users, we would still not be left with a single ppm figure on which to base an appropriate 070 TR. We could consider using an average calculated on the basis of the 070 providers from whom we have gathered data; however, we consider that it is difficult to estimate the efficient level of costs from data on actual costs, especially when these relate to only one or two years. Actual cost data based on company accounts can be distorted in either direction by temporary and/or firm-specific factors.

4.70 Given the problems in adopting a 'top-down' cost modelling approach outlined above, if we were to decide that it was appropriate to set a cost-based charge, it might be necessary to model the costs on a 'bottom-up' basis (as we do for the MTR). However, bottom-up models also have drawbacks and it is therefore an advantage (though not, by itself, a conclusive one) of using a benchmark rate that cost-modelling is not required. We have therefore considered whether it would be appropriate to use a benchmark rate.

Benchmark of a regulated charge

4.71 A benchmark charge control could be based on a charge set in a relevant call termination market review or decision. Whilst using a 'benchmark' is different to the approach which we usually apply in market reviews, it is our view that the specific circumstances in this case warrant its consideration, as an option open to us under the statutory framework.[126]

4.72 We considered the following candidates for a benchmark rate:

- the 03 termination rate (the "03 TR") set out within our final determination of the regulatory disputes between BT and each of EE and Three;
- the fixed termination rate ("FTR") from our latest fixed call termination ("FCT") market review; and
- the MTR which has been determined in our MCT 2018 Statement.

4.73 The current MTR is 0.489ppm, while the current FTR is 0.032ppm.[127] At the time of our 2015 determination we estimated that BT's 03 TR was 0.383ppm.[128] BT increased the 03 TRs on 1 November 2015.[129] Any of these three termination rates would represent a significant fall in 070 TRs if used as a benchmark.

Termination rate for the 03 number range

4.74 The 03 TR was last reviewed by Ofcom as the result of a dispute between BT, EE, and Three in 2015. In resolving the dispute, Ofcom found that BT's 03 termination charges were above a benchmark based on the sum of BT's charges for geographic termination, conveyance over its network and interconnection circuits, and further above the LRIC of these services. However, as we did not find evidence that actual harm or distortion had resulted, we did not require BT to reduce its 03 termination charges. The 03 TR is therefore more than sufficient to cover the incremental costs of receiving and forwarding a call to a UK fixed geographic number (though not to a mobile or overseas number for which termination charges are higher).

4.75 However, the 03 TR, unlike the FTR and MTR, is not a regulated charge and is subject to change by BT. Therefore, we do not consider it is suitable as a benchmark to be used on an ongoing basis for 070 numbers.

Mobile call termination rate/Fixed termination rate

4.76 As the FTR and the MTR are both regulated rates, we do not have the same concerns as to their stability as we have for the 03 TR. Both options are based on the LRIC of call termination and, as set out in the December 2017 Consultation appear to offer a reasonable proxy for the purposes of imposing a charge control in this case. We consider that both rates would be sufficiently low to remove excessive termination profits and the associated incentive to commit fraud.

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[126] We also note that benchmarking is consistent with the EC's regulatory framework. Specifically, other national regulatory authorities ("NRAs") have used the UK MTR as a benchmark, rather than build their own mobile LRIC models.
[127] Narrowband Market Review 2017, page 10.
[128] Ofcom, 2015. Final determination on the dispute between BT and each of EE and Three regarding BT's charges for terminating calls to 03 numbers, page 30.
https://www.ofcom.org.uk/__data/assets/pdf_file/0019/84124/final_determination_cw01139.pdf.
[129] [✂].

Mobile call termination rate

4.77 The evidence from market research set out in Annex 7 shows that the expectation of the caller is such that when calling a 070 number, they often believe they are calling a mobile (i.e. another '07') number. As such, the MTR might be argued to more closely align with consumer expectations related to this call.

4.78 In addition, we have considered the decision of a call recipient when choosing a 070 service. As a personal number, 070 allows the end-user to be reached in multiple locations. A mobile number can also provide the same functionality, though end-users have to pay for a mobile service – i.e. by either having a SIM card or a monthly subscription. If (as we consider likely) most users of 070 numbers considered mobile numbers to be the closest alternative to 070 as a service offering mobile connectivity, the additional costs over and above the cost of mobile termination would, in our view, be a reasonable measure of the incremental cost of the end-user's decision to take a 070 number. Setting the 070 TR at the MTR would therefore mean that call recipients would pay a rate that reflects the incremental cost of choosing a 070 number rather than a mobile number, which would tend to incentivise efficient choices being made.

4.79 Finally, it is arguably necessary to set the cap at the MTR to provide the right incentive for CPs to align their 070 and mobile retail prices. Any material premium on the 070 TR above MTR is likely to undermine convergence of the retail prices and more importantly the inclusion of 070 in call bundles.

Fixed termination rate

4.80 The FTR is lower than the MTR and setting a cap at this level would mean that all, or nearly all, of the costs of the 070 service would be recovered from the called party. As set out above, we consider that setting the 070 TR at the MTR means the end-user faces an incremental cost that reflects their decision to use 070 rather than mobile, and using the FTR is arguably lower than is necessary to address our concerns.

Assessment

4.81 Either an explicit cost allocation by Ofcom or a benchmark rate would force 070 providers to recover costs from 070 end-users who have a greater potential to switch to alternatives. This would be likely to result in a more efficient choice between 070 numbers and other alternatives, such as a mobile number, as end-users would be faced with more of the costs associated with their decision.

4.82 All the options would significantly reduce the excessive termination profits that CPs are currently able to earn and the associated incentive to commit fraud.

4.83 On the basis of the arguments set out above, we consider that choosing the MTR as the cap is the most proportionate response to the identified competition concerns.

4.84 A cap based on the MTR would provide the right signal to encourage the alignment of retail prices with those of calls to mobile numbers – the service that the 070 range is most frequently confused with. In addition, a cap at the MTR would deal with our concerns and therefore it is not necessary, nor a proportionate response, to have a lower cap.

4.85 We recognise that capping 070 termination charges at the MTR means that the termination rate will be less than the costs of providing a 070 service if you include the onward network routing costs which are currently covered by the termination rate of 070 in most cases. However, this would not prevent 070 providers from recovering their costs – it would simply require them to recover some of these costs from 070 end-users (with desirable efficiency effects as set out above).

4.86 Using the MTR has some practical advantages in that it is straightforward to implement without being prone to manipulation by CPs. It is likely to require 070 providers to charge end-users, which may require new relationships and billing system developments to facilitate the recovery of costs from these customers. However, recovering costs from end-users (in a competitive market) may provide the incentive for 070 providers to reduce costs including billing costs.

Stakeholder comments

4.87 BT, Eurecom, Magrathea, Vodafone, ITSPA, Digital Mail Limited and 3 individuals agreed with our proposals. Of these respondents, Magrathea and Digital Mail are actively marketing PNS.

4.88 BT considered that the cap was likely to remove the current incentive for AIT on 070 numbers. It noted that if CPs choose to align their retail 070 and mobile call prices it would reduce the level of unexpected charges and bill shock for end-users. However, it argued that we should implement more measures to reduce the risk of fraud by prohibiting use of revenue sharing and “call through” on the 070 range. Without these additional measures BT thought that the alignment of retail pricing for 070 and mobile calls was unlikely. It suggested that using the FTR rather than the MTR would reduce to a minimum any incentives for revenue sharing and call through as the FTR is significantly lower. BT also suggested that moving personal numbers to a different range would avoid the problem of confusion with mobile numbers.

4.89 Eurecom considered that 070 numbers would continue to be used for fraudulent activity if termination rates remain high. It believed that in some cases 070 numbers could be directly replaced with regular premium rate numbers, with the advantage that those numbers are typically not reachable from abroad and are in a well-known range (which avoids confusion). It provided evidence of fraud on the range based on its own research (see paragraphs A7.62 to A7.64).

4.90 Vodafone thought that a MTR cap significantly reduced the risk of fraudulent activity, although it noted that a higher (03 termination) or lower (fixed termination) rate could arguably achieve the same outcome.

4.91 ITSPA supported the proposed drop in termination rates and Ofcom’s efforts to reduce bill shock.

4.92 Of the three individuals who responded, Individual 1 ([✂]) and Individual 2 ([✂]) agreed with the cap because it meant that the party choosing the 070 number (and receiving the benefit) would face some of the costs. All three individuals who responded thought our proposals should go further and control retail prices.

4.93 Digital Mail Limited supported the aims of our proposals. It noted that if fraud and retail prices are reduced then 070 numbers could be given a new lease of life.

4.94 AIMM, Atlas[130], GCI, [✂], Lexgreen, Netcollex, Premtext, RAG/Biaas, and Telecom2 disagreed with our proposals. Most of these stakeholders accepted the need to regulate the termination rate, but felt that the level proposed was too low.

4.95 [✂] preferred an alternative proposal of bringing the 070 range under control of the PSA with more efficient regulation and registration processes, alongside non-geographic number service charges. However, it recognised that bringing the termination rate in line with the MTR would reduce consumer harm due to call price confusion, and if we set a cap it considered that the MTR was the most appropriate.

4.96 We discuss these responses in more detail below.

Additional costs to implement billing for end-users

4.97 AIMM and Telecom2 considered that our proposals would lead to additional costs to implement billing for end-users. In light of stakeholder comments we issued further Notices and undertook additional analysis to assess the impact of billing of end-users of 070 numbers. This analysis, and our response to stakeholder comments, is described in detail in Annex 5.

Additional costs

4.98 Premtext believed we had understated the likely costs from the point of view of a reseller. It also noted that the additional costs for 070 end-users might lead them to change number range and this would result in costs in informing callers of the new numbers, changes to stationery, advertising leaflets, signs etc.

Impact on particular end-user groups

4.99 Some stakeholders noted the potential impact on particular groups of consumers. AIMM, Telecom2 and Netcollex noted that women and the LGBT community benefit from being able to use 070 numbers to facilitate contact without having to provide their fixed or mobile number, allowing the 070 number to be changed if unacceptable calls are received. Netcollex thought that these groups would stop using 070 numbers (and lose the associated protection) if the end-user faced charges. Telecom2 thought the use of 070 numbers by potentially vulnerable people (particularly women and LGBT) should be reflected in the EIA (which we have done – see Annex 1).

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[130] Atlas did not explain why it disagreed with our proposals.

4.100 RAG/Biass was particularly concerned about the temporary use of 070 numbers while in hospital to stay in touch with friends and family. GCI also noted that 070 numbers are widely used by doctors and NHS patients.

Alternative cap suggestions

4.101 AIMM, Franzcom and Lexgreen thought that calls made to 070 numbers should remain subject to the CPP model. AIMM said that any cap should allow CPs to provide basic services without any cost to the receiving party. Franzcom and Lexgreen suggested alternative higher rates. Franzcom suggested a cap at the k-rate.[131] It considered that this would provide enough revenue to cover call termination costs and other services and simplify the service for the consumer. Lexgreen thought the termination rate should be between 0.8-1ppm which would amount to the UK MTR plus a margin to cover other costs. It suggested taking the 03 TR, subtracting the geographic termination rate and adding the UK MTR to get the final figure. It estimated this would be roughly about 0.9ppm.

Regulation of retail prices

4.102 Telecom2 believed the problems stemmed from originating CPs charging high prices in the retail market and any reductions in 070 TRs would not be passed through to retail prices. It thought that any remedies should be imposed on retail providers.

4.103 Premtext also suggested retail regulation through setting a maximum retail charge band at the 'd' rate.[132] It thought that this would reduce the level of consumer harm and significantly reduce the incentive for any fraudulent activity whilst allowing enough money in the value chain for legitimate 070 users to 'survive.' It further stated that if we do implement the proposals then we should mandate that calls to 070 numbers are priced the same as calls to UK mainland mobiles in terms of pricing, bundles and discounts etc.

Other points

4.104 AIMM thought that we had not scoped the full range of 070 services that deliver consumer benefits and were concerned that these services will disappear. Premtext thought that our review did not fully consider the benefits of a 'follow-me' service that allows a caller to make contact without multiple calls to track down the correct number for that time of day.

4.105 GCI felt that the impact on reseller revenues from a MTR cap would affect the service offered to legitimate users.

4.106 [✂] noted that the current high cost to the calling party helped to protect its customers against unwanted calls, "as the cost provides a significant deterrent other than to genuine buyers." It stated that without the revenue from 070 calls it would have to reduce staff

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[131] 070 TRs are set by reference to a number of bands referred to as, for example, k, d, pn2 etc. See Figures A4.2 and A4.3 for the average k termination rates.

[132] 070 TRs are set by reference to a number of bands referred to as, for example, k, d, pn2 etc. According to BT's price list the retail price (as of 27 September 2018) for a 'd' rate call is 16.211ppm (daytime) and 9.554ppm (evening and weekend) see https://www.productsandservices.bt.com/assets/pdf/BT_PhoneTariff_Residential.pdf page 53.

numbers which help to remove rogue callers and scammers. [✂] welcomed any measures that prevent consumer confusion but believed that any significant change would unfairly harm legitimate 070 businesses.

4.107 Lexgreen suggested that end-users will opt for PAYG SIM with free EU roaming, rather than 070 numbers with end-user charges. It considered that this will not help to alleviate fraud. AIMM also noted that identity fraud can be performed with pre-paid SIMs. Premtext and Lexgreen felt that the alternative of migrating to 08 or 09 numbers would be disadvantageous because of the high mobile access charges and potential for bill shock. RAG/Biass noted that using 08 and 09 bands "may not be an ideal solution as the pricing structures required may not be in place and such an assignment may result in issues such as national call barring or inability to dial numbers from overseas."

4.108 AIMM noted that US mobile networks worked for a period on the basis of the RPP model, "forcing the receiving party to seek other cost-effective means of receiving calls, hampering the development of consumer oriented services that Europeans were enjoying." Premtext commented that if we ever proposed RPP for mobile calls then concerns would be raised that we are not necessarily acting in consumers' interests.

4.109 Premtext said that some 070 call prices were less than the maximum price for calls to mobiles. It considered that in some cases 070 call prices are good value compared to mobile prices.

4.110 GCI and RAG/Biass noted that some other 07 numbers have a significantly higher MTR than the proposed termination rates for 070s. It thought that calling these mobile numbers could still cause bill shock and could be used for fraud/AIT.

Ofcom's response

Charges for end-users

4.111 The imposition of a termination rate cap will restrict the ability of CPs to recover costs through the termination rate and could mean that CPs choose to charge call recipients as well. A number of stakeholders commented that this would have a deleterious impact on use of the 070 number range generally, and particularly impact some consumer groups. Some stakeholders suggested that we retain a CPP model.

4.112 We recognise that reducing termination rates, such that the calling costs are likely to be shared between the caller and end-user, is a significant change. However, we consider that this is appropriate as the current model with its consequential high retail prices and incentives for misuse has in our view fundamentally undermined the range and may be a factor in its long-term decline. Further, we consider intervention is justified by the consumer harm and incentive for fraud currently arising as a result of high termination rates determined by the 070 providers with SMP over their 070 numbers. Retaining a CPP model would mean a higher termination rate with on-going incentives for fraud and the value of associated losses.

4.113 We are not seeking to inhibit 070 providers from recovering costs; it is simply that, by capping the wholesale cost of terminating 070 calls at the MTR, 070 providers will likely need to recover costs from end-users as well. We consider that this will alleviate the poor outcomes that are currently arising due to the current high termination rates (discussed at paragraphs 4.10 to 4.37):

- If reductions in the termination rate are reflected in retail prices then issues around bill shock and excessive prices are likely to be reduced. Using the MTR should also encourage the alignment of mobile and 070 call prices, including encouraging the addition of 070 calls in inclusive bundles.
- A cap on the wholesale termination rate is likely to reduce the incentive for service provider fraud and AIT because the termination revenues will be more closely aligned to the termination costs.
- Service providers will need end-user contact details if they intend to bill them, so use of 070 for identity-related fraud will be harder.
- The MPP model should lead to more efficient outcomes. 070 providers often make 070 numbers available free to the end-user and recover all the costs from termination charges, borne by callers. This means the choices that 070 end-users make when deciding to take a 070 service rather than an alternative may not be efficient because they do not face the true costs of their decision. We consider that the imposition of a cap on wholesale call termination at the MTR will result in more efficient choices because end-users will face the incremental cost caused by their use of the service (see paragraph 4.78 above).

4.114 We do not consider that the points above will be achieved under a CPP model (where the termination rate would be above the MTR), and this is why we have chosen the MPP model rather than the CPP model with a lowered termination rate.

4.115 We consider that our regulation should have a direct positive impact on consumers and citizens by addressing the existing issues and could have a positive impact on the 070 range to the extent that potential users that have, to date, been deterred by its poor reputation decide to utilise the range (see paragraphs 4.16 to 4.20 above). However, overall, in the short term at least, we would expect our regulation to lead to a decline in the number of 070 end-users and call minutes, due to the cessation of illegitimate use (i.e. scammers and fraudulent use) and potentially because of more efficient choices by current 070 end-users.

4.116 We recognise there may be some disruption to legitimate end-users who may have to pay for 070 use that is currently free or seek alternatives (see paragraphs 4.120 to 4.128 below). However, this is a relatively small market (we estimated there were around 0.5 million end-users in 2009[133]) meaning the number of consumers affected is likely to be relatively low and the end-user charges are also likely to be low (see below). We consider a charge control is unlikely to give rise to any adverse effects which are disproportionate to the aim of addressing the harms we have identified.

[133] 2009 070 Statement, paragraph 2.8.

4.117 We are aware, as noted by some stakeholders, that legitimate users of 070 may value the functionality it provides (for example follow-me services, preserving anonymity). Where end-users derive genuine benefits from 070 services and the value is greater than the costs then we anticipate that they would be willing to pay for the service. To provide a rough estimate of the magnitude of end-user charges, we have used information provided by CPs on the costs of providing 070 termination[134] and our estimate of incremental additional billing costs that CPs will incur. For the purposes of this illustration, we have allowed for ongoing billing costs of 0.108ppm and one-off implementation cost recovery of 0.411ppm, consistent with the cost estimates for a provider with an existing billing system set out in Annex 5. We have assumed an MTR (and therefore 070 TR) at the current rate of 0.489ppm.[135] The results are shown in Figure 4.4 below.

Figure 4.4: Estimated ppm charge for end-users

Termination to:	Weighted average incremental termination cost ppm[136]	Additional billing costs ppm	MTR ppm	End-user charge ppm
UK fixed numbers	1.093	0.519	(0.489)	1.123
UK mobile numbers	1.550	0.519	(0.489)	1.580
International mobile numbers	5.951	0.519	(0.489)	5.981

Source: Ofcom analysis of data provided by CPs in response to the July 2017 and 4 May Notices, and the 2018 MCT model.

4.118 Given the illustrative ppm charges set out above, end-users would need to receive calls of relatively long duration to accrue significant bills. For example, a 30 minute call to a 070 number terminating on a UK fixed network would cost the end-user 34p. A similar length call terminating on a UK mobile network would cost around 47p while for an international call it would be around £1.79. We note that the costs for terminating on an international network (while being low in absolute terms) are significantly higher than for UK fixed or mobile termination. In its response to the December 2017 Consultation, Eurecom suggested a CP could limit redirection to domestic numbers only to avoid higher termination costs. A CP could offer this as a different service (with lower charges) in addition to an unrestricted service allowing end-users to pick the option most appropriate to them.

[134] This information was provided by CPs as part of the July 2017 Notices.
[135] For this analysis we have used the current MTR. We note the forecast MTR from 1 April 2019 is slightly lower (0.480ppm) although this does not materially affect our analysis.
[136] Taken from Figure A4.7.

4.119 As observed by some of the respondents to the December 2017 Consultation, some 070 numbers are used on a temporary basis for example, while a patient is in hospital, for advertising, on dating websites etc. People using 070 to protect their identity (for example women and the LGBT community noted above) would also likely be temporary users (because once the caller was found to be genuine they could switch to using a fixed or mobile number at lower cost). By their nature, temporary 070 users may be unlikely to receive a large volume of calls and so would be unlikely to face large bills, whilst they are also likely to have the option of using an alternative number range without incurring significant cost (in hospitals the use of 070 is steadily declining now that mobile phones are allowed in most wards). Further, we consider that our intervention, to the extent it is reflected in reduced retail charges, will also have a positive impact on the above groups by reducing the cost of making contact with them. On that basis, we do not consider that end-users from any particular group (for example women, LGBT) will be disproportionately affected (see also the discussion in the EIA in Annex 1).

4.120 We consider that relatively modest end-user charges at around the level in Figure 4.4 above are unlikely to deter 070 end-users who derive material benefits from the use of those numbers. Where end-users derive low benefits from using 070 numbers (i.e. lower than the end-user charges) then it may be more efficient for them to switch to alternatives. We discuss two possible options below:

a) give up 070 number and move to PAYG mobile; or

b) give up 070 number and move to a different number range for example, 03, 08 or 09.

<u>a) Move to PAYG mobile</u>

4.121 A PAYG mobile can be acquired at low price for example around £11 including handset and initial top up (possibly less if the user has a spare handset that could be re-purposed) and would mean the end-user could receive calls at no cost.[137] In addition, the caller could also benefit from lower costs, for example, to the extent that it enabled them to make in-bundle calls. As noted by Lexgreen, using PAYG SIM may also enable the benefit of free EU roaming.

4.122 However, as noted by Premtext, some end-users may face costs associated with changing their number and possible loss of functionality provided by 070 which may make this option less attractive. For example, in connection with the 2009 070 Statement, we asked business end-users to estimate the costs they would incur to change stationery due to changing their 070 number. The responses suggested that these could be significant.[138] However, the cost of changing number on average, over *all* affected business users of 070 numbers, was much lower.[139] Whether an end-user finds switching to a PAYG mobile attractive is likely to depend on individual circumstances, weighing up the value that they

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[137] For example, EE offers an Alcatel 10.66 for £0.79 upfront with a minimum £10 top up (information correct as of 27 September 2018).

[138] Estimates ranged from £1500 - £3500: 2009 070 Statement, paragraph A1.117.

[139] Approximately £155 spent on stationery per end-user with an estimated 140,000 businesses affected, giving a total cost of around £22m: 2009 070 Statement, paragraph A1.116.

place on 070 services and keeping their number, versus the benefits from moving to PAYG, for example avoiding end-user charges and lower costs for callers. If they prefer to use PAYG when faced with the costs of using a 070 number then we consider this is an efficient choice. Given the likely level of end-user charges, any user who would incur significant costs if they changed number would be unlikely to do so.

4.123 Some stakeholders noted that PAYG mobile was vulnerable to fraud, for example AIMM commented that identity fraud can be performed using pre-paid SIMs. We recognise that identity fraud may be possible on PAYG mobile because billing information does not need to be provided. However, committing this fraud is likely to be significantly more costly for the end-user as they would have to pay for any onward forwarding, for example to international locations (which can currently be recovered from the high termination rates on 070 numbers). Further as a proportion of such identity fraud is undertaken by individuals not based in the UK, the complexity of establishing and maintaining a UK PAYG service without resort to traceable payment mechanisms (i.e. on a cash basis) would be a significant obstacle. Some types of 070 fraud (i.e. AIT and service provider fraud, see paragraphs 4.21 to 4.27) are driven by high 070 TRs. These types of fraud will not be profitable using PAYG mobile where the termination rate is much lower.

<u>b) Move to alternative number ranges</u>

4.124 A further alternative to avoid end-user charges is to move to a different number range where all the costs are recovered from callers – for example 03, 08 or 09. The 09 range (premium rate numbers) might be appropriate for customers that rely on relatively high calling costs. For example, [✂] noted that the relatively high cost to the caller is used as a deterrent against rogue callers. In addition, we are aware of at least one user of 070 numbers that plans to migrate their services to a 08 number range.

4.125 We recognise, as noted by Lexgreen and Premtext, that some ranges, for example premium rate 09 numbers, have high call charges. However, migrating to alternative ranges may benefit consumers more generally because they have a greater awareness of call costs on these ranges (as noted by Eurecom), service charges on these ranges are capped and it avoids the confusion between 070 and mobile numbers which can lead to bill shock.

4.126 We recognise that this option is likely to result in additional costs. In the 2009 070 Statement we assessed the costs of mandated migration from 070 to an alternative number range (such as 06, 08 or 09). We estimated that the total costs (including those to PNS providers/resellers, end-users and originating CPs) could be around £40m.[140]

4.127 A large portion (around £22m) of the £40m cost noted above relates to the cost of end-users changing numbers (for example need for new stationery etc).[141] We do not expect costs at anything like this level to result from our proposal, not least because it will be up to users to decide whether to change or not in the light of the costs and benefits to them.

[140] 2009 070 Statement, paragraph A1.132.
[141] 2009 070 Statement, Figure A1.7.

Moreover, the costs of number changes may have declined to the extent that communication is now digital, for example via email thus there is less need for physical stationery. Where these costs can be avoided, moving number range could be a more attractive option. This might be possible, for example, for customers that use 070 numbers on a temporary basis (such as for dating, advertising, or while in hospital). In this case, new end-users could be given 08 or 09 numbers and the 070 numbers could be simply retired over time. This may avoid the potentially high costs associated with an individual end-user needing to change number. In this context, we note that Auto Trader who once relied on 070 to mask advertisers' numbers, without charge, now offers end-users geographic numbers on the same terms (i.e. inclusive in the cost of the advertisement).[142]

4.128 As for PAYG above, we would expect an end-user to weigh up their individual costs and benefits in deciding if this option is appropriate.

Organisations providing services using 070 numbers may exit the market

4.129 Some stakeholders suggested that organisations that provide services using 070 numbers would cease to provide these services/exit the market in response to our proposals. We consider that end-user charges at the level indicated above (see paragraph 4.118) are unlikely to deter all demand but will lead to more efficient choices. Some end-users may find better alternatives when faced with the true cost of using 070.

4.130 We anticipate that our regulation is likely to drive out organisations using 070 numbers for fraud/scams. We recognise that some organisations providing legitimate 070 services may also exit the market where they face high implementation costs for billing end-users. These are most likely to be standalone providers of 070 services that have no current billing relationship with the end-user (see paragraphs A5.9 to A5.16). If some CPs exit the market, we consider that 070 end-users could switch to alternative providers. They may incur some costs to switch (i.e. finding a new provider) but it may be possible to port the 070 number to avoid the costs of changing number.[143] We consider it very unlikely that this would harm competition and we note that entry barriers to 070 service provision will remain relatively low.

Alternative termination caps

4.131 Franzcom and Lexgreen suggested alternative higher termination caps. Franzcom suggested a cap at the k-rate. Lexgreen thought the termination rate should be set between 0.8-1ppm which would amount to the UK MTR plus a margin to cover other costs. It suggested an alternative methodology to take the 03 TR, subtract the geographic termination rate and add the UK MTR to get the final figure. It estimated this would be roughly about 0.9ppm. BT suggested we use the FTR which is a lower rate.

[142] Telecom2 noted that Auto Trader is not a using a full PNS service as the calls can be connected only to other geographic numbers or to mobile numbers. We are simply noting that it is possible for at least some 070 end-users to move to other services.

[143] See footnote 125.

4.132 In relation to Franzcom's proposal we note that the k-rate is relatively high and would not address our concerns. Our analysis in Figures A4.2 and A4.3 shows that the weighted average k-rate varies from 1.63ppm to 23.28ppm depending on the time of day and point of origination. This may represent an improvement compared to the current average termination rate for 070, however, even at its minimum level it is higher than the MTR and, at its maximum, it is much higher. We also consider that the k-rate is unlikely to be related to the actual costs of 070 termination in any meaningful way.

4.133 Further a significant benefit of using the MTR is that it aligns the termination rates for mobile and 070 numbers so removing a significant commercial disincentive for including 070 numbers in call bundles.

4.134 In the December 2017 Consultation we discussed an option to use the 03 TR as the cap and we consider Lexgreen's proposal to be a variant of this.[144] Lexgreen's proposal has the merit of leading to a relatively low termination cap which could alleviate some of our concerns around bill shock. However, as discussed in the December 2017 Consultation, the 03 TR has not been set in the same way as the MTR (i.e. it is not a regulated charge), which means it could be subject to change by BT and therefore we do not consider it is suitable as a benchmark to be used on an ongoing basis for 070 numbers.

4.135 In addition, based on our analysis in Annex 4, a termination rate of 0.8-1ppm would not be sufficient to cover all 070 service providers' costs. Therefore we would still expect some charge for end-users and Lexgreen's proposal would not mitigate the need to bill end-users and the associated additional costs etc. Because the rate is higher than the MTR it would be less likely to encourage retail CPs to include 070 numbers as part of inclusive bundles. Compared to our proposal, it would be likely to have significantly smaller benefits for a broadly similar level of costs.

4.136 We discussed BT's proposal to use the FTR at paragraph 4.80 above.

Regulation of retail prices

4.137 A number of stakeholders (including some that agreed with our proposals) suggested that we should regulate retail prices. They argued that the reduction in wholesale termination rates would not necessarily flow through to retail prices and retail regulation was necessary to avoid high prices for consumers and bill shock.

4.138 We recognise that our proposals will not directly control retail prices. However, we consider that competitive forces should mean the reduction in wholesale termination charges flows through to the retail level. Setting 070 TRs at the same rate as MTRs removes a significant barrier to treating 070 calls the same as mobile calls, including with respect to call bundles (see paragraph 4.79). We expect that this will result in 070 calls being treated the same as mobile calls. We consider that retail providers have an incentive to reflect the reduction in termination rates in retail prices (and bundles) because retail call markets are competitive, and because the high current prices generate bill shock and customer

[144] December 2017 Consultation, paragraphs 4.67 to 4.68.

harm/complaints (see paragraph 4.13) and create a bad customer experience. To the extent that reductions in 070 TRs are not, or are only partially, passed on in lower 070 call charges, we are prepared to consider further action to protect consumers.[145] This is something we will monitor and review if necessary.

4.139 We also note that we would not be able to fully address the bill shock and tariff confusion suffered by callers to 070 numbers if we set maximum retail prices at a level that was sufficient to cover current 070 termination charges using our consumer protection powers. If we set a maximum below this level, the onus would then be on retail CPs to renegotiate with 070 providers to achieve lower termination rates in order to avoid making a loss on each 070 call. As we have found that 070 providers have SMP in 070 termination markets, and no evidence of material CBP, it could be difficult for retail CPs to achieve such an outcome. Faced with termination rates that are potentially higher than regulated 070 retail prices, the retail CP might ultimately decide to seek to prohibit callers from making 070 calls, and this could potentially lead to withdrawal of all 070 calls.[146] Even if such an eventuality could be avoided, it is likely that 070 terminators would remain in a position to exploit their SMP in the negotiation, leading to higher than desirable costs to originators. Using SMP regulation to control 070 WCT charges is therefore a necessary pre-requisite for reforming the market, should lead to consumer prices that better reflect underlying costs and makes it more likely that we will achieve our objective of protecting consumers without significant disruption.

Other points

4.140 Premtext said that some 070 call prices were less than the maximum price for calls to mobiles. We noted at paragraph 4.10 above that the out-of-bundle prices for calling mobile and 070 numbers may not be dissimilar. However, the key point is that calls to mobiles are often included in bundles whereas 070 numbers are not, and therefore out-of-bundle prices for calls to mobiles often do not reflect the amount customers actually pay to call a mobile number or the prices they expect to pay when calling a 070 number.

4.141 GCI and RAG/Biass noted that some other 07 numbers have a termination rate above the MTR and calling these numbers could still give bill shock, and they could be used for fraud. This statement covers 070 numbers (where we have identified significant evidence of harm) and other 07 numbers are not within the scope of this work.

[145] For example, Ofcom has powers under section 45 of the Act to set General Conditions which are designed to protect consumers.

[146] This is providing that CPs could justify prohibiting 070 calls under Ofcom's General Condition 20, which requires CPs to provide end-users with access to non-geographic numbers and all telephone numbers provided in the European Community, where this is "technically and *economically* feasible" (emphasis added). The general conditions are the rules set by Ofcom that all CPs must follow to operate in the UK – see https://www.ofcom.org.uk/advice-for-businesses/knowing-your-rights/gen-conditions.

Implementation period

4.142 In the December 2017 Consultation we proposed a three-month implementation period, which we considered would be proportionate to allow 070 providers to implement the changes required as a result of our proposals. These changes included:

- requesting and obtaining new numbers from different ranges;
- setting up new billing systems; and
- setting up/restructuring customer interface systems.

4.143 We also considered that providers who wish to retain the services on 070 numbers may adjust their business models after the cap is introduced, leading to investment in new services using different number ranges. Providers could also seek to move to alternative number ranges, which would require a lengthy lead-time.

4.144 We noted that we considered the three-month period would allow businesses a reasonable time to inform end-users of any changes to their service as well as to make changes to marketing materials after acquiring new numbers and/or introducing charges.

4.145 In response to our December 2017 Consultation a number of stakeholders considered that a longer implementation report would be required. Suggestions of an appropriate implementation period varied from six and 24 months.[147]

4.146 To better understand why a longer implementation period would be required we sent Notices to a number of stakeholders.[148] The requirement of a longer implementation period was based on the following:

Migration to an alternative number range

4.147 A stakeholder has indicated that it is currently in negotiations with network carriers on alternative number ranges with a view to migrating from the 070 range. It has indicated that the process, which would include requesting and building new ranges, would take approximately nine-12 months to ensure a smooth transition[149]. [✂] also indicated in its response that the operational requirements to migrate its numbers to an alternative number range would be 'considerable'.

Business planning

4.148 [✂] indicated that they consider it would take a considerable amount of time[150] for businesses to develop and implement the relevant changes to their business model to take account of the proposed changes to the regulation. Time would also be required to inform

[147] [✂], [✂], ITSPA, Lexgreen, Magrathea, Netcollex, Premtext, Telecom2 and Vodafone all indicated that a longer implementation period would be required. A small number of respondents (Franzcom, Individual 1, Individual 2 and Individual 3) agreed with our proposal.

[148] [✂].

[149] [✂].

[150] [✂] – 12 months, [✂] – at least 24 months, [✂] – at least 18 months and [✂] – 12 months.

end-users of any changes and allow them to decide whether to continue to use 070 numbers or choose an alternative service.[151] A number of stakeholders[152] also suggested that longer than three months was required in order to allow businesses reliant on the 070 number services to update marketing material in order to reflect any change in contact numbers.

Modification to IT and billing systems

4.149 ITSPA, [✂] and Netcollex all indicated that a longer lead time would be required in order to allow businesses to develop and introduce new IT and billing systems to accommodate the changes. ITPSA considered that six months would be sufficient to adopt the changes, whereas [✂] suggested that at least 18 months would be required. Netcollex considered the suggested three-month period to be too short, but did not indicate specifically how long it would require to introduce the changes. [✂] also indicated that implementation would require other lengthy administrative steps including entering into new contracts with customers, renting and furnishing of additional accommodation and obtaining regulatory licences.

Ofcom's response

4.150 We accept that, based on the representations we have received, stakeholders may need longer than our initial proposal for a three-month implementation period to make the changes needed to respond to our termination cap.

4.151 We engaged with stakeholders in response to their initial representations to better understand the basis for the relatively wide range of alternative implementation periods proposed. We sent Notices to seven CPs asking them to describe the specific processes they would need to introduce in order to comply with our regulation and to explain why any alternative implementation periods they proposed were justified. While stakeholders were able to identify the different stages of activity required, there was no evidence provided that would support a multi-year implementation.

4.152 We also recognise that there a wide range of business models that have arisen utilising the 070 range including the use of 070 numbers in machine to machine communication links supporting alarms and monitoring services. While there is no technical challenge arising from the regulation we are implementing that will stop this type of service operating, we accept that our changes will require companies currently using 070 termination revenues to fund the services to reconsider their business models – and either decide to bill the end-user directly or to change the contact number and use a revenue share range.

4.153 Stakeholders have said that there may be situations where the user of a service of this type will not be directly contactable. We accept that there may sometimes be complications in contacting the end-user, although we would normally expect the service provider to have

[151] ITSPA, [✂] and [✂], [✂].
[152] [✂] and [✂].

records which would ultimately allow contact to be made (for example, if it is a personal alarm then they must be able to link the responders to a particular location or contact a third party with such information).

4.154 It is in recognition of the potential complexity of changing business structures and the need to make the necessary technical changes that we have decided to set the transition period to 12 months.

4.155 We accept that this will mean that existing wholesale and retail charges, and the associated consumer consequences, will continue for longer than we might prefer, but note that originating CPs have been active in seeking to identify and respond to fraud and AIT activity which we anticipate will mitigate the impact until the charge cap comes into effect.

Impact of our remedy

4.156 In the December 2017 Consultation we set out a provisional impact assessment for our proposals to cap 070 termination charges at the same level as the MTR. Having taken into account the responses from stakeholders and the further evidence we have gathered, we set out below our conclusions as to the impact of imposing the remedy set out above.

4.157 As set out in the December 2017 Consultation and in this statement, our aim in undertaking this market review has been to address harm arising from 070 providers having SMP in relation to 070 wholesale termination rates, including bill-shock for consumers and fraud occurring on this number range.

4.158 In our view, capping 070 termination charges at the same level as the MTR is an effective remedy in addressing the harms we have identified. By setting the wholesale charge for terminating 070 calls at the same level as charge for terminating mobile calls, 070 providers will not be able to set excessive termination charges. We expect reductions in the 070 TR to be reflected in retail prices (potentially with 070 numbers included in call bundles) which will reduce the risk of bill shock.

4.159 Having assessed the options, we have also concluded that imposing a charge cap based on the recovery of costs from both the calling and receiving party is both an effective remedy, and the least onerous method of achieving our aims.

4.160 We recognise that 070 end-users currently use these numbers for free, and that our remedy is likely to lead to charges for these users. This means that a billing relationship between the 070 provider and the end-user will need to be established. We have discussed the potential implementation costs in detail in Annex 5. Where a CP has an existing billing system we consider that it could be adapted to charge 070 end-users at relatively low cost.

4.161 We recognise that some CPs that do not have billing systems may exit the market because the costs of establishing such systems for the sole purpose of charging 070 end-users may be prohibitively high. If some CPs exit the market, we consider that their 070 end-user customers could switch to alternative providers. They may incur some costs to switch (i.e. finding a new provider) but it may be possible to port the 070 number to avoid the costs of changing number.[153] We consider that some CPs may exit but without harm to competition as entry barriers to 070 service provision will remain relatively low. In addition, as the reputation of the range recovers, it may encourage wider use 070 numbers including potential new and innovative services.

4.162 Further, as stated above, our remedy does not seek to inhibit 070 providers from recovering costs per se; it is simply that, by capping the wholesale charge for terminating 070 calls, 070 providers will likely need to recover costs from end-users as well. Alternatively, CPs have the option of migrating their 070 services to other number (08 or 09) ranges where termination charges are above the MTR, or migrating their 070 services to the 03 number range (as set out in paragraph 4.88 of the December 2017 Consultation). It is also our view that the charge control is unlikely to give rise to any adverse effects which are disproportionate to the aim of addressing the harms we have identified. We recognise that there may be a loss of end-users for 070 numbers once charges are applied, as such end-users reconsider the value of maintaining their 070 number in an era of free mobile roaming across the EU and in many non-EU countries. It is our view that it is appropriate for users of the range to consider its value to them, in light of the full costs of the service and having regard to the other options available.

4.163 While any termination rate that was significantly below the current levels could result in reduced 070 retail call prices to some extent, the optimal outcome is one that reduces excess revenue to a level that undermines the incentive to commit fraud, while encouraging retail prices to be aligned with mobile prices. We consider that the MTR achieves this, while allowing a reasonable and proportionate level of cost recovery from the called party. We also do not consider that the termination cap impacts disproportionately on 070 providers, given the commensurate benefit in addressing the detrimental effects of SMP which these operators are currently able to exert.

4.164 We are conscious that removing the scope for fraud and abuse on the 070 range could encourage that misuse to migrate to alternative numbers, and in particular there is a risk that such misuse could seek to migrate to 07x numbers allocated to CPs in the Channel Islands and the Isle of Man, where call termination charges are currently significantly higher than in the UK. We are, however, working with the relevant authorities in the Crown Dependencies and will consider measures to ensure the interests of UK consumers and citizens are furthered.

Alternative proposals

4.165 In response to our December 2017 Consultation, a number of stakeholders suggested alternative proposals. We set out these, and our assessment of these proposals, below.

[153] See footnote 125.

Stakeholder comments

Use of an alternative number range

4.166 A number of stakeholders suggested that the consumer harms identified may be better addressed by using an alternative number range for PNS. RAG/Biass, along with GCI and AIMM suggested using an alternative number range which is fully funded by the termination rate (GCI and RAG/Biass specifically mentioned 04 or 06 numbers). BT and Eurecom noted that moving PNS to a different number range might help consumers to better distinguish the numbers and decrease their likelihood of falling for scams. AIMM suggested copying the concept of mobile short codes and that consumer pricing transparency on the new range should be facilitated with pre-call price announcers operated by the 070 provider.

A broader approach to regulation

4.167 A number of stakeholders suggested that Ofcom should take a broader approach to regulation of the 070 range. RAG/Biass suggested Ofcom undertake a wider strategic initiative to review and improve the UK telephone numbering plan. [✂] preferred an alternative proposal of bringing the 070 range under control of the PSA with more efficient regulation and registration processes, alongside non-geographic number service charges.

4.168 AIMM suggested that Ofcom consider alternative solutions that, in its view, are more pragmatic and proportionate. It, along with [✂], suggested that we seek industry proposals and allow an opportunity for self or joint regulation, which it considers is a requirement under the Act. It believed that Ofcom has not fulfilled this legal requirement.

Targeted enforcement measures

4.169 Certain stakeholders considered that fraud on the 070 range could be tackled by targeted enforcement. RAG/Biass referred to a paper by Eurecom which concluded that "just 4 operators (out of 88) provide more than 90% of fraud-related UK PRS[154] numbers." It thought our proposals were unfair, given that in its view, only a small number of known operators are responsible for the majority of the fraudulent activity. It suggested that we direct our efforts at addressing the behaviour of the four operators identified in the Eurecom report. Eurecom also noted that we could reduce abuse by stricter enforcement against fraud.

Prohibition of revenue sharing

4.170 BT suggested that in addition to the proposed regulation we should prohibit revenue share and incentive schemes. It considered this would address the harm that arises due to fraudulent use of 070 numbers. Eurecom considered that banning revenue share would

[154] Eurecom referred to personal numbering services as PRS.

not be a definitive solution due to the difficulty of supervision and the lack of due diligence between operators and resellers.

Require greater prominence of 070 charges

4.171 [✄] considered that bill shock could be solved by CPs giving greater prominence to 070 charges. It noted that this was suggested in the 2009 070 Statement but has not been implemented by retail CPs.

Ofcom's response

Use of an alternative number range

4.172 In the 2009 070 Statement we considered closing the 070 number range and migrating end-users to an alternative number range. We found that the costs significantly outweighed the benefits and that such action would be disproportionate to the consumer detriment identified. We consider that this remains the case. Further, in the 2013 NGS Statement we noted the need to simplify the numbering system. To migrate personal numbers to an alternative number system would be contrary to the position in the 2013 Review and would be a disproportionate line of action given the decline in demand for personal number services. We have not received any evidence to suggest this position has changed.

4.173 Further, we consider that by aligning the 070 TR with the MTR, we address the risk of fraud on the number range as well as bill shock that arises when consumers fail to distinguish between 070 and the 07x number ranges. We therefore do not think it is proportionate to move PNS to an existing alternative number range to achieve these aims. We anticipate that retail prices will fall in line with the reduction to the termination rate (potentially with 070 calls being included in call bundles) and this will be more effective in addressing bill shock and harm from high prices than further price transparency measures. We therefore do not consider that migration to an alternative number range is required to address the consumer harms identified.

A broader approach to regulation

4.174 This statement is being published within the broader context of the 2017 *Call Cost Review*, which is examining the cost of calling 118 and 070 numbers to ensure that consumers are protected from high prices and unfair practices in relation to the use of those numbers. We consider that this is the most appropriate action to take with respect to the consumer harms identified in this statement.

4.175 As set out in more detail in Annex 7, the PSA is the UK regulator for content, goods and services charged to a phone bill. In this capacity the PSA can investigate services on 070 numbers if they are found to offer phone paid services and/or the number is being misused and if the cost of the call exceeds 10p per minute. The PSA has identified a number of difficulties it faces with investigation and enforcement when it receives complaints in relation to the 070 range. These include limitations in evidence gathering and resource management (see paragraphs A7.60 to A7.61 for more information).

4.176 We note the problems that the PSA has had in regulating mis-behaviour (with respect to revenue sharing) on this range and do not consider that further extension of PSA responsibility for 070 monitoring and response with respect to fraud or AIT is likely to be an adequate response to the concerns.

4.177 We note that certain stakeholders have suggested that the industry should be allowed an opportunity for self or joint regulation. The 070 number range was first introduced in 1997 under Oftel's national numbering scheme. Since that time consumer harm has been a consistent problem on the range, and in section 2 we set out the various statements and guidance we have issued to attempt to address consumer harm. We consider that industry has had ample time to implement self-regulation. Considering the evidence above we do not consider that any further attempt to self-regulate would be effective, and note that while industry engaged in negotiations to introduce such self-regulation, consumer harm would continue. We have, therefore, had regard to the possibility of industry self-regulation[155], but do not think it would address sufficiently the identified harms.

Targeted enforcement measures

4.178 As set out above, our concern is that the effectiveness of the 070 range in providing the services for which it was designed has been materially undermined by the competitive distortions set out above. If the concern was solely one of fraudulent behaviour then targeted enforcement might be appropriate but this would not address the underlying incentives for fraud or the broader concerns over retail pricing, bill shock and the reputation of the range. For this reason, it is not sufficient for Ofcom to target just a select few 070 providers but, rather, to remove the ability of providers *generally* to exercise SMP over 070 TRs and, therefore, the risk that this number range may be misused for fraudulent purposes.

4.179 In any event, as set out above and in Annex 7, we do not consider that an *ex post* approach to enforcement has been effective on the 070 number range and that further pre-emptive regulatory action must be taken to address the consumer harms identified. We note, for instance, the action that the PSA has taken in certain cases, but also that there have been difficulties in relation to the enforcement of alleged fraudulent activity on the 070 number range, which we consider undermines the effectiveness of targeted enforcement measures operating in isolation.

Prohibition of revenue sharing

4.180 We agree with stakeholders that prohibiting revenue share assists in addressing the fraudulent use of 070 numbers and, note that in Oftel's 2001 statement on restoring trust in personal numbering, we banned revenue sharing on the 070 number range. Whereas this measure went some way to address concerns around particular types of fraudulent

[155] In accordance with our statutory duties, in particular, under section 3(4)(c) of the Act.

activity, we do not believe this measure in and of itself has been sufficient in addressing the consumers harms identified in this statement. We consider that our remedy will go further in addressing the fraud issues identified in this statement by tackling the underlying incentives for misuse of the 070 number range.

Require greater prominence of 070 charges

4.181 In the 2009 070 Statement we introduced several measures to address concerns about the relatively high level of complaints on the 070 number range in comparison to call volumes. This included requiring retail telecoms providers to publish the cost of calls to 070 numbers more prominently and make them easier to understand, with the aim of improving the level of pricing transparency associated with 070 numbers. However, as discussed in paragraph 3.90, despite these rules being in place for several years, problems around bill shock and high retail prices persist. We consider that transparency measures alone are not sufficient to deal with the consumer harms identified.

Legal tests

4.182 Below, we set out our consideration as to how the imposition of a charge cap at the MTR on the wholesale termination rate for voice calls to 070 numbers meets the relevant legal tests under the Act (as set out above). A legal instrument can be found at Annex 3.

Sections 87 and 88 of the Act

4.183 For the reasons set out below it is our view that the charge control satisfies sections 87 and 88 of the Act.

4.184 As set out in section 3, we have determined that each 070 provider has SMP with respect to the termination of calls to 070 numbers which have been allocated to it. We are therefore setting SMP conditions which, in our view, are appropriate to apply to each 070 provider.

4.185 Further, as set out above, section 88 states that we are not to set an SMP condition imposing a charge control other than where it appears to us that there is a relevant risk of adverse effects arising from price distortion and that setting the condition is appropriate for:

- promoting efficiency;
- promoting sustainable competition; and
- conferring the greatest possible benefits on the end-users of public electronic communications services.

4.186 We are also required to take account of the extent of the investment in the matters to which the condition relates of the person to whom it is to apply. The requirement to promote investment is subject to ensuring competition and non-discrimination are preserved. Those tests, too, are to be applied in light of our duties in sections 3 and 4 of the Act and the principles in Article 8 of the Framework Directive. We set out below how we have met each of these requirements.

Price distortion

4.187 As set out in section 3, 070 providers' SMP, derived from their monopoly on termination of calls to their 070 number ranges, means they have the ability to charge excessively high wholesale termination rates. Charging such termination rates has an adverse effect harmful to consumers' interests as, firstly, it means that retail prices are high in relation to cost and, secondly, consumers are generally unable to distinguish 070 from 07x mobile numbers and tend to be unaware that 070 calls attract much higher charges than calls to 07x mobile numbers. These two factors distort consumer choices and lead to bill shock. Further, the high termination rates provide incentives for the fraudulent misuse of the 070 range.

Promoting efficiency

4.188 High 070 TRs lead to a structure of prices that is likely to be inefficient, distorting consumer choice and harming consumers' interests, as set out in paragraphs 4.9 to 4.37 above. The high 070 WCT charges mean that 070 providers often make 070 numbers available free to the end-user, recovering all the costs from termination charges, borne by callers. This means the choices that 070 end-users make when deciding to take a 070 service rather than an alternative may not be efficient as they do not face the true costs of their decision.

4.189 By setting a charge cap on the termination of calls to 070 numbers at the same level as the MTR, end-users are likely to bear the additional costs caused by their decision to use a 070 number, resulting in more efficient choices being made between using 070 numbers and alternatives.

Promoting sustainable competition

4.190 Without regulation, providers with SMP have an incentive and ability to charge 070 TRs above cost. A charge control benchmarked to the MTR stops them doing that and is consistent with the promotion of sustainable competition. In particular, we consider that 070 providers will, if necessary, be able to recover a portion of their costs from end-users. Whilst some new investment in billing systems may be required, we consider that the associated costs can be justified in the circumstances. Barriers to entry to 070 service provision will remain low and we consider that competition to acquire 070 end-users will be effective. As end-users are likely to bear the additional costs caused by their decision to use 070 numbers, the charge cap will also promote sustainable competition between 070 numbers and alternative roaming services.

Conferring the greatest possible benefits on the end-users of public electronic communications services

4.191 By setting a charge cap on the termination of calls to 070 numbers at the same level as the MTR, our view is that end-users' (i.e. consumers') interests are likely to be best served as a result of the likely reduction in retail call prices for calling parties (thereby minimising the risk of bill shock to them) and the reduction or removal of incentives for the fraudulent misuse of the 070 range to the general benefit of consumers. Over time, the reputation of the 070 range is likely to improve as a result of the reduction in misuse and this may encourage greater use of the range in future.

4.192 Although the parties who are receiving calls to 070 numbers may now be required to pay for the services they receive, in our overall judgment this is a reasonable outcome, reflecting the benefit that those individuals derive from the use of those numbers.

The extent of the investment in the matters to which the condition relates of the person to whom it is to apply

4.193 In imposing the charge control, we have also taken into account the need to ensure that CPs have incentives to invest and innovate where it is efficient to do so.

4.194 Setting a termination rate for 070 calls at the same rate as the MTR still allows for cost-recovery by efficient 070 providers through billing their end-users. For some 070 providers, this may mean that they need to invest in their existing billing platforms by adapting them to include their 070 customers. Our evidence at Annex 5 suggests that this could be achieved at relatively little cost where the CP has an existing billing system. On this basis, where 070 providers are operating efficiently, it is our view that they will continue to have incentives to invest.

4.195 For some 070 providers who do not have existing billing platforms, the additional investment required in order to create them could be high relative to the size of their 070 customer base. This could result in some consolidation in the market if the costs of billing end-users make the stand-alone provision of 070 numbers uneconomic. However, this would be consistent with the promotion of economic efficiency, including efficient competition as set out above.

Section 47 of the Act

4.196 For the reasons set out below, we are satisfied that this test is met in relation to the charge control.

Objective justification

4.197 We have set out in section 3 our determination that the identified 070 range holders each have SMP in the identified market covered by the charge control. We have also set out in section 4 the consumer harm arising from 070 providers having SMP over the rates charged for terminating calls to their 070 numbers (see paragraphs 4.9 to 4.37 above). In the absence of any charge control on termination services in respect of 070 numbers, this would allow the identified range holders to continue to set charges unilaterally and excessively. This has adverse impacts on both competition and on consumer choice, price, quality, and value for money. Our view is that the identified range holders have SMP and are unlikely to be incentivised to reduce their costs or set prices at the competitive level;

indeed, we have observed that termination rates are high. The charge control has been designed to address this concern while allowing the identified range holders to recover their efficiently-incurred costs, including a reasonable return on investment.

4.198 The charge control is also objectively justifiable in that the benefits of 'incentive' (rather than 'rate of return') regulation are widely acknowledged as an effective mechanism to reduce prices in a situation where competition does not act to do so.

Undue discrimination

4.199 We are satisfied that the charge control will not discriminate unduly against a particular person or particular persons because any CP will be able to access the services at the charge levels set by the condition. In addition, we do not consider that the proposed control discriminates unduly against the identified range holders as it is being imposed on all holders of 070 numbers.

Proportionality

4.200 For the reasons set out above and in our December 2017 Consultation, it is our view that the charge control is proportionate. In particular, our view is that setting a charge control for terminating 070 calls at the same rate as the MTR is an effective remedy for addressing the harms we have identified and having assessed the various options available, we have concluded that sharing the cost of 070 calls between the caller and the call recipient (end-user), with termination rates capped at the MTR, is the least onerous method of addressing these harms. Finally, as set out above, we do not consider that the proposed cap gives rise to adverse effects which are disproportionate to the aim of addressing the consumers harms we have identified. In particular, we do not consider that it impacts disproportionately on 070 providers, given the commensurate benefits in addressing the detrimental effects of SMP which these operators are currently able to exert.

Transparency

4.201 We consider that the charge control is transparent in what it is intended to achieve. The aims and expected effect of the control are clear, and it has been drafted to ensure it is readily understood.

Sections 3 and 4 of the Act

4.202 We also consider that the charge control is consistent with our duties under sections 3 and 4 of the Act (which implement Article 8 of the Framework Directive).

4.203 For the reasons set out above, we consider that the charge control will, in particular, further the interests of citizens and consumers in relevant markets by the promotion of competition in line with section 3 of the Act. We have placed particular emphasis on the promotion of efficient competition, which we consider is likely to be the most effective way of furthering citizen and consumer interests in the relevant retail markets. In addition, we have taken into account further objectives, including ensuring that services are available at charges that are reasonably related to the efficient costs of supply (preferably as a result of effective competition) and investment and innovation.

4.204 Further, we have considered the Community requirements set out in section 4 of the Act. We consider that the charge control will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purposes of securing efficient and sustainable competition in the markets for electronic communications networks and services. In particular, we consider that the charge control will reduce excessive pricing by the identified 070 range holders and ensure that wholesale charges reflect efficiently incurred costs.

Conclusion

4.205 For the reasons set out in this statement, having reviewed the comments received from stakeholders to our December 2017 Consultation and other evidence collected under our formal powers, we have concluded that capping 070 termination charges at the same level as the MTR is an appropriate and proportionate remedy to address the harms we have identified. As set out above, we have also assessed our approach against our regulatory framework and are satisfied that our decisions meet all the requisite legal tests.

4.206 On that basis, on 15 August 2018, Ofcom notified the EC, BEREC and the National Regulatory Authorities of each Member State of our intended measures for the regulation of the 070 number range, as set out in Annex 3.[156] In its decision letter of 14 September 2018, the EC stated that it had examined the notification and had no comments. We are accordingly today issuing our final statement.

[156] In accordance with sections 48B and 80B of the Act.

A1. Equality impact assessment

Introduction

A1.1 Ofcom is required by statute to assess the potential impact of all our functions, policies, projects and practices on equality.[157] An EIA also assists us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity.

A1.2 The analysis presented in this statement represents an impact assessment, as defined in section 7 of the Communications Act 2003.

Assessment

A1.3 We have considered whether our remedies would have an adverse impact on promoting equality. We have looked at whether the remedies would have a different or adverse effect on UK consumers and citizens in relation to the following equality groups: age, disability, sex, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation, and, in Northern Ireland, political opinion and persons with dependents. Our assessment is that they would not.

A1.4 Below we summarise the potential positive and negative impacts of our remedies (which we have set out in section 4 of this statement) on consumers and which particular groups of consumers are more likely to be impacted, before considering whether any of the above equality groups are likely to be particularly affected.

A1.5 We have not carried out separate EIAs in relation to race, gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This is because we anticipate that our regulatory intervention will not have a differential impact on people of different genders or ethnicities, consumers with protected characteristics in Northern Ireland or on disabled consumers compared to consumers in general.

A1.6 We note that services provided on the 070 number range are available for use by the population in general, and are not reserved for or intended for particular groups only.

Positive impacts

A1.7 We consider that our remedies will have significant benefits for consumers, in particular:

- increasing confidence in the use of the range;
- encouraging a reduction in retail prices;
- minimising the risk of bill shock;

[157] Ofcom has a general duty under the Equality Act 2010 to have due regard to the need to eliminate discrimination, advance equality of opportunity between those who share a relevant 'protected characteristic' (age, disability, sex, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation) and those who do not, and to foster good relations between persons who share a relevant protected characteristic and those who do not.

- reducing fraud; and
- encouraging the users of 070 number services to make more efficient choices.

A1.8 We consider that these benefits will apply to all consumers.

A1.9 In addition, we consider that vulnerable consumers who are targeted by fraudulent activity on the number range will benefit from our remedies, as this activity will be reduced.

Negative impacts

A1.10 We do not consider that individuals in relation to any of the equality groups will be specifically negatively impacted by our remedies. The principal issues that the statement tries to address, such as customer confusion, fraud and bill shock, have an adverse effect on all segments of society and, therefore, all are likely to benefit from the remedies.

A1.11 In the course of consulting on our proposals, certain stakeholders raised a potential area of concern with respect to the increased cost for consumers who may be vulnerable and use 070 numbers for anonymity, including women and members of the LGBT community. In particular, stakeholders noted that these individuals would have to pay for a 070 service that was previously free for them to use or pay more for access to other services.

A1.12 In addition, stakeholders commented that 070 numbers are frequently used as patient contact numbers in hospitals, where patients may now face costs in using 070 services. RAG/Biaas[158] also noted that should our changes go forward this would "inevitably lead to higher prices in other areas", which we have interpreted as referring to the standing charge for the combined television and telephone service which is usually offered to patients. While these increased costs (to the extent that they arise) may impact upon all patients generally, we have included in this Annex an assessment of those costs with particular regard to the equality groups listed above.

A1.13 We accept that there is likely to be an impact on the commercial terms under which 070 providers provide services to their end-users, and end-users may face charges for using those services that they did not incur previously. However, we anticipate that the end-user charges are likely to be relatively low and are unlikely to deter 070 end-users who derive material benefits from the use of those numbers (see paragraphs 4.117 to 4.120). In addition, all callers of 070 numbers (including women and members of the LGBT community), are likely to benefit to the extent that 070 retail charges are reduced as a result of our intervention (and the risk of bill shock is therefore also minimised).

A1.14 With respect to hospital patients, we note that certain groups of individuals may be particularly impacted by any change in the standing charges for using combined television and telephone services. For example, the elderly may be particularly affected, in circumstances as they constitute a higher proportion of the total number of inpatients, particularly during certain times of the year.[159] It is also possible that other individuals who

[158] RAG/Biaas response to December 2017 Consultation.
[159] https://www.carehome.co.uk/news/article.cfm/id/1572789/Elderly-occupied-more-than-a-third-of-Englands-hospital-beds-last-winter.

may require hospital services more frequently than other groups in society may be impacted, for example, pregnant women or individuals with certain disabilities.

A1.15 We are aware that 070 revenue has, in the past, been used to offset the cost of providing other services (such as television). However, the contribution that 070 revenues are making has declined over time, with the increased use of mobiles in hospitals, so that those revenues are now less relevant in determining the charges imposed for additional hospital services. Further, we consider that there are demand-side factors that are likely to constrain suppliers' ability to increase prices.[160]

A1.16 Further, providers of telephony services in hospitals also have the option of using other revenue-raising number ranges, aside from 070 numbers such as 084/087. Such a move will mean that callers will not benefit from lower charges for 070 calls, however we have reason to believe that there is greater awareness of the costs of calling other non-geographic number ranges so the level of bill shock is still likely to reduce.

A1.17 Therefore, we consider that, overall, no specific group is likely to be particularly negatively affected by our remedies.

Impact on equality groups

A1.18 As stated above, we consider that consumers generally are likely to benefit from our regulation.

A1.19 To the extent that certain individuals, for example women, the elderly, the disabled, and those who identify as LGBT, may be specifically affected by our regulation, we have set out above our assessment of the impact and the factors in place which are likely to ameliorate any potentially negative effects.

Conclusion

A1.20 Considering the available evidence, we do not believe that our remedies will overall have a material negative impact on individuals with respect to any of the defined equality groups.

[160] [✂].

A2. The regulatory framework

Introduction

A2.1 This Annex provides an overview of the market review process, to give some additional context to, and understanding of, the matters discussed in the main body of this and the legal instrument (statutory notifications) published at Annex 3.

A2.2 Market review regulation is technical and complex, including the legislation and the recommendations and guidelines that we need to consider as part of the process. There may be many relevant documents depending on the market and/or issues in question. This overview does not purport to give a full and exhaustive account of all such materials that we have considered in reaching our preliminary views in these markets. Key aspects of materials relevant to this market review are, however, discussed in this statement.

Market review concept

A2.3 The concept of a market review refers to procedures under which we, at regular intervals, identify relevant markets appropriate to national circumstances, carry out analyses of these markets to determine whether they are effectively competitive and then decide on appropriate remedies (known as Significant Market Power ("SMP") obligations or conditions). We explain the concept of SMP below.

A2.4 In carrying out this work, we act in our capacity as the independent sectoral regulator for the United Kingdom communications industry. Our functions in this regard are to be found in Part 2 of the Communications Act 2003 (the "Act"[161]). We exercise those functions within the framework harmonised across the European Union for the regulation of electronic communications by the Member States (known as the Common Regulatory Framework or the "CRF"), as transposed by the Act. The applicable rules[162] are contained in a package of five EC Directives, of which two Directives are immediately relevant for these purposes, namely:

a) Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (the "Framework Directive"); and

b) Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities (the "Access Directive").

A2.5 The Directives require that National Regulatory Authorities ("NRAs"), such as Ofcom, carry out reviews of competition in communications markets to ensure that SMP regulation remains appropriate and proportionate in the light of changing market conditions.

A2.6 Each market review normally has three stages, namely:

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[161] The *Communications Act 2003*. http://www.legislation.gov.uk/ukpga/2003/21/contents.

[162] The Directives have been reviewed and amendments were adopted on 19 December 2009. The amendments have been transposed into the national legislation and applied with effect from 26 May 2011.

i) the identification and definition of the relevant markets (the market definition procedure);

ii) the assessment of competition in each market, in particular whether the relevant market is effectively competitive (the market analysis procedure); and

iii) the assessment of appropriate regulatory obligations (the remedies procedure).

A2.7 These stages are normally carried out together.

Market definition procedure

A2.8 The Act provides that, before making a market power determination[163], we must identify (by reference, in particular, to area and locality) the market which, in our opinion, given the circumstances of the United Kingdom, is the market in relation to which it is appropriate to consider making such a determination and to analyse that market.

A2.9 The Framework Directive requires that NRAs shall, taking the utmost account of the "2014 EC Recommendation"[164] and "SMP Guidelines"[165] published by the EC, define the relevant markets appropriate to national circumstances, in particular relevant geographic markets within their territory, in accordance with the principles of competition law.

A2.10 The 2014 EC Recommendation identifies a set of product and service markets within the electronic communications sector in which *ex-ante* regulation may be warranted. Its purpose is twofold. First, seeking to achieve harmonisation across the single market by ensuring that the same markets will be subject to a market analysis in all Member States. Secondly, providing legal certainty by making market players aware in advance of the markets to be analysed.

A2.11 However, NRAs are able to regulate markets that differ from those identified in the 2014 EC Recommendation where this is justified by national circumstances taking account of the three cumulative criteria referred to in the 2014 EC Recommendation (the "three-criteria test") and where the EC does not raise any objections.

A2.12 Under the three-criteria test, when identifying markets other than those set out in the Recommendation, the NRA needs to ensure that each of the following three criteria are cumulatively met:

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[163] The market power determination concept is used in the Act to refer to a determination that a person has SMP in an identified services market.

[164] Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (2014/710/EU). http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014H0710.

[165] *European Commission Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services* (2018/C 159/01). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.159.01.0001.01.ENG&toc=OJ:C:2018:159:TOC, together with the *Commission Staff Working Document* accompanying these Guidelines. https://ec.europa.eu/digital-single-market/en/news/staff-working-document-guidelines-market-analysis-and-assessment-smp-under-eu-regulatory (the "SMP Guidelines").

a) the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature;

b) a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; and

c) the insufficiency of competition law alone to adequately address the market failure(s) concerned.

A2.13 The fact that an NRA identifies the product and services markets listed in the 2014 EC Recommendation or identifies other product and services markets that meet the three-criteria test does not automatically mean that regulation is warranted. Market definition is not an end in itself but rather a means of assessing effective competition. The three-criteria test is also different from the SMP assessment because the test's focus is on the general structure and market characteristics.

A2.14 The relationship between the market definition identified in this review and those listed in the 2014 EC Recommendation is discussed in relevant parts of this statement.[166]

A2.15 The SMP Guidelines make clear that market definition is not a mechanical or abstract process. It requires an analysis of any available evidence of past market behaviour and an overall understanding of the mechanics of a given sector. As market analyses have to be forward-looking, the Guidelines state that NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. They clarify that NRAs enjoy discretionary powers that reflect the complexity of all the relevant factors that must be assessed (economic, factual and legal) when identifying the relevant market, and assessing whether an undertaking has SMP.

A2.16 The SMP Guidelines also describe how competition law principles may be used by NRAs in their analyses. In particular, there are two dimensions to the definition of a relevant market: the relevant products to be included in the same market and the geographic extent of the market. Ofcom's approach to market definition follows that used by the United Kingdom competition authorities, which is in line with the approaches adopted by the EC.

A2.17 While such principles are being used in identifying the *ex-ante* markets, they will not necessarily be identical to markets defined in individual competition law cases. This may be the case, especially as the ex-ante markets are based on an overall forward-looking assessment of the structure and the functioning of the market under examination. Accordingly, the economic analysis carried out for the purpose of this review, including the identified markets, is without prejudice to any analysis that may be carried out in relation

[166] See, in particular, where we set out how we consider the three-criteria test is cumulatively satisfied for the relevant market which is not included in the 2014 EC Recommendation, but for which we have concluded is a market in which *ex ante* regulation is warranted.

to any investigation pursuant to the Competition Act 1998[167] (relating to the application of the Chapter I or II prohibitions or Article 101 or 102 of the Treaty on the Functioning of the European Union[168]) or the Enterprise Act 2002[169].

Market analysis procedure

Effective competition

A2.18 The Act requires that we carry out market analyses of identified markets for the purpose of making or reviewing market power determinations. Such analyses are normally to be carried out within 2 years from the adoption of a revised recommendation on markets, where such recommendation identifies a market not previously notified to the EC, or within 3 years from the publication of a previous market power determination relating to that market.

A2.19 In carrying out a market analysis, the key issue for an NRA is to determine whether the market in question is effectively competitive. The 27th recital to the Framework Directive clarifies the meaning of that concept. Namely, "[it] is essential that ex-ante regulatory obligations should be imposed only where there is not effective competition, i.e. in markets where there are one or more undertakings with significant market power, and where national and Community competition law remedies are not sufficient to address the problem".

A2.20 The definition of SMP is equivalent to the concept of dominance as defined in competition law. In essence, it means that Ofcom needs to determine whether any undertaking in the relevant market is in a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers, and ultimately consumers. This is provided for by Article 14 of the Framework Directive as implemented by section 78 of the Act. The Framework Directive requires, however, that NRAs must carry out the market analysis taking the utmost account of the SMP Guidelines. The latter emphasise that NRAs should undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power.

A2.21 In that regard, the SMP Guidelines set out, additionally to market shares, a number of criteria that can be used by NRAs to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers, including:

a) barriers to entry;

b) barriers to expansion;

c) absolute and relative size of undertaking;

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[167] *Competition Act 1998*. http://www.legislation.gov.uk/ukpga/1998/41/contents.
[168] Previously Article 81 and Article 82 of the EC Treaty, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:FULL:EN:PDF.
[169] *Enterprise Act 2002*. http://www.legislation.gov.uk/ukpga/2002/40/contents.

d) control of infrastructure not easily duplicated;

e) technological and commercial advantages or superiority;

f) absence of or low countervailing buyer power;

g) easy or privileged access to capital markets/financial resources;

h) product/services diversification (for example, bundled products or services);

i) economies of scale;

j) economies of scope;

k) direct and indirect network effects;

l) vertical integration;

m) a highly developed distribution and sales network;

n) conclusion of long-term and sustainable access agreements;

o) engagement in contractual relations with other market players that could lead to market foreclosure; and

p) absence of potential competition.

A2.22 A dominant position can derive from a combination of these criteria, which taken separately may not necessarily be determinative.

Sufficiency of competition law

A2.23 As part of our overall forward-looking analysis, we also assess whether competition law by itself (without *ex-ante* regulation) is sufficient to address the competition problems identified. Aside from the need to address this issue as part of the three-criteria test, we also consider this matter in our assessment of the appropriate remedies which, as explained below, are based on the nature of the specific competition problems we identify within the relevant markets as defined. We note that the SMP Guidelines clarify that, if the NRAs designate undertakings as having SMP, they must impose on them one or more regulatory obligations.

A2.24 In considering this matter, we bear in mind the specific characteristics of the relevant markets we have defined. Generally, the case for *ex ante* regulation is based on the existence of market failures which, by themselves or in combination, mean that the establishment of competition might not be possible if the regulator relied solely on *ex post* competition law powers that have been established for dealing with more conventional sectors within the economy. Therefore, it is appropriate for *ex ante* regulation to be used to address these market failures along with any entry barriers that might otherwise prevent effective competition from becoming established within the relevant markets we have defined. By imposing *ex ante* regulation that promotes competition, it may be possible to reduce such regulation over time as markets become more competitive, allowing greater reliance on *ex post* competition law.

A2.25 *Ex post* competition law is also unlikely in itself to bring about (or promote) effective competition, as it prohibits the abuse of dominance rather than the holding of a dominant position itself. In contrast, *ex ante* regulation is normally aimed at actively promoting the development of competition through attempting to reduce the level of market power (or dominance) in the identified relevant markets, thereby encouraging the establishment of effective competition.

A2.26 We generally take the view that *ex ante* regulation provides additional legal certainty for the market under review and may also better enable us to us intervene in a timely manner. We may also consider that certain obligations are needed as competition law would not remedy the particular market failure(s), or that the specific clarity and detail of regulations is required to achieve a particular result.

Remedies procedure

Powers and legal tests

A2.27 The Framework Directive prescribes what regulatory action NRAs must take depending upon whether or not the market in question has been found effectively competitive. Where a market has been found to be effectively competitive, NRAs are not allowed to impose SMP obligations and must withdraw such obligations where they already exist. On the other hand, where the market is found not to be effectively competitive, the NRAs must identify the undertakings with SMP on that market and then impose appropriate obligations on them. [170]

A2.28 NRAs have a suite of regulatory tools at their disposal, as reflected in sections 87-91 of the Act. Specifically, the Access Directive specifies a number of SMP obligations, including transparency, non-discrimination, accounting separation, access to and use of specific network elements and facilities, price control and cost accounting. When imposing a specific obligation, the NRA will need to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in the light of the policy objectives as set out in Article 8 of the Framework Directive.[171]

A2.29 Specifically, for each and every proposed SMP obligation we explain why it satisfies the test that the obligation is:

a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

b) not such as to discriminate unduly against particular persons or against a particular description of persons;

c) proportionate to what the condition or modification is intended to achieve; and

[170] See Article 16(3) and (4) of the Framework Directive; sections 84 and 87(1) of the Act.
[171] See Article 8(4) of the Access Directive.

d) in relation to what it is intended to achieve, transparent.[172]

A2.30 Additional legal requirements may also need to be satisfied depending on the SMP obligation in question. For example, in the case of price controls, the NRA's market analysis must indicate that the lack of effective competition means that the communications provider concerned might sustain prices at an excessively high level, or apply a price squeeze, to the detriment of end-users and that the setting of the obligation is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end-users of public electronic communications services. In that instance, NRAs must take into account the investment made by the telecoms provider and allow it a reasonable rate of return on adequate capital employed, taking into account the risks specific to a particular new investment, as well as ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits.[173]

A2.31 Where an obligation to provide third parties with network access is considered appropriate, NRAs must take into account factors including the feasibility of the proposed network access, the technical and economic viability of creating networks[174] that would make the network access unnecessary, the investment of the network telecoms provider which is required to provide access[175] and the need to secure effective competition[176] in the long term.[177]

A2.32 To the extent relevant to this review, we demonstrate the application of these requirements to the SMP obligations in question in the relevant parts of this statement. In doing so, we also set out our assessment of how, in our opinion, the performance of our general duties under section 3 of the Act is secured or furthered by our regulatory intervention, and that it is in accordance with the six Community requirements in section 4 of the Act. This is also relevant to our assessment of the likely impact of implementing our conclusions.

Ofcom's general duties - section 3 of the Act

A2.33 Under the Act, our principal duty in carrying out functions is to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition (section 3(1)).

A2.34 In so doing, we are required to secure a number of specific objectives, including securing the availability of a wide range of electronic communications services throughout the UK (section 3(2)(b)).

[172] Section 47 of the Act; Article 8(5) of the Framework Directive and Article 5(2) of the Access Directive.
[173] Section 88 of the Act, which implements Article 13 of the Access Directive.
[174] Including the viability of other network access products, whether provided by the dominant provider or another person.
[175] Taking account of any public investment made.
[176] Including, where it appears to us to be appropriate, economically efficient infrastructure-based competition.
[177] Section 87 of the Act.

A2.35 In performing our duties, we are also required to have regard to a range of other considerations, as appear to us to be relevant in the circumstances. In this context, we consider that a number of such considerations are relevant, namely:

a) the desirability of promoting competition in relevant markets (section 3(4)(b)); and

b) the desirability of encouraging investment and innovation in relevant markets (section 3(4)(d)).

A2.36 We must also have regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent, and targeted only at cases in which action is needed (section 3(3)), as well as the interest of consumers in respect of choice, price, quality of service and value for money (section 3(5)).

A2.37 Ofcom has, however, a wide measure of discretion in balancing its statutory duties and objectives. In so doing, we take account of all relevant considerations, including responses received during our consultation process, in reaching our conclusions.

European Community requirements for regulation - sections 4 and 4A of the Act and Article 3 of the "BEREC Regulation[178]

A2.38 Our functions exercised in this review fall under the CRF. As such, section 4 of the Act requires us to act in accordance with the six European Community requirements for regulation. Where it appears to Ofcom that any of their general duties conflict with one or more of their duties under section 4, priority must be given to those latter duties (section 3(6)).

A2.39 In summary, these six requirements are:

a) to promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;

b) to contribute to the development of the European internal market;

c) to promote the interests of all persons who are citizens of the European Union;

d) to take account of the desirability of Ofcom carrying out its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another – i.e. to be technologically neutral;

e) to encourage the provision of network access and service interoperability, to such extent as Ofcom considers appropriate for the purpose of securing efficient and sustainable competition, efficient investment and innovation, and the maximum benefit for customers of telecoms providers; and

[178] Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators of Electronic Communications ("BEREC") and the Office (the "BEREC Regulation") http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R1211&from=EN.

f) to encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of telecoms providers.

A2.40 We consider that the first, second, third, fourth and fifth of those requirements are of particular relevance to the matters under review and that no conflict arises in this regard with those specific objectives in section 3 of the Act that we consider are particularly relevant in this context.

A2.41 Section 4A of the Act requires Ofcom, in carrying out certain of its functions (including, among others, Ofcom's functions in relation to market reviews under the CRF) to take due account of applicable recommendations issued by the EC under Article 19(1) of the Framework Directive, which aim to achieve the harmonised application of provisions of the CRF and the achievement of the objectives set out in Article 8 of the Framework Directive. Where we decide not to follow such a recommendation, we must notify the EC of that decision and the reasons for it.

A2.42 Similarly, Article 3(3) of the BEREC Regulation requires NRAs to take utmost account of any opinion, recommendation, guidelines, advice or regulatory best practice adopted by BEREC.

A2.43 Accordingly, we have taken due account of the applicable EC recommendations and utmost account of the applicable opinions, recommendations, guidelines, advice and regulatory best practices adopted by BEREC relevant to the matters under consideration in this review.[179]

Impact assessment – section 7 of the Act

A2.44 The analysis presented in the whole of this statement represents an impact assessment, as defined in section 7 of the Act.

A2.45 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of the best practice of policy-making. This is reflected in section 7 of the Act, which means that generally Ofcom has to carry out impact assessments where this is likely to be a significant effect on business or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of its policy decisions. For further information about Ofcom's approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on the Ofcom website: https://www.ofcom.org.uk/__data/assets/pdf_file/0026/57194/better_policy_making.pdf.

A2.46 Specifically, pursuant to section 7, an impact assessment must set out how, in our opinion, the performance of our general duties (within the meaning of section 3 of the Act) is secured or furthered by or in relation to the regulation we impose.

[179] See Section 3 of this statement relating to market definition and our assessment of SMP.

A2.47 Ofcom is separately required by statute to assess the potential impact of all our functions, policies, projects, and practices on the following equality groups: age, disability, gender, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation. EIAs also assist us in making sure that we are meeting our principle duty of furthering the interests of citizens and consumers regardless of their background or identity.

Regulated entity

A2.48 The power in the Act to impose an SMP obligation by means of an SMP services condition provides that it is to be applied only to a 'person' whom we have determined to be a 'person' having SMP in a specific market for electronic communications networks, electronic communications services or associated facilities (i.e. the 'services market').

A2.49 The Framework Directive requires that, where an NRA determines that a relevant market is not effectively competitive, it shall identify 'undertakings' with SMP on that market and impose appropriate specific regulatory obligations. For the purposes of EC competition law, 'undertaking' includes companies within the same corporate group (*Viho v Commission* Case C-73/95 P [1996] ECR I-5447[180]), for example, where a company within that group is not independent in its decision making.

A2.50 We consider it appropriate to prevent a dominant provider to whom a SMP service condition is applied, which is part of a group of companies, from exploiting the principle of corporate separation. The dominant provider should not use another member of its group to carry out activities or to fail to comply with a condition, which would otherwise render the dominant provider in breach of its obligations.

[180] *Viho v Commission* Case C-73/95 P [1996] ECR I-5447. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61995CJ0073:EN:PDF.

A3. SMP Conditions

Legal instrument

PART I – NOTIFICATION UNDER SECTION 48(1) AND 79(4) OF THE COMMUNICATIONS ACT 2003

Notification of the identification of markets, the making of market power determinations and the setting of SMP services conditions in relation to each of the persons named in Schedule 1 to this Notification under section 45 of the Communications Act 2003

Background

A3.1 On 6 December 2017, Ofcom published a consultation document entitled *Personal Numbering – Review of the 070 Number Range* (the '**070 Consultation'**) setting out Ofcom's proposals to identify markets, make market power determinations and set an SMP condition for the period to 31 March 2021. Annex 5 of the 070 Consultation set out the notification under section 48A(3) and 80(A)(3) of the Communications Act 2003 ('the **Act**') in which Ofcom set out for domestic consultation its proposals. Ofcom invited responses to the 070 Consultation by 28 February 2018.

A3.2 A copy of the 070 Consultation, including the relevant notification, was also sent to the Secretary of State in accordance with section 48C(1) and 81(1) of the Act.

A3.3 Ofcom received several responses to its proposals set out in the 070 Consultation, and it has considered every such representation. The Secretary of State has not notified Ofcom of any international obligation on the United Kingdom for the purposes of sections 48A(6)(b) or 80A(9)(b) of the Act.

A3.4 The proposals set out in the 070 Consultation contained proposals of EU significance for the purposes of the Act. Therefore, after making such modifications of the proposals that appeared to Ofcom to be appropriate following domestic consultation, Ofcom sent on 15 August 2018 a copy of them, and of a draft of the Statement accompanying this notification setting out the reasons for them, to the European Commission, BEREC and the regulatory authorities of every other member State for EU consultation, in accordance with sections 48B(2) and 80B(2) of the Act.

A3.5 In its decision letter of 14 September 2018, the European Commission stated that it had examined the notification and had no comments.

Service market identifications and market power determinations

A3.6 Ofcom has identified 127 separate markets as described below for the purpose of making a market power determination.

A3.7 The markets that Ofcom has identified are the markets for wholesale 070 call termination services that are provided by each of those 127 persons named in Schedule 1 to this notification to another communications provider, for the termination of voice calls to 070 numbers[181] within the range which has been allocated to that person by Ofcom, for which that person is able to set the call termination rate (each a "**relevant market**").

A3.8 Ofcom has made a market power determination that each of the persons set out in Schedule 1 to this notification has significant market power ("**SMP**") in relation to the relevant market in which that provider operates. As specified in Schedule 1, for each of the persons identified under that Schedule, the SMP designation holds with respect to the registered company identified and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006, insofar as they operate in the relevant market.

A3.9 The effect of, and Ofcom's reasons for deciding to identify the markets and make the market power determinations referred to above are set out in the Statement document accompanying this notification.

Determinations to set SMP service conditions

A3.10 Ofcom is setting the following SMP condition **M1** as set out in Schedule 2 to this notification on each person listed in Schedule 1.

A3.11 That SMP condition shall apply, in the case of each person on whom it is set, in respect of the relevant market in which that person operates.

A3.12 Unless otherwise stated in Schedule 1 to this notification, the SMP condition that Ofcom has set shall take effect from 1 October 2019 under sections 48(1) and 79(4) of the Act and shall have effect until the publication of a notification under section 48(1) of the Act revoking such conditions.

A3.13 The effect of, and Ofcom's reasons for making, the determination referred to above are contained in the Statement accompanying this notification.

Ofcom's duties and legal tests

A3.14 In identifying and analysing the markets referred to in this notification, and in considering whether to make the corresponding determinations set out in this notification, Ofcom has, in accordance with section 79 of the Act, taken due account of all applicable guidelines and recommendations which have been issued or made by the European Commission in pursuance of the provisions of a European Union instrument, and which relate to market identification and analysis or the determination of what constitutes SMP.

[181] These are the numbers included in the number range designated for "personal services", as defined in the National Telephone Numbering Plan (which is available at http://stakeholders.ofcom.org.uk/telecoms/numbering/). In the current Numbering Plan, these are numbers beginning 070.

A3.15 Ofcom considers that the SMP condition set out in Schedule 2 complies with the requirements of sections 45 to 47, 87 and 88 of the Act, as appropriate and relevant to that SMP condition.

A3.16 In making all of the determinations referred to in this notification, Ofcom has also considered and acted in accordance with its general duties set out in section 3 of the Act and the six Community requirements set out in section 4 of the Act. In accordance with section 4A of the Act, Ofcom has also taken due account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive. In doing so, pursuant to Article 3(3) of Regulation (EC) No. 1211/2009, Ofcom has also taken utmost account of any relevant opinion, recommendation, guidance advice or regulatory practice adopted by BEREC.

Interpretation

A3.17 For the purpose of interpreting this notification –

a) except in so far as the context otherwise requires or as otherwise defined in this notification, words or expressions used shall have the same meaning as it has in the Act;

b) headings and titles shall be disregarded;

c) expressions cognate with those referred to in this notification shall be construed accordingly; and

d) the Interpretation Act 1978 (c. 30) shall apply as if this notification were an Act of Parliament.

The Schedules to this Notification shall form part of this Notification.

Signed

Brian Potterill

Competition Policy Director

A person authorised by OFCOM under paragraph 18 of the Schedule to the Office of Communications Act 2002

1 October 2018

SCHEDULE 1

For each of the persons identified below, the SMP designation holds with respect to the registered company or entity identified and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006, in so far as they operate in the relevant market.

1. **(aq) Limited trading as aql Limited**, whose registered company number is 03663860 and registered address is 13-15 Hunslet Road, Leeds, LS10 1JQ;

2. **24 Seven Communications Limited**, whose registered company number is 04468566 and registered address is Novis & Co Chartered Accountants, 1 Victoria Court Bank Square, Morley Leeds, West Yorkshire, LS27 9SE;

3. **2-Sell-It Limited**, whose registered company number is 05546732 and registered address is Cara House 1 Tudor Enterprise Park, Tudor Road, Harrow, Middlesex, HA3 5JQ;

4. **4D Interactive Limited**, whose registered company number is 02676756 and registered address is Lu.405 The Light Bulb, Filament Walk, London, England, SW18 4GQ;

5. **A2B Telecom Limited**, whose registered company number is 05487342 and registered address is 85 Great Portland Street, First Floor, London, England, W1W 7LT;

6. **Affiniti Integrated Solutions Limited**, whose registered company number is 02817039 and registered address is 37 Carr Lane, Hull, East Yorkshire, HU1 3RE;

7. **Assume Nothing Limited**, whose registered company number is 05037171 and registered address is 19 Kenyon Street, Birmingham, England, B18 6AR;

8. **Atlas Interactive Group Limited**, whose registered company number is 03249486 and registered address is Suite 2.3 78 Buckingham Gate, London, England, SW1E 6PE;

9. **B4U Telecom Limited**, whose registered company number is 03469971 and registered address is Griffins Tavistock House South, Tavistock Square, London, WC1H 9LG;

10. **Barritec Limited**, whose registered company number is 03636926 and registered address is Room G15/16, Building 3 Riverside Way, Watchmoor Park, Camberley, Surrey, GU15 3YL;

11. **Barritel Limited**, whose registered company number is 04101655 and registered address is Building Three, Riverside Way, Camberley, GU15 3YL;

12. **Business Broadcast Communications Limited**, whose registered company number is 06949556 and registered address is 5300 Lakeside, Cheadle Royal Business Park, Cheadle, Cheshire, SK8 3GP;

13. **Call Telecom Limited**, whose registered company number is 01720546 and registered address is 90 Blunden Drive, Slough, SL3 8WQ;

14. **CenturyLink Communications UK Limited**, whose registered company number is 02495998 and registered address is 7th Floor 10 Fleet Place, London, EC4M 7RB;

15. **CFL Communications Limited**, whose registered company number is 04419749 and registered address is Abbey House, 25 Clarendon Road, Redhill, Surrey, England, RH1 1QZ;

16. **Citrus Telecommunications Limited**, whose registered company number is 03517870 and registered address is Second Floor, 99 Holdenhurst Road, Bournemouth, Dorset, BH8 8DY;

17. **Cloud9 Communications Limited**, whose registered company number is 07153956 and registered address is Horizon Honey Lane, Hurley, Maidenhead, England, SL6 6RJ;

18. **COLT Technology Services**, whose registered company number is 02452736 and registered address is Colt House, 20 Great Eastern Street, London, England, EC2A 3EH;

19. **Commi Holdings Limited**, whose registered company number is 10010319 and registered address is Overdene House, 49 Church Street, Theale, Reading, Berkshire, United Kingdom, RG7 5BX;

20. **Connect Telecom UK Limited**, whose registered company number is 04198443 and registered address is 1 The Green, Richmond, England, TW9 1PL;

21. **Core Telecom Limited**, whose registered company number is 05332008 and registered address is Mazhar House 48 Bradford Road Stanningley, Leeds, West Yorkshire, LS28 6DD;

22. **Daisy Communications Limited**, whose registered company number is 04145329 and registered address is Daisy House, Lindred Road Business Park, Nelson, Lancashire, BB9 5SR;

23. **Daotec Limited**, whose registered company number is 04296038 and registered address is Westbury 2nd Floor, 145-157 St John Street, London, EC1V 4PY;

24. **Digital Mail Limited**, whose registered company number is 02661078 and registered address is The Old Fire Station, 140 Tabernacle Street, London, EC2A 4SD;

25. **Digital Select Limited**, whose registered company number is 06481372 and registered address is Rowan House, 28 Queens Road, Hethersett, Norfolk, NR9 3DB;

26. **Digitech Solutions Global Limited**, whose registered company number is 05821246 and registered address is The Business Centre, Unit 1 Finway, Luton, LU1 1TR;

27. **Dynamic Mobile Billing Limited**, whose registered company number is 03383285 and registered address is 12th Floor Lyndon House 58-62 Hagley Road, Birmingham, B16 8PE;

28. **ETC Telecom Limited**, whose registered company number is 06295193 and registered address is 124 Livery Street, Birmingham, West Midlands, B3 1RS;

29. **Everything Voip Limited**, whose registered company number is 08901482 and registered address is Suite 3 12 Princess Street, Knutsford, Cheshire, England, WA16 6DD;

30. **FEBO Telecom Limited**, whose registered company number is 303614 (Cyprus) and registered address is Office 602, 6th floor, Apollo Court, 232 Arch, Makariou III Ave, Limassol, 3030, Cyprus;

31. **Firstsound Limited**, whose registered company number is 02845928 and registered address is 140 Rayne Road, Braintree, England, CM7 2QR;

32. **FleXtel Limited**, whose registered company number is 02772380 and registered address is Griffins Court, 24-32 London Road, Newbury, Berkshire, RG14 1JX;

33. **Franzcom Limited**, whose registered company number is 09386992 and registered address is Unit 22 Callywith Gate Industrial Estate, Launceston Road, Bodmin, Cornwall, United Kingdom, PL31 2RQ;

34. **Game Network BV**, whose registered company number is 34260590 and registered address is Prinseneiland 79 N, Amsterdam, 1013 LM, Netherlands;a

35. **Gamma Telecom Holdings Limited**, whose registered company number is 04287779 and registered address is 5 Fleet Place, London, EC4M 7RD;

36. **GCI Network Solutions Limited**, whose registered company number is 04082862 and registered address is Global House, Crofton Close, Lincoln, Lincolnshire, LN3 4NT;

37. **Hospedia Limited**, whose registered company number is 02841021 and registered address is Landmark Place, 1-5 Windsor Road, Slough, Berkshire, SL1 2EJ;

38. **Hutchison 3G UK Limited**, whose registered company number is 03885486 and registered address is Star House, 20 Grenfell Road, Maidenhead, Berkshire, SL6 1EH;

39. **Ide Group Voice Limited**, whose registered company number is 05402754 and registered address is Napoleon House Riseley Business Park, Riseley, Reading, United Kingdom, RG7 1NW;

40. **I.T Communications Limited**, whose registered company number is 07418692 and registered address is The Seedbed Business Centre, Vanguard Way, Shoeburyness, Essex, SS3 9QY;

41. **i-Net Communications Group Plc**, whose registered company number is 04036526 and registered address is C/O H W Fisher Limited, Acre House, 11-15 William Road, London, NW1 3ER;

42. **Invoco Limited**, whose registered company number is 04465219 and registered address is 11 Avalon Road, Bromsgrove, Worcestershire, B60 2RJ;

43. **IP Phone Solutions Limited**; whose registered company number is 06681608 and registered address is Labyrinth Lodge Long Lane, Walton, Liverpool, England, L9 7AA;

44. **IPV6 Limited**, whose registered company number is 06711525 and registered address is Berrycentre, Chiltern Drive, Surbiton, Surrey, KT5 8LS;

45. **IV Response Limited**, whose registered company number is 04318927 and registered address is 57-61 Mortimer Street, London, W1W 8HS;

46. **JT (Jersey) Limited**, whose registered company number is 83487 (Jersey) and registered address is No1 The Forum, Grenville Street, St Helier, Jersey, JE4 8PB;

47. **Jtec UK Limited**, whose registered company number is 05054246 and registered address is 15 Hunts Mill, Crispin Place, Wallingford, Oxfordshire, OX10 0DR;

48. **Linear Telecoms Limited**, whose registered company number is 06917811 and registered address is 11c Beecroft Road, London, United Kingdom, SE4 2BS;

49. **M P Tanner Limited trading as FIO Telecom**, whose registered company number is 05799561 and registered address is Dalton House, 60 Windsor Avenue, London, SW19 2RR;

50. **M247 Limited**, whose registered company number is 04968341 and registered address is Turing House, Archway 5, Manchester, M15 5RL;

51. **Magrathea Telecommunications Limited**, whose registered company number is 04260485 and registered address is Unit 5 Commerce Park, Brunel Road, Theale, Reading, RG7 4AB;

52. **Marathon Telecom Limited**, whose registered company number is 93007 (Jersey) and registered address is 28 Halkett Place, St Helier, Jersey, JE2 4WG;

53. **Mars Communications Limited**, whose registered company number is 06478834 and registered address is Forest House, Forest Road, Ilford, Essex, IG6 3HJ;

54. **Maxadie Limited**, whose registered company number is 08320797 and registered address is 2 Church Street, Burnham, Slough, England, SL1 7HZ;

55. **Media Telecom Limited**, whose registered company number is 07126854 and registered address is 123 Hagley Road, Edgbaston, Birmingham, West Midlands, B16 8LD;

56. **Mi Telecom Limited**, whose registered company number is 02668468 and registered address is 14 Hemmells Laindon, Basildon, Essex, SS15 6ED;

57. **Mintaka Limited**, whose registered company number is 07064805 and registered address is 2 More London Riverside, London, SE1 2AP;

58. **Mobile FX Services Limited**, whose registered company number is 6028074 and registered address is 49 Greek Street, London, W1D 4EG;

59. **Nationwide Telephone Assistance Limited**, whose registered company number is 04315226 and registered address is Ivy Lodge Farm 179 Shepherds Hill, Harold Wood, Romford, Essex, RM3 0NR;

60. **Net Solutions Europe Limited**, whose registered company number is 03203624 and registered address is Mandeville House 62 The Broadway, London Road, Amersham, Buckinghamshire, United Kingdom, HP7 0HJ;

61. **Nexus Telecommunications Limited**, whose registered company number is 03895766 and registered address is Dawson House Matrix Office Park, Buckshaw Village, Chorley, Lancashire, United Kingdom, PR7 7NA;

62. **Nodemax Limited**, whose registered company number is 06127089 and registered address is 75 Springfield Road, Chelmsford, Essex, CM2 6JB;

63. **Numbergroup Network Limited**, whose registered company number is 07390438 and registered address is 207 Regent Street, London, United Kingdom, W1B 3HH;

64. **Numbers Plus Limited**, whose registered company number is 07611130 and registered address is Manor Coach House, Bristol Road, Keynsham, BS31 2BB;

65. **Numbers Telecom Limited**, whose registered company number is 07936388 and registered address is 43 Berkeley Square, Mayfair, London, W1J 5FJ;

66. **One Network Limited**, whose registered company number is 07549614 and registered address is 32 Hamstead Hall Avenue, Handsworth Wood, Birmingham, West Midlands, B20 1EY;

67. **PageOne Communications Limited**, whose registered company number is 04560277 and registered address is 17 Rochester Row, London, SW1P 1QT;

68. **Phone Buddy Limited**, whose registered company number is 04171159 and registered address is 20 Coxon Street, Spondon, Derby, Derbyshire, DE21 7JG;

69. **Phone Co-Op Numbering Limited**, whose registered company number is 07432108 and registered address is 5 Millhouse Elmsfield Business Centre, Worcester Road, Chipping Norton, Oxon, OX7 5XL;

70. **Plus Telecom Limited**, whose registered company number is 04052436 and registered address is 17-18 Margaret Street 3rd Floor, London, W1W 8RP;

71. **Port 5060 Limited**, whose registered company number is 08332891 and registered address is Unit 3 Newton Business Centre, Newton Chambers Road, Sheffield, S35 2PH;

72. **Premier Voicemail Limited**, whose registered company number is 03172426 and registered address is c/o Leslie Woolfson & Co., Churchill House, 137 Brent Street, London, NW4 4DJ;

73. **Promotions4All Limited**, whose registered company number is 07046038 and registered address is 19 Kenyon Street, Birmingham, B18 6AR;

74. **QX Telecom Limited**, whose registered company number is 03820728 and registered address is 2 Glenmore Close, Thatcham, Berkshire, RG19 3XR;

75. **Reality Network Services Limited**, whose registered company number is 04267969 and registered address is Morcott Old Rectory Drive, Eastergate, Chichester, West Sussex, England, PO20 3XH;

76. **Red Squared Limited**, whose registered company number is 383037 and registered address is First Floor Office Suite 9/11 Baggot Street Upper Dublin 4;

77. **Red Telecom Solutions Limited**, whose registered company number is 08902433 and registered address is Alex House, 260/8 Chapel Street, Salford, M3 5JZ;

78. **Redcentric Solutions Limited**, whose registered company number is 08322856 and registered address is Central House, Beckwith Knowle, Harrogate, North Yorkshire, HG3 1UG;

79. **Relax Telecom Limited**, whose registered company number is 06777698 and registered address is Suite 5 Marple House 39 Stockport Road, Marple, Stockport, Cheshire, England, SK6 6BD;

80. **Sala Trading Limited**, whose registered company number is 03617973 and registered address is 121 Edgware Road, London, W2 2HX;

81. **Sentiro (UK) Limited,** whose registered company number is 06329599 and registered address is 1 Parkshot, Richmond, Surrey, TW9 2RD;

82. **Served Up Limited**, whose registered company number is 04555918 and registered address is Biopark, Broadwater Road, Welwyn Garden City, AL7 3AX;

83. **Simwood eSMS Limited**, whose registered company number is 03379831 and registered address is Simwood House, Cube M4 Business Park, Old Gloucester Road, Bristol, Gloucestershire, BS16 1FX;

84. **SOS Technology Limited**, whose registered company number is 06822088 and registered address is Unit 2 Charnwood House Marsh Road, Ashton, Bristol, BS3 2NA;

85. **Sound Advertising Limited**, whose registered company number is 03218628 and registered address is Aston House, Cornwall Avenue, London, N3 1LF;

86. **Spacetel UK Limited**, whose registered company number is 03036383 and registered address is 790 Uxbridge Road, Hayes, Middlesex, UB4 0RS;

87. **SPT Worldwide Limited**, whose registered company number is 07302015 and registered address is Wye Lodge, 66 High Street, Old Stevenage, Hertfordshire, SG1 3EA;

88. **Square1 Communications Limited**, whose registered company number is 04541344 and registered address is Wessex House, Station Road, Westbury, Wiltshire, BA13 3JN;

89. **Supported Business Limited**, whose registered company number is 08254365 and registered address is 152 City Road, London, England, EC1V 2NX;

90. **Suretec Systems Limited**, whose registered company number is SC258005 and registered address is 24 Cormack Park, Rothienorman, Inverurie, Aberdeenshire, AB51 8GL;

91. **Swiftel Limited**, whose registered company number is 08159601 and registered address is 73 Francis Road, Edgbaston, Birmingham, B16 8SP;

92. **Swiftnet Limited**, whose registered company number is 02469394 and registered address is 1st Floor, Olympia House 1 Armitage Road, Golders Green, London, England, NW11 8RQ;

93. **Syntec Limited**, whose registered company number is 03529985 and registered address is 18 The Avenue, London, W13 8PH;

94. **Tabsoft Limited**, whose registered company number is 05846429 and registered address is 75 Springfield Road, Chelmsford, Essex, CM2 6JB;

95. **TalkTalk Communications Limited**, whose registered company number is 03849133 and registered address is 11 Evesham Street, London, W11 4AR;

96. **Telappliant Limited**, whose registered company number is 04632756 and registered address is 3 Harbour Exchange Square, London, England, E14 9G;

97. **Telecom 10 Limited**, whose registered company number is 06974505 and registered address is 3a Station Road, Cippenham, Slough, SL1 6JJ;

98. **Telecom Essex Limited**, whose registered company number is 05578905 and registered address is Second Floor, Kestrel House Falconry Court, Bakers Lane, Epping, Essex, England, CM16 5BD;

99. **Telecom2 Limited**, whose registered company number is 06926334 and registered address is Cotswold Hse, 219 Marsh Wall, London, England, E14 9FJ;

100. **TelecomIQ Limited**, whose registered company number is 08561455 and registered address is Upper Level Turnbridge Mills, Quay Street, Huddersfield, West Yorkshire, HD1 6QT;

101. **Telecoms Cloud Networks Limited**, whose registered company number is 09071980 and registered address is Basecamp, 49 Jamaica Street, Liverpool, Merseyside, L1 0AH;

102. **Telecoms World Plc**, whose registered company number is 03576847 and registered address is Unit 2, Kingfisher House Crayfields Business Park, New Mill Road, Orpington, Kent, BR5 3QG;

103. **Telefonica UK Limited**, whose registered company number is 01743099 and registered address is 260 Bath Road, Slough, Berkshire, SL1 4DX;

104. **Telemix Limited**, whose registered company number is 05245040 and registered address is Aston House, Cornwall Avenue, London, N3 1LF;

105. **Telency Limited**, whose registered company number is 02312314 and registered address is 6 Manor Court, 4 Barnes Wallis Road, Fareham, Hampshire, England, PO15 5TH;

106. **Telephone Box Limited**, whose registered company number is 07198723 and registered address is Berrycentre, Berrylands, KT5 8LS;

107. **TeleSurf Limited**, whose registered company number is 06427905 and registered address is 3rd Floor, 17-18 Margaret Street, London, W1W 8RP;

108. **TelXL Limited**, whose registered company number is 04249562 and registered address is Unit 3, Centech Park Fringe Meadow Road, Moons Moat North Industrial Estate, Redditch, Worcestershire, England, B98 9NR;

109. **TGL Services (UK) Limited**, whose registered company number is 09293520 and registered address is 32 St. James's Street, London, SW1A 1HD;

110. **Tiscali UK Limited**, whose registered company number is 03408171 and registered address is 11 Evesham Street, London, W11 4AR;

111. **Tismi BV**, whose registered company number is 32081827 (Netherlands) and registered address is Dorpsstraat 3981 EA Bunnik Netherlands ;

112. **Top Gear Media Limited**, whose registered company number is 07676479 and registered address is Upper Level Turnbridge Mills, Quay Street, Huddersfield, West Yorkshire, England, HD1 6QT;

113. **TTNC Limited**, whose registered company number is 05256607 and registered address is 4 Wells Street, Chelmsford, Essex, CM1 1HZ;

114. **Twelve Telecom Limited**, whose registered company number is 07846351 and registered address is Pentax House South Hill Avenue, South Harrow, Harrow, England, HA2 0DU;

115. **UK Number Store Limited**, whose registered company number is 02883497 and registered address is 27 Frederick Street, Birmingham, B1 3HH;

116. **Virtual Talk Limited**, whose registered company number is 04890632 and registered address is Calder & Co, 16 Charles Ii Street, London, SW1Y 4NW;

117. **Visionate Limited**, whose registered company number is 03899265 and registered address is Longwood, Hill Brow, Liss, Hampshire, GU33 7PB;

118. **Vodafone Business Solutions Limited**, whose registered company number is 02186565 and registered address is Vodafone House, The Connection, Newbury, Berkshire, RG14 2FN;

119. **Vodafone Limited**, whose registered company number is 01471587 and registered address is Vodafone House, The Connection, Newbury, Berkshire, RG14 2FN;

120. **Vodafone UK Limited**, whose registered company number is 02227940 and registered address is Vodafone House, The Connection, Newbury, Berkshire, RG14 2FN;

121. **Voice Simplified Limited**, whose registered company number is 07171825 and registered address is Curzon House 2nd Floor, 24 High Street, Banstead, Surrey, SM7 2LJ;

122. **Voicetec Systems Limited**, whose registered company number is 03948745 and registered address is 790 Uxbridge Road, Hayes, UB4 0RS;

123. **Wavecrest (UK) Limited**, whose registered company number is 03042254 and registered address is 1st Floor Bishopsgate Court, 4-12 Norton Folgate, London, E1 6DB;

124. **Windsor Telecom Plc**, whose registered company number is 03752620 and registered address is Wey Court West, Union Road, Farnham, Surrey, GU9 7PT;

125. **XoverX Limited**, whose registered company number is 08319701 and registered address is 46 Ilford Hill, Ilford, Essex, IG1 2AT;

126. **Yim Siam Telecom**, whose address is PO Box 112, 15 - 17 Caledonian Road, London, N1 9DX

127. **Zestel Limited**, whose registered company number is 08235267 and registered address is 20-22 Wenlock Road, London, England, N1 7GU.

SCHEDULE 2

The SMP Condition

Part 1: Commencement

1. The SMP condition in Part 3 of this Schedule 2 applies from 1 October 2019.

Part 2: Definitions and interpretation

2. In this Schedule -

"Call" means a voice call which originates on a public electronic communications network (whether fixed or mobile) and is terminated to a telephone number staring with the prefix '070' within a number range allocated by Ofcom to a Dominant Provider;

"Call Termination Charge**"** means the charge made by a Dominant Provider for terminating an 070 Call;

"Controlling Percentage" means –

a) in relation to the First Relevant Period, the amount of change in the Consumer Prices Index in the period of twelve months ending on the 31 December 2018, expressed as a percentage (rounded to one decimal place) of that Consumer Prices Index as at the beginning of that period; reduced by 4.1%; and

b) in relation to the Second Relevant Period, the amount of change in the Consumer Prices Index in the period of twelve months ending on the 31 December 2019, expressed as a percentage (rounded to one decimal place) of that Consumer Prices Index as at the beginning of that period; reduced by 3.7%

"Consumer Prices Index" means the index of consumer prices compiled by an agency or a public body on behalf of Her Majesty's Government or a government department (which is the Office for National Statistics at the time of publication of this Notification) from time to time in respect of all items;

"Dominant Provider" means a person listed in Schedule 1 of this notification;

"Ofcom**"** means the Office of Communications;

"pence per minute" means the sum in pence charged for a minute of a Call;

"Relevant Period" means any of the following:

a) the period of 6 months beginning on 1 October 2019 and ending on 31 March 2020 (the "First Relevant Period"); and

b) the period of twelve months beginning on 1 April 2020 and ending on 31 March 2021 (the "Second Relevant Period").

"Third Party" means a person operating a public electronic communications network.

3. For the purpose of interpreting the conditions in Part 3 of this Schedule -

(a) Except in so far as the context otherwise requires, words or expressions shall have the meaning ascribed to them in paragraph 2 of this Part above and otherwise any word or expression shall have the same meaning as it has in the Communications Act 2003;

(b) the Interpretation Act 1978 shall apply as if each of the SMP conditions were an Act of Parliament (c. 30); and

(c) headings and titles shall be disregarded.

Part 3: SMP condition

Condition M1 – Control of Call Termination Charge

M1.1 The Dominant Provider shall ensure that for each Call on any day, during the Relevant Period, the Call Termination Charge (which shall be expressed in pence per minute) does not exceed the charge ceiling.

M1.2 The charge ceiling is[182],

a. for any Call on a day in the First Relevant Period–

i. an amount equal to 0.489 pence per minute multiplied by

ii. the sum of 100 per cent and the Controlling Percentage for the First Relevant Period; and is

expressed as being pence per minute and rounded to three decimal places;

b. for any Call on a day in the Second Relevant Period–

i. the charge ceiling, expressed in pence per minute (rounded to three decimal places), in the First Relevant Period; multiplied by,

ii. the sum of 100 per cent and the Controlling Percentage for the Second Relevant Period, and is

[182] These are the base values expressed in nominal terms (using our estimate of inflation) for the range on which we have made the decision.

expressed as being pence per minute and rounded to three decimal places.

M1.3 Without prejudice to Ofcom's statutory information gathering powers, the Dominant Provider shall provide to Ofcom in writing any information reasonably required by Ofcom for the Dominant Provider to demonstrate compliance with this condition at any time upon reasonable notice.

M1.4 This condition M1 applies to the persons named in Schedule 1 of this notification.

A4. Estimating the costs of providing 070 calls

Introduction

A4.1 In the December 2017 Consultation we estimated the cost of providing 070 calls to inform our analysis and impact assessment. This Annex sets out our approach to the cost assessment, presents our overall estimates of the cost and discusses stakeholder comments. Our analysis reflects our understanding of the network and functions involved in providing 070 calls. Our cost estimates are based on information we have received from providers in response to the July and September 2017 Notices.

A4.2 In some cases, we asked stakeholders to provide further information under our formal powers to explain their responses to the December 2017 Consultation and inform our assessment (see paragraphs A4.53 to A4.57).

A4.3 As discussed in section 4, we have decided to adopt a price control remedy which benchmarks the 070 TR to the MTR. This Annex provides an overview of the scale of costs that CPs would need to recover from end-users if we set the 070 TR at the MTR.

A4.4 The methodology we have adopted to estimate 070 call costs is the same as presented in the December 2017 Consultation. However, we have made some updates to our analysis to reflect the current mobile and fixed TRs.[183] These changes do not materially affect the other figures presented in this Annex, our analysis or overall conclusions.

A4.5 In this Annex we:

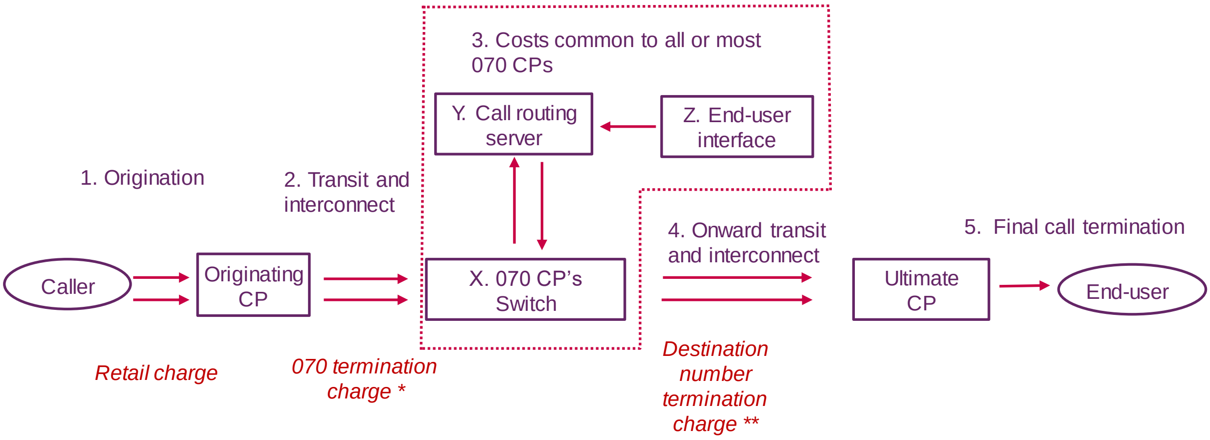
- discuss the network and functions involved in providing 070 services;
- present (average) wholesale 070 TRs (as a benchmark against which cost estimates are compared);
- estimate the cost of providing 070 calls (using the cost standard LRIC);
- discuss stakeholder comments and set out our response.

Network and functions involved in providing 070 calls

A4.6 Figure A4.1 illustrates the functions involved in the provision of a 070 call, from the point of origination (1) until the point of termination to the end-user (5).

[183] We have also corrected the summary cost information in Figure A4.4 (which was reported as ppm in the December 2017 Consultation when it was actually £pm) and made a small correction to the end-user interface figure in Figure A4.4.

Figure A4.1: Network and functions involved in providing 070 calls



* The originating CP may route traffic to the 070 CP via a transit network
** The 070 CP must pay a termination fee to terminate the call on the end-user's network

A4.7 Stage 1 involves the origination of 070 calls, with retail customers (callers) paying retail charges to their originating communications providers (retail telecoms providers) for making such calls.

A4.8 Stage 2 involves the conveyance and (if needed) transit of 070 calls to the point of handover. In practice, retail telecoms providers (as they may not be interconnected with 070 providers) often hand calls over to a transit provider to route to the 070 providers. At the end of stage 2, retail telecoms providers (or the transit provider on their behalf) pay the wholesale TRs applicable to the 070 calls originating on their network to 070 providers. Retail telecoms providers also bear the costs of transit, while the 070 CP handing over calls bears the costs of interconnection. After stage 2, 070 providers manage, and thus bear the costs of, the handling and routing of calls to the number selected by the end-user (the call recipient).

A4.9 As depicted in Figure A4.1 above, Stage 3 includes three main functions:

a) **The switch ("Function X"):**

i) receives the incoming call request, identifies the call as a 070 call, and initiates a query to the call routing server; and

ii) receives the destination number from the call routing server and sets up the call to that number.

b) **The call-routing server ("Function Y"):**

i) receives a query from the switch, determines the routing number to which the call should be routed; and

ii) returns the routing number to the switch in order to establish the connection.

c) **Interface services ("Function Z"):** This function provides an end-user interface (typically involving a website), whereby 070 customers can manage and update the number they would like their 070 number to be routed to.

Wholesale TRs

A4.10 BT sets TRs for calls to 070 numbers by charge band, with rates potentially varying by time of day (day, evening, weekend). CPs decide which band, and thus which rate, applies to calls to the 070 numbers within their range, and communicate their decision to BT.[184] When retail customers originate calls to a 070 number, retail telecoms providers have to pay the rate associated with the relevant charge band.

A4.11 The TRs for these numbers were established in discussion between BT and 070 operating companies when this range first came into service in the 1990s. The rates, therefore, may reflect the prevailing costs (and profit margins) of rerouting calls to mobiles and international locations at that time. However, as domestic and international TRs have decreased over time 070 TRs have remained fairly static.

A4.12 The combination of the number of charge bands (28 in total) and rate variation by time of day means that there is a large number of TRs. In order to identify the bands that are more material to the provision of 070 calls, we determined the 070 payments that BT[185] as transit provider made to 070 providers (covering TRs, and made on behalf of retail telecoms providers) by charge band.[186]

A4.13 Figure A4.2 below presents the (weighted average)[187] rates for the five bands that generated the highest 070 payments in 2016, for calls to 070 numbers originating in the UK.

Figure A4.2: TRs of calls originating in the UK (ppm)

Charge band	Day	Evening	Weekend	% of 070 payments
pn2 Rate	38.37	39.27	39.43	95%
k Rate	23.28	15.45	7.12	3%
pn10 Rate	25.78	27.23	27.61	0.33%
pn8 Rate	13.19	14.44	13.46	0.27%
pn3 Rate	37.18	30.44	30.80	0.24%
Total				99%

Source: Ofcom analysis of data provided in response to the OCP Notices.

A4.14 These five bands account for 99% of 070 payments from calls originating in the UK, with the remaining 23 bands accounting for only 1%. The pn2 Rate band alone generates 95% of 070 payments originating in the UK. Rates in these five bands vary from 7.12ppm for the k Rate (Weekend) to 39.43ppm for pn2 Rate (Weekend). We calculated a weighted average

[184] A CP can set differing charge bands for differing numbers within its range.
[185] We also collected data regarding the payments made by Vodafone as a transit provider. However, as BT accounts for over [✂] of termination payments, we have not included Vodafone's data in our analysis.
[186] There is a long tail of bands that are not widely used, and generate only limited 070 payments.
[187] Rates are weighted according to the volume of minutes using that rate.

rate for each time of day, using the proportions of total 070 minutes generated at that time of day as weights. This yields a weighted average rate of 36.02ppm for Day, 36.16ppm for Evening, and 36.31ppm for Weekend. These high average rates are largely driven by the pn2 Rate, which has the highest rates and accounts for the highest share (95%) of 070 payments.

A4.15 Figure A4.3 below presents the (weighted average) rates for the five bands that generated the highest 070 payments in 2016, for calls to 070 numbers originating outside the UK.

Figure A4.3: TRs of calls originating outside the UK (ppm)

Charge band	Day	Evening	Weekend	% of 070 payments
pn2 Rate	13.92	9.71	4.22	44%
k Rate	13.92	9.71	1.63	18%
pn10 Rate	13.92	9.71	0.86	8%
pn8 Rate	13.60	9.71	0.39	6%
j Rate	13.92	9.71	0.06	4%
Total				79%

Source: Ofcom analysis of data provided in response to the OCP Notices.

A4.16 These five bands account for 79% of 070 payments originating outside the UK, with the remaining 22 bands accounting for 21%. The pn2 Rate band alone generates 44% of 070 payments. Rates in these five bands are close to 14ppm for the day rate, 9.71ppm for the evening rate and vary from 0.06ppm to 4.22ppm for the weekend rate. We calculated a weighted average rate for each time of day, using the proportions of total 070 minutes generated at that time of day as weights. This yields an average rate of 13.85ppm for Day, 9.68ppm for Evening, and 4.21ppm for Weekend.[188] These rates are largely driven by the pn2 Rate, which has the highest rates and accounts for the highest share (44%) of 070 payments.

A4.17 We note that these rates are lower overall than the rates applied to calls originating in the UK. As calls originating outside the UK are a greater proportion (53%) of total minutes (in 2016), the overall (i.e. including UK and international originated calls) rates are closer to the rates discussed in paragraph A4.16.

A4.18 Our analysis of weighted average rates indicates that the rates for terminating calls to 070 numbers are high, both in ppm and in comparison to the current MTR (currently 0.489ppm). As discussed in section 4 our intervention will mean that the cost of these calls is benchmarked to the MTR.

[188] This weighted average rate is lower than the 9.71ppm number in Figure A4.3 as the charge bands accounting for the other 21% of payments have a lower average TR.

Estimating the cost of providing 070 services

Choice of cost standard

A4.19 Our analysis seeks to estimate the incremental cost (ppm) of providing 070 calls, incurred by an efficient CP.

A4.20 LRIC is often used as a measure of the additional costs incurred in the long-run in telecoms markets, as a result of the provision of a particular service. We do not use average total costs because of the prevalence of common costs in the supply of telecoms services. This rationale also applies to our use of LRIC in estimating the incremental cost of the provision of 070 services.[189] Service providers may use the same network and functions to provide calls to both 070 and other non-geographic numbers, so that the costs of such elements are not unique to the provision of 070 calls. Assigning common costs to one call type is therefore difficult. We are therefore focusing on the LRIC of the provision of 070 calls, which includes those fixed costs which are specific to the provision of a 070 service.

A4.21 We consider that only the costs of an efficient CP are relevant to the measure of cost. Taking account of inefficiencies in providing 070 calls would risk distorting the use of our cost analysis to inform our remedies.

A4.22 Estimating costs on a ppm basis is consistent with the basis on which MTRs and FTRs are set. It also makes it easier to calculate the impact of our proposals on CPs, as the MTRs we benchmark against are also set on a ppm basis.

Data collected from providers

A4.23 In this section we describe the information collected from CPs, and the main transit provider, BT, that is most important to our cost analysis.

070 terminating call providers

A4.24 In the July and September 2017 Notices we requested information from fifteen 070 providers in total.[190] This was made up of the six CPs that received the highest 070 payments, and an additional nine CPs that received smaller 070 payments of varying size. We requested information on:

- volumes of 070 and other non-geographic calls;
- destinations of the 070 calls they handle;
- whether they provide calls to other non-geographic number ranges; and
- costs of providing 070 and other non-geographic calls (see Figure A4.4 below).

[189] The incremental costs of a service are the difference between the total costs in a situation where the service is provided and the costs in another situation where the service is not provided. Common costs are costs that are shared across multiple services supplied by a firm but are not incremental to the provision of any one service.

[190] In the December 2017 Consultation we referred to a total of fourteen CPs. We have revised this figure to fifteen reflecting the fact that we also requested information from [✂], however, due to the nature of the service provided it was excluded from our analysis. See paragraph A4.25d.

A4.25 We have excluded 12 CPs from our detailed cost analysis. Of these:

a) Four CPs ([✂]) were excluded as they were unable to provide appropriate data (in terms of the cost category breakdown, or data specifically incremental to 070).

b) Six CPs ([✂]) were excluded as they only provide a 070 service via a reseller and were therefore unable to provide data on the total cost of providing a 070 service. At least some of the costs of the provision of 070 calls in this case appear to be incurred by the reseller such that using the CPs' cost data would be likely to result in an underestimate of the cost.

c) One CP ([✂]) was excluded as it had very low volumes of 070 calls. The provision of low volumes is likely to be inefficient as the fixed costs of installing and maintaining systems need to be borne across a much smaller base. It might be possible for this CP to reduce its average costs by expanding its volumes.

d) One CP ([✂]) was excluded because it provided a managed service to another CP that was the 070 provider and thus did not incur most of the costs of 070 calls.[191]

A4.26 We consider the remaining three respondents (included in our detailed analysis) to be representative as they have large volumes of 070 calls and provide calls to other non-geographic number ranges. They should also be able to provide comprehensive data on the cost of provision as they include:

a) One CP ([✂]) which only sells directly to the end-customer; and

b) Two CPs ([✂]) which sell both to the end-customer directly and via a reseller.

A4.27 Figure A4.4 presents our summary analysis of the data provided by CPs. In response to the July 2017 Notice, the three CPs provided data on the annual cost incurred in various cost categories relevant to 070, for example 'end-user interface', as well as overall volumes of 070 calls (minutes). Using this data, we have estimated a conservative ppm figure for 070 calls, shown in Figure A4.4 below. This is likely to be an overestimate of the true ppm cost of providing a 070 service, as a proportion of the annual costs may be either common to other services, or incremental to the provision of other services.

A4.28 CPs also provided data on the proportion of each cost category which was incremental to the provision of 070 services. Using this data, we have estimated the amount of cost in each category which is incremental to the provision of 070 services. As outlined in Figure A4.4 below, our analysis of responses from the three CPs suggests that the majority of the costs involved in providing a 070 service are common to the provision of other services (92%). This is consistent with the responses of a number of other CPs not included in our detailed estimates. For example, ([✂]) stated that switch/call routing functionality tends to be used by other non-geographic number ranges, or services other than 070.[192] This suggests that our estimates of ppm costs in Figure A4.4 may overestimate the true costs.

[191] As noted above, [✂] was not included in the total of fourteen terminating CPs referred to in the December 2017 Consultation.

[192] Based on responses to the September 2017 Notice.

Figure A4.4: Summary of cost information

	ppm (based on total annual cost) (2016)[193]	Incremental % of cost of providing 070	Weighted average incremental cost of providing 070 per operator (2016)
Switch and call routing functionality	3.94	2%	£3,723
End-user interface	0.61	60%	£18,005
Marketing and billing	1.52	12%	£12,027
Onward routing: transit/termination/ interconnection	7.56	2%	£6,277
Other costs[194]	0.51	5%	£586

Source: Ofcom analysis of data provided in response to the July 2017 Notice.

Note: These estimates are weighted averages (using minutes) based on the responses of three CPs ([✂]).

Transit providers

A4.29 The OCP Notices requested information from the transit providers BT and Vodafone regarding the volumes of 070 calls they handled in 2015 and 2016, by CP and charge band. We used this information to estimate the total volume of 070 minutes and termination revenues.

Estimating the incremental cost (ppm) of providing 070 services

A4.30 For the purposes of our analysis we are only interested in the costs incurred by CPs as our market is the market for termination of calls on a 070 number. CPs do not incur material costs in stages 1 and 2 as retail telecoms providers bear the initial costs of transit (at stage 2) and the CP handing over calls bears the costs of interconnection. Our analysis therefore focuses on stages 3 to 5, where CPs incur the costs of providing 070 calls. We proceed by estimating the incremental cost (ppm) for each of the stages 3 to 5 separately; summing these to get to our overall estimates.

A4.31 In contrast to the costs in stages 4 and 5 (discussed below), we cannot estimate the costs that CPs incur in relation to stage 3 functions based on the regulated charges of products that can be purchased in wholesale markets (such as transit, interconnection or

[193] In the December 2017 Consultation the figures in this column were reported as ppm when they were actually £pm. We have also corrected a small error in the calculation of the end-user interface figure. These corrections do not affect the other figures in Figure A4.4, our analysis or conclusions.
[194] As reported by providers this includes costs such as 'internal development costs' and the cost of handling end-user support queries.

termination). Absent this option, our estimate of stage 3 costs relies largely on the costs that CPs provided in response to our July 2017 Notice.[195]

A4.32 Figure A4.5 below first presents the total costs reported by CPs for the cost categories relevant to stage 3. This includes costs which are common to the provision of other non-geographic services.[196] In addition, Figure A4.5 presents 070 volumes (in call minutes) and two estimates of the incremental cost (ppm) of providing 070 services:

a) Variant 1 (our base case) relies on the proportion as reported by CPs in their responses; and

b) Variant 2 proxies this proportion using the proportion of all non-geographic calls made up by 070.

Figure A4.5: Estimates of the total and incremental "stage 3" cost

Total cost	[✄]	[✄]	[✄]
Switch and call-routing functionality	£[✄]	£[✄]	£[✄]
End-user interface	£[✄]	[✄]	£[✄]
Marketing and billing	£[✄]	£[✄]	£[✄]
Other costs	£[✄]	£[✄]	£[✄]
Total costs	£[✄]	£[✄]	£[✄]
070 call minutes	£[✄]	£[✄]	£[✄]
Variant 1: % incremental as reported by CPs			
Incremental proportion reported by CPs	[✄]	[✄]	[✄]
Estimate of "stage 3" incremental cost (ppm)	[✄]	[✄]	[✄]
Variant 2: incremental proportion based on 070's share in total non-geographic traffic			
070 as a proportion of total non-geographic calls	[✄]	[✄]	[✄]

[195] We understand from these responses that 070 providers who sell directly to end-users undertake the functions in stage 3, wholly or largely, using systems they have developed and operated. This suggests that there is no developed market for the functions that 070 providers undertake in stage 3. For 070 providers who do not sell directly to end-users, the reseller tends to bear this cost although we do not have robust information on the level of this cost to resellers.

[196] We include "marketing and billing" and "other costs" in our stage 3 costs as these do not sit well within the functions that 070 providers undertake in stages 4 and 5.

Estimate of "stage 3" incremental cost (ppm)	[✂]	[✂]	[✂]

Source: Ofcom analysis of data provided in response to the July 2017 Notice.

A4.33 We also note that many of the costs incurred in "Stage 3" above, are similar to those incurred during the onward routing of off-net calls to ported mobile numbers. We currently estimate the LRIC of donor conveyance to be approximately 0.032ppm.[197] However, we would not expect the LRIC estimate of donor conveyance to be the same as the LRIC of providing a 070 service as the LRIC of donor conveyance is relevant only to the switch and call routing functionality element of our stage 3 cost estimate. In addition, donor conveyance tends to be provided by larger providers than those providing 070 services, which suggests that the costs involved may be different.

Stage 3: switch, call routing and marketing and billing costs

A4.34 Our estimates in both variants indicate that the "stage 3" incremental cost is well below 1ppm.

A4.35 We include the weighted average of our "variant 1" estimates, which is 0.596ppm.

Stage 4 costs: interconnection and onward transit

A4.36 Once the number to which 070 calls needs to be routed has been determined (for example, the end-user's fixed or mobile number), CPs need to transit calls to the point of handover. This requires CPs to interconnect with a transit provider, who will provide transit and hand over calls to the terminating CPs. At this stage the terminating CP picks up the calls for termination to the final number.

A4.37 We consider that CPs incur two types of costs, interconnection and onward transit, in stage 4.[198]

Interconnection costs

A4.38 Interconnection costs are likely fixed (i.e. the costs of being interconnected with transit providers do not vary greatly by volumes of calls handled) and largely common where CPs provide calls to numbers other than 070 (as is the case). This suggests that the incremental cost of interconnection is very low.

A4.39 Interconnection costs depend on a range of factors such as a provider's network deployment and the interconnection products that it purchases. Despite this complexity and our view that interconnection costs are likely largely fixed/common, we have estimated the cost (ppm).

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[197] Ofcom, 2017. *Review of mobile donor conveyance charges for the period 2018-2021*, page 9. https://www.ofcom.org.uk/__data/assets/pdf_file/0024/104658/consultation-donor-conveyance-charges.pdf.

[198] With costs depending on the distance and route travelled by calls on their way to terminating CPs.

A4.40 Using data from providers we have estimated the incremental interconnection cost of providing 070 services by dividing the annual cost of interconnection (including common costs) by the volume of 070 minutes for each provider. We have then multiplied by the proportion of those costs which are incremental to 070 to establish the incremental cost (ppm). This also gives an estimate close to 0ppm, which we use in our analysis below.[199]

Cost of onward transit

A4.41 Information collected from CPs suggests that the incremental cost of onward transit (ppm) is very low (close to 0ppm).[200] We have also estimated this cost based on the charges of regulated transit products and associated traffic profiles. As part of the analysis to determine the dispute on charges for terminating calls to 03 numbers between BT, EE and Three in 2015 we estimated the cost of onward transit. We have updated this figure using the same methodology but based on the current charge of transit products[201] to provide a revised estimate for the cost of onward transit of 0.464ppm. As a conservative assumption, we use the higher cost estimate of 0.464ppm in our overall estimate below.

Stage 5 costs: termination

A4.42 CPs will bear the costs of TRs for calls to 070 numbers which are routed to mobile/fixed numbers. These TRs are passed on to callers through call charges.

A4.43 We asked CPs to provide the distribution of the destinations of the 070 calls they handled, i.e. the numbers to which end-users asked calls to be routed. Figure A4.6 has been populated with the weighted average distribution across the three CPs included in our detailed analysis.[202]

Figure A4.6: Destination of 070 calls (2016)

	Proportion
UK fixed	27%
UK mobile	6%
Overseas fixed	1%
Overseas mobile	8%
Other destination	58%
Total	100%

Source: Ofcom analysis of data provided in response to July 2017 Notice.

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[199] This is based on the responses of [✂] and [✂]. We note that [✂] interconnection costs are included in the cost of onward routing.
[200] Moreover, terminating CPs were commonly not able to report costs of onward transit separate from the costs of terminating 070 calls to the numbers to which end-users have asked for 070 calls to be routed.
[201] This estimate is based on the charges (2016 prices) of the following products: Call termination local exchange, local tandem conveyance and inter-tandem Conveyance (short, medium and long).
[202] We note that there are marked differences between CPs in terms of the distribution of their 070 calls' destinations. These differences may reflect the fact that CPs deploy different business models and attract differing customer types.

A4.44 Responses to the July 2017 Notice suggest that "other destination" includes routing to VoIP and Session Initiation Protocol channels, which do not involve termination charges as the calls are routed through the internet. It is also likely, given our understanding of the level of fraud in this market, that many of the calls routed to "other destinations" represent the fact that the number is not onward routed at all. If the TR was set based only on legitimate use of the range, we would expect it to be set above zero. For this reason, we exclude routing to "other destination" from our estimates of the incremental cost of 070.

A4.45 Rates for termination to UK fixed and mobile numbers have decreased significantly over time and are currently at less than 0.5ppm (and very significantly so for termination to UK fixed numbers).[203] These rates are a small fraction of the rates that termination to 070 calls currently attract. Termination to fixed or mobile numbers overseas tend to attract much higher rates, with the level of rates depending greatly on the country where calls are terminated. It appears reasonable to expect that, on average, the rates for termination overseas are significantly greater than those in the UK.

A4.46 We estimate the termination cost (ppm) in three scenarios:

a) all 070 calls are terminated to UK fixed numbers (suggesting a TR of 0.0323ppm);

b) all 070 calls are terminated to UK mobile numbers (suggesting a TR of 0.489ppm); or

c) all 070 calls are terminated to international mobile numbers[204] (suggesting a TR of 4.89ppm).[205]

A4.47 We have also estimated the cost of terminating 070 calls based on data from providers. These estimates are consistent with the incremental cost of termination (ppm) being materially below 1ppm.

Overall estimates of incremental cost of providing 070 calls

A4.48 Having estimated the incremental cost (ppm) of providing 070 calls for each of the stages 3 to 5 separately, in Figure A4.7 below we present our overall estimates of this cost. Our estimates are made up of:

a) the stage 3 cost, estimated based on the common/incremental split reported by CPs (i.e. variant 1 from Figure A4.5 above);

b) the cost of interconnection and onward transit (stage 4), discussed at paragraphs A4.36 to A4.41 above, and;

c) the cost of termination (stage 5), which varies depending on the numbers to which we assume 070 calls are terminated (to UK fixed numbers only; to UK mobile numbers only; to international mobile numbers).

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[203] 0.489ppm for termination to UK mobile numbers (MCT 2018 Statement, page 5, and 0.0323ppm for termination to UK fixed numbers. Narrowband Market Review 2017, page 10.

[204] We note that calls may also be routed to international fixed numbers, but this appears to be a small proportion (1%) of total call routing and is likely to have a lower average TR.

[205] Based on a multiplier of ten applied to the UK mobile TR.

Figure A4.7: Estimates of the incremental cost (ppm) of providing 070 calls

	Cost types	[✂]	[✂]	[✂]	Average[206]
Stage 3	Switch, call routing functionality, end-user interface and other	[✂]	[✂]	[✂]	0.596
Stage 4	Interconnection		0.000		
	Onward transit		0.464		
Stage 5	Termination (UK fixed)		0.032		
	Termination (UK mobile)		0.489		
	Termination (International mobile)		4.890		
Incremental cost (ppm)	Termination to UK fixed	[✂]	[✂]	[✂]	1.093
	Termination to UK mobile	[✂]	[✂]	[✂]	1.550
	Termination to International mobile	[✂]	[✂]	[✂]	5.951

Source: Ofcom analysis of data provided in response to the July 2017 Notice.

Notes: These estimates are weighted averages based on the responses of three CPs ([✂]). The estimates have been weighted by volumes (minutes).

A4.49 Our overall estimates, averaged across CPs, are 1.093ppm for termination to UK fixed numbers, 1.550ppm for termination to UK mobile numbers and 5.951 for termination to international mobile numbers. These estimates suggest that the incremental cost (ppm) while much smaller than 070 TRs (approximately 36ppm for calls originating in the UK, as discussed at paragraph A4.14), materially exceeds the rates for termination to UK mobile numbers (0.489ppm).

[206] This average is based on the responses of three providers only: [✂], [✂] and [✂] for the reasons discussed previously.

Stakeholder comments and our response

A4.50 [✂], [✂], GCI, Franzcom and Magrathea agreed with our approach to estimating the costs of 070 termination.

A4.51 AIMM, RAG/Biass, Netcollex, Premtext and Telecom2 disagreed. RAG/Biass referred to its comments on our policy proposals and did not provide any comments on our cost estimates. We discuss the other stakeholder comments below.

Costs of number management/administration

A4.52 Telecom2 and Netcollex both stated that there is a cost associated with number administration/management for 070 services that is not reflected in our analysis.

A4.53 In order to fully assess the impact of our proposals we asked Telecom2 and Netcollex as part of our 4 May Notices to: describe the number administrative/management activities to which they were referring, clarify why those activities should be included in the costs of providing 070 services and, if possible, estimate the costs.

A4.54 Netcollex said that the costs relate to number allocation and deciding how soon a number can be reused (to avoid a current user receiving calls for the previous user). It considered this activity is unique to 070 services but was not able to estimate the cost.

A4.55 Telecom2 commented that 070 service administration has unique components that have a relatively high manual content that cannot easily be automated. It noted management activity such as provision of numbers, switching them on and off, keeping records of temporary users that change frequently, ensuring that numbers are withdrawn from use at the appropriate time and reallocating them when it is safe to do so. It noted the higher level of churn for 070 numbers (due to temporary uses such as in adverts) which is considered unique to 070. It was not able to separately identify the costs.

A4.56 We recognise that, in some cases, there are costs associated with managing a pool of 070 numbers. These are only likely to be relevant where an organisation is reusing 070 numbers for different customers on a frequent basis for example use in advertising, hospital patients or dating websites. They are not likely to be material for customers that use 070 numbers on a long-term basis. It appears the main risk to manage is that a number is reassigned too quickly meaning calls are received in error. This could be mitigated by having a relatively long period of time before a number is reassigned (a process that could be governed by a rule and possibly automated).

A4.57 Telecom2 and Netcollex were not able to separately estimate the costs of number management. However, to the extent that these costs are incurred in the provision of 070 services we expect they would be included in the cost estimates supplied by CPs and therefore reflected in the cost analysis above. In particular, [✂] has confirmed that its current number management activity costs were included within the cost information it supplied and it is one of the three CPs included in our cost analysis. We also note that these costs are causally related to the short-term use of 070 numbers, so we consider it reasonable for them to be borne by the end-user of the 070 number rather than being recovered through the TR paid by the caller.

Costs of additional services

A4.58 AIMM stated that we have only estimated the cost of a basic redirect service and end-users benefit from a wider range of services for example, fax, voicemail, email and (in some cases) call handling. It was concerned that most of these services will disappear under our proposals including the most basic of redirect services.

A4.59 The purpose of this assessment is to estimate the 070 call cost incurred by an efficient CP. Our estimate includes the cost of a redirect service (broadly speaking stage 3 in Figure A4.1 above) along with transit and termination. We have discussed in section 4 (see paragraphs 4.117 to 4.120) that the relatively modest end-user charges we have estimated are unlikely to deter 070 users that derive material benefits from its use.

A4.60 Our cost estimate does not include additional services such as fax, voicemail, email or call handling. We consider that it is unlikely to be efficient for the additional costs of providing these services to be recovered through 070 TRs that are paid solely by callers. Moreover, if end-users value these additional services then the service provider should be able to recover the costs through charges for these services to end-users. For example, BT currently charges £3.50 per month for its 1571 voice mail service on the consumer landline product.[207] If the services do 'disappear' as predicted by AIMM then it may suggest that end-users place a lower value on the services than they cost to provide, or they can find more attractive alternatives.[208]

Reseller costs

A4.61 Premtext said we had understated the costs because we have not included reseller costs. It noted that a fixed line (or VoIP) operator may be charged 0.5ppm to deliver a mobile call, but the retail price is between 7ppm and 17ppm plus setup fee. It considered that the incremental 070 call cost should be much nearer 7ppm.

A4.62 The aim of our cost analysis is to reflect the LRIC of providing 070 calls based on an efficient CP. All the CPs included in our analysis provide services direct to end-users thus their costs reflect that of providing a complete service. If resellers incur higher costs we would not want to include these costs as they are not necessary to provide a 070 service and would not reflect an efficient level of costs. In any case, a reseller that had materially higher costs would be unlikely to be able to remain competitive in the market.

Sample of CPs

[207] See https://www.productsandservices.bt.com/assets/pdf/BT_PhoneTariff_Residential.pdf, page 32. Price as of 27 September 2018.

[208] The high profit margins on 070 termination currently give CPs an incentive to incur high costs in order to acquire 070 end-users. This can mean that 070 providers offer services/functionalities free to end-users, even though the costs of these may exceed the value that end-users derive from these services/functionalities.

A4.63 Premtext also noted that our costs estimates were based on three out of the fourteen CPs approached by Ofcom (21%).[209]

A4.64 We explain at paragraphs A4.25 and A4.26 why we have used these three CPs in our analysis and excluded the others.

[209] As noted at paragraph A4.24 we actually requested information from fifteen CPs, however, one was excluded for reasons set out in paragraph A4.25d.

A5. Costs of implementing billing for end-users

A5.1 This Annex describes the additional analysis and information gathering we have undertaken since the December 2017 Consultation to assess the impact of billing end-users of 070 numbers. It is structured as follows:

a) Stakeholder comments

b) Ofcom's further analysis and response

i) Further information Notice

ii) Establishing new billing and credit functions

iii) Estimating the costs of adapting an existing billing system

iv) Ongoing billing costs

Stakeholder comments

A5.2 AIMM thought our proposals would "…destroy the existing market for personal numbering services." due to the need to recover costs from the end-user. It noted that:

a) Billing the end-user would result in additional costs due to (new) consumer billing infrastructure costs, credit checking and debt management;

b) Most CPs do not have consumer or SME billing functionality, so they would no longer be able to provide personal numbering services; and

c) The end-user cost would be dependent on number of calls, not all of which are desired, leading to billing disputes on the unwanted calls.

A5.3 Telecom2 also considered that charging end-users would lead to high billing costs due to large numbers of customers being charged small amounts, and a high bad debt level because it would not be viable to invest in credit control effort for small bills.

Ofcom's further analysis and response

Further information Notices

A5.4 We recognise that end-user billing (if adopted) is likely to result in some additional costs. Following responses from stakeholders, we sought to clarify their comments through additional information Notices (the 4 May Notices) to further inform our view as to the impact of our proposals. We asked CPs whom we believed to supply end-users:

a) Whether the way they recover the costs of providing a personal number service would change if our proposals were implemented; and

b) In the event the CP does charge end-users:

i) Whether they had considered the charging structure they would implement; and

ii) What activities they would need to undertake in order to implement this and, if possible, to estimate the costs that would be incurred.

A5.5 Six CPs responded and four of these [✂] considered it likely they would implement charges for end-users if our proposals were implemented. However, we note that one of these CPs ([✂]) is in fact outside the scope of this analysis as it does not provide 070 services direct to end-users currently. Two CPs [✂] said they would likely cease to provide 070 services. Of these, [✂] did not provide further information on the activities/costs to implement end-user charges.

A5.6 In order to implement end-user charging, three CPs [✂] indicated that they would need to contact end-users to modify their arrangements/contracts and set up billing/accounts. [✂] indicated that some of its customers would be difficult to contact and this would be its largest cost.

A5.7 Other activities that CP's identified as necessary to implement end-user billing included:[210]

a) [✂] said it would require alterations to the initial service setup, database and call handling systems. While the systems changes had not been specified, it suggested this would be approximately 5 days of development time, 2 days for website redesign and 15 days of administrative time. It did not anticipate any ongoing costs above the current overheads.

b) [✂] said it would need to establish new 070 tariffs and alter the billing system. It considered the one-off billing system costs would not be material. There would be ongoing billing and collection costs (including financial service fees, debt collection and potentially credit risk for example, post-paid and payment channel fraud) but it was not able to quantify the cost. It considered that only customers that could not migrate to alternatives due to the costs of changing their number would continue to use 070.[211]

c) [✂] said charging end-users would be undertaken by its customers (resellers or other organisations that provide services to end-users) as those customers have the contract with end-users. It noted that it could undertake some of the required IT systems development centrally i.e. changes to handle the calls, produce bill data, management/accounting information and integrate the billing portal and number management system. This information could be passed to its customers in exchange for a contribution to the cost. It considered there may be a requirement to get financial licences. It was not able to estimate these costs but considered they would be "high".

In terms of ongoing costs, it considered that its customers generally have no billing or credit control systems currently so would need to create these from scratch. It

[210] [✂] stated, "If a customer required dedicated call recording storage solutions for example, for the sex industry workers, then additional IT costs would need to be covered and this would have to come from the end-user". It is not clear to us that these IT costs arise from implementing charges for end-users therefore we have not discussed them here.

[211] [✂] considered that it would lose 30% of its total turnover as a result of our proposals. We assume this is due to customers no longer requiring or changing services.

estimated that each customer would need to employ 4 new staff members – one billing and two credit control posts (at £26,000/year each) and a manager (at £30,000/year). In addition, these staff would need to be accommodated at £10,000/desk/year, there would be software licencing fees of £2,000/year and bank charges (not estimated). Thus the total cost per customer was around £150,000/year ongoing and around [✂] for all its customer organisations. [✂] indicated that this would mean 070 services would no longer be viable.

A5.8 We discuss the further information provided and respond to stakeholder comments below.

Establishing new billing and credit functions

A5.9 AIMM suggested that most 070 providers do not have billing functionality so will no longer be able to provide 070 services, while Telecom2 estimated that the cost to its customers of establishing billing systems would be prohibitively high.

A5.10 We recognise that the costs of establishing a billing and credit control system from scratch could be relatively high if it is only to be used for the purposes of billing end-users for 070 calls. This is because:

- if any of the costs of setting up a billing system are fixed, then the average costs per customer of a service provider with only a small number of customers will be relatively high;
- the variable costs of billing are driven primarily by the number of customers rather than the number of services provided, and will also be high relative to billed revenues if each customer is billed only for 070 calls.

We consider that the incremental costs would be significantly lower where an organisation already has these functions in place which could be adapted to include billing for 070 numbers. For example, [✂] which already has billing systems in place for other services noted the incremental ongoing costs would be minimal.

A5.11 This view is consistent with the approach we took to BT's retail billing and bad debt costs for the purposes of setting the VULA margin squeeze rule in March 2015.[212] For these purposes, we regarded billing costs as variable (linearly) with the number of customers.[213] We also said that billing costs would not materially increase as a customer takes an additional product. In other words, billing costs are subject to economies of scope in that their magnitude does not vary with the number of products each customer subscribes to. This is consistent with the view that, where an operator already has a billing relationship with a customer, the additional costs of billing for an additional service like 070 calls would be small.

[212] Ofcom, 2015. *Fixed Access Market Reviews: Approach to the VULA margin.* https://www.ofcom.org.uk/__data/assets/pdf_file/0015/72420/vula_margin_final_statement.pdf.

[213] We acknowledged that cost-volume elasticities could be less than one but in the absence of precise estimates, we considered our approach to be "both reasonable and practical".

A5.12 As part of the 15 May Notices we also asked CPs whether they provide any services (including non-070 services) that require end-user billing. Of the CPs that responded to this request, five provided 070 services direct to end-users and all of these CPs bill for at least some other services and have established systems for customer billing.

A5.13 Based on the information provided, we consider that an appropriate billing system can be implemented at a relatively modest cost, where only a change to an existing system is required, and that this can be done at a much lower cost than if a 070 provider were to build an entirely new system. We have estimated the costs of adapting an existing billing system based on information provided by [✂] below (see paragraphs A5.17 to A5.24).

A5.14 CPs that provide 070 services via a reseller and do not have a direct relationship with the end-user would likely find it more costly to establish end-user billing because they do not have a direct relationship with the end-user. However, we do not expect that these CPs will charge end-users – this task would fall to the reseller (or other organisation – see below) that has the relationship with the end-user.

A5.15 There may be cases (as noted by Telecom2) where the CP provides an intermediate service and does not have a billing relationship with the end-user. For example, in the case of advertising, dating or hospital services using 070 numbers, the CP may provide services to another organisation that has the contract with the end-user. We recognise that organisations in these circumstances are unlikely to find it economically viable to establish and maintain new billing and credit control functions that are specific to charging for 070 numbers, and it is therefore unlikely that these costs will actually be incurred. For example, a provider of advertising space [✂] noted that to implement end-user charging it would need to build and maintain new billing and credit control functions and including these costs in charges to customers would make it uncompetitive.

A5.16 In these cases, the organisation (for example, the dating or advertising site) might move to provide services using a different number range (such as 03, 08 or 09). As discussed at paragraph 4.19 we note that Autotrader has moved from using 070 numbers and now uses geographic numbers for its advertising service. In other cases, it might be possible to avoid new billing costs by recovering the costs of using 070 services through an existing charging mechanism, for example by charging an additional flat fee for the 070 number as part of advertising or dating site membership fees.

Estimating the cost of adapting an existing billing system

A5.17 [✂] was able to indicate the resources required to implement end-user charging as follows: 5 days of development time, 2 days for website redesign and 15 days of administrative time. We have used this information to estimate an approximate cost of implementing end-user charging for its 070 retail customers. To do this we have used resource costs estimated in other Ofcom projects updated to 2018 prices as follows:

a) When assessing the costs of changing the consumer switching process in 2011/12 we assumed a £500 developer day rate which was considered to be an "appropriately conservative rate".[214] We have assumed this resource cost is an appropriate proxy for the development and website redesign activities. We have updated the figure to 2018 prices using Office for National Statistics ("ONS") data on the change in private sector wages (which increased by 13% from Q4 2012 to Q1 2018).[215] This gives a day rate of £566.

b) In our 2009 070 Statement, we estimated the costs of moving from 070 numbers to a different number range, including the administrative task of notifying end-users. We estimated the effective wage of administrative resource at £18/hour in 2009.[216] We have updated this figure to reflect 2018 prices (i.e. £22, using the same ONS data where the increase in wages was 20% from Q4 2008 to Q1 2018) and assumed a seven hour working day to give a current administrative resource cost of £151/day.

A5.18 Using these resource costs along with the estimates for time required, we estimate the total one-off cost at £6224 for each service provider to implement end-user billing based on the resource requirements set out in paragraph A5.17.[217] We consider this a relatively modest cost in the context of [✂] 2016 termination revenues for services provided directly to end-users which were around [✂].[218] We have also estimated the cost on a ppm basis in order to estimate the level of costs that would need to be recovered from end-user charges. We have assumed that the one-off costs would be recovered over three years and spread across 070 minutes the CP provides for services supplied direct to end-users. This gives a unit cost of 0.411ppm.[219] [✂] considered the ongoing costs would be minimal therefore we have not attempted to quantify these.

A5.19 We have estimated the total cost to CPs using the figure for [✂] implementation costs calculated above. We recognise that CPs will have varying costs, however, in the absence of alternative information we consider the estimate of [✂] cost to be a reasonable proxy. There are 125 CPs with 070 number allocations[220] which, if each of these were to adapt an existing billing system, would give a total one off implementation cost of around £778,000.[221] This assumes that all CPs incur the same implementation costs regardless of

[214] CSMG, 2012. *Report for Ofcom on the costs of changing consumer switching process*, Paragraphs 4.6-4.8. https://www.ofcom.org.uk/__data/assets/pdf_file/0021/63435/annex_9.pdf.

[215] ONS data on labour costs. https://www.ons.gov.uk/file?uri=/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/indexoflabourcostsperhourilchseasonallyadjusted/current/ilchtablestemplatesa.xls.

[216] 2009 070 Statement, paragraph A1.106.

[217] £566x7 days + £151x15 days.

[218] Response to July 2017 Notice.

[219] One-off cost (£6224)/3 years/070 minutes supplied direct to end-users (504684 in 2016)

[220] We note in Annex 3 that 127 registered companies are listed as having an SMP designation in relation to 070 numbers. However, Vodafone appears under three separate names on this list. Although these are each separate companies, we have assumed that, in the interests of efficiency, the same billing platforms are likely to be common to all three. We have therefore only included Vodafone once in our analysis to avoid double counting costs.

[221] i.e. 125 x £6224.

size and represents around 9% of total 070 termination revenues in 2016[222] (however, this would be a one-off rather than a recurring expenditure). Alternatively, if all CPs had the same one-off ppm cost as [✂] above then the total industry one off implementation cost would be £406,000.[223] We note that some CPs, for example, those without an existing billing system, may instead decide to provide services on other number ranges (for example, 08, 09) thus avoid billing end-users (see paragraphs A5.16 and 4.124 to 4.128).

Ongoing billing costs

A5.20 AIMM and Telecom2 commented that the billing and bad debt costs would be high due to:

a) Billing disputes on unwanted calls;

b) The large numbers of small value bills; and

c) The fact that it is not viable to invest in credit control effort for small bills.

A5.21 We consider that CPs can mitigate these factors through the charging structure they adopt. In response to our information Notices, CPs identified a range of possible charging structures, for example, [✂] identified the following:

a) charge on the basis of a pence per minute tariff with a setup fee on a pre-payment basis.

b) adopt a monthly payment plan (which includes a set number of minutes per month)

c) subject to credit checking and due diligence processes, a post paid monthly invoice.

A5.22 The first two examples would avoid the need to send bills and the problem of bad debt because payment would be in advance. Automation of the billing process could also lower the costs of sending bills and requesting a direct debit as part of the setup process could significantly lower the chance that bills are unpaid. In some cases the cost of using a 070 number could be included as part of the overall price of the service (for example, as part of the membership subscription in the case of online dating) and collected as part of that payment. Nevertheless, we recognise that there may be some unavoidable ongoing costs of our proposals, for example, financial service fees for processing credit and debit payments.

A5.23 To provide an indication of ongoing billing costs we have looked at the previously regulated charges for providing number translation services ("NTS") (broadly speaking 08 and 09 numbers). In 2011 we regulated the costs that BT could recover for retailing NTS calls (the NTS retail uplift charge control).[224] These retail costs are similar to the types of additional cost identified by AIMM – for example, they include billing, credit and debt management,

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[222] Estimated at around £9m.

[223] In estimating the total one-off cost we have excluded AIT minutes which we expect to cease under our regulation. We have estimated the number of AIT minutes at 5.8m in 2016 using the transit information provided by BT in the AIT Notices, so excluding AIT we estimate there were 32.9 million 070 minutes in 2016.

[224] Ofcom, 2011. *Wholesale charges for Number Translation Services and Premium Rate Services: NTS Retail Uplift charge control and PRS Bad Debt Surcharge statement* ("NTS Statement"). https://www.ofcom.org.uk/__data/assets/pdf_file/0029/62795/ntsru_statement.pdf.

customer service and bad debt. We recognise that NTS costs are likely to be an imperfect proxy for the costs we are trying to measure. For example:

a) BT is a larger scale service provider and could benefit from economies of scale and scope leading to lower unit retailing costs than 070 service providers unless they also bill customers for a range of other services.

b) The costs could be overstated because they include a mark-up for recovery of common costs (costs that are shared across products),[225] whereas we want to capture only the additional/incremental costs of billing 070 end-users.[226] In addition, operators with different business models and regulatory obligations may be able to operate with lower retail costs than BT.

c) These costs are based on 2009/10 data which is now dated and we do not have new information because these charges are no longer regulated. All operators are likely to have been able to improve their efficiency over time.

A5.24 Nevertheless, as we have only limited cost information from CPs we consider that the NTS retailing costs are a useful indicator of the broad magnitude of additional ongoing costs which might be incurred. For 2009/10 the costs of service delivery (billing, credit and debit management, customer service, bad debt) were £9.6m[227] and there were 9.9billion NTS minutes[228] during the same period, giving a unit cost of 0.097ppm. We have updated this figure to reflect 2018 wage costs which gives a unit cost of 0.108ppm (using the same ONS data where the increase in wages was 11% from Q1 2010 to Q12 018). To arrive at an industry cost we have multiplied the ppm costs by total 070 minutes minus AIT (which we expect to cease under our regulation). We estimate excluding AIT there were 32.9 million 070 minutes in 2016. This gives us an estimate of the total cost at around £36,000/year. We consider these costs to be immaterial in relation to the benefits of our regulation.

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[225] NTS Statement, paragraph 4.11.

[226] We are assuming the CP already has a billing system in place. As noted above, it is unlikely to be economic to set up a billing system from scratch to bill end-users of 070 numbers.

[227] NTS Statement, paragraph A2.29.

[228] Ofcom, 2011. *Wholesale charges for Number Translation Services & Premium Rate Services, NTS retail uplift charge control and PRS bad debt surcharge*, Table 5.4. https://www.ofcom.org.uk/__data/assets/pdf_file/0024/63546/nts-retail-uplift.pdf.

A6. List of 070 providers with SMP

070 provider designated with SMP	070 number range(s) allocated by Ofcom
(aq) Limited, trading as aql Limited	7084(6-9), 70894
24 Seven Communications Limited	70121, 70152, 70169, 70190, 70331, 70357, 70364, 7045(1-2), 70474, 70489, 70702, 70776, 70810, 70999
2-Sell-It Limited	70550, 70555
4D Interactive Limited	7003(5-8), 708687, 708690
A2B Telecom Limited	70217(4-6), 70542
Affiniti Integrated Solutions Limited	7009(0-9), 70301, 70433(0-9), 70812, 7091(0-9)
Assume Nothing Limited	70698(0-9), 70845(1-9)
Atlas Interactive Group Limited	70309, 70819
B4U Telecom Limited	7016(0-1)
Barritec Limited	700830
Barritel Limited	7011(4-5), 70118, 70300, 70700
Business Broadcast Communications Limited	701518, 702159, 702187, 702822, 702824, 702826, 702829, 702843, 702846, 702865, 702868, 702901, 702903, 702905, 702907, 704003, 704005, 704007, 704009, 70580(0-1), 705803, 705805, 705807, 705810, 705813
Call Telecom Limited	70263, 7026(5-8), 7027(0-2), 7027(4-9)
CenturyLink Communications Limited	70302, 70468, 70805
CFL Communications Limited	70854(0-9), 70856(0-9)
Citrus Telecommunications Limited	70156, 70295, 70438
Cloud9 Communications Limited	70269, 70392, 70996
COLT Technology Services	702820, 70284(0-1), 70284(8-9), 70285, 70286(0-4), 7028(7-8), 70293, 70495

070 provider designated with SMP	070 number range(s) allocated by Ofcom
Commi Holdings Limited	70312, 709876
Connect Telecom UK Limited	70449, 70704
Core Telecom Limited	70264, 7038(7-9), 70422, 70561, 70563, 70565, 70567, 70569, 70571, 70573, 70579, 70582, 70584, 70586, 70589, 70621, 70623, 7062(7-9), 7063(0-7)
Daisy Communications Limited	7004(0-9), 7020(0-9), 70213, 7050(0-9), 70541, 70548, 70591, 7090(2-5)
Daotec Limited	70180, 70182, 70184
Digital Mail Limited	70394, 70409, 70439, 70770
Digital Select Limited	709878
Digitech Solutions Global Limited	70566, 70570, 70578
Dynamic Mobile Billing Limited	7012(4-5), 70127, 70131, 70134, 70136, 70138, 7036(1-2), 70369, 70459, 70473, 7047(5-6), 70479, 70482, 70485, 70522
ETC Telecom Limited	7082(6-9), 7083(0-9), 7084(0-3)
Everything Voip Limited	709306, 709330
FEBO Telecom Limited	709872
Firstsound Limited	70399, 708727
FleXtel Limited	7010(0-9), 70142, 7017(0-9), 70554, 70559
Franzcom Limited	70359, 704560, 70457, 708762, 708764, 708766, 708769, 7078771
Game Network BV	700687, 701172
Gamma Telecom Holdings Limited	7061(3-5), 70618
GCI Network Solutions Limited	7005(8-9), 70063, 70111, 70116, 70129, 702151, 702153, 702155, 70413, 70420, 70442, 70612, 70710, 7071(3-7), 70790, 70844

070 provider designated with SMP	070 number range(s) allocated by Ofcom
Hospedia Limited	7003(2-3), 70057, 7022(5-7), 70229, 7023(6-7), 7040(2-3), 70411(0-9), 7046(2-4), 70813
Hutchison 3G UK Limited	70993
Ide Group Voice Limited	70151(3-4), 701516, 702157, 702181, 702183, 702185
I.T Communications Limited	708781
i-Net Communications Group Plc	701194, 701510, 702384, 7082(3-5), 708720, 708733, 708872, 70943
Invoco Limited	706260
IP Phone Solutions Limited	709310
IPV6 Limited	703490, 703494, 703499, 703511, 704000, 708090, 708092, 708097, 708668
IV Response Limited	7046(0-1), 70815, 7089(0-1)
JT (Jersey) Limited	701511
Jtec UK Limited	70448, 70525, 70527, 70533, 70535, 70544, 70546, 70551, 70553, 70558, 70620, 70641, 70670, 70673, 70675, 70677, 70679, 70685, 7068(7-8), 70783
Linear Telecoms Limited	702382
M P Tanner Limited, trading as FIO Telecom	703473, 703517, 705809, 708921, 708924
M247 Limited	701179
Magrathea Telecommunications Limited	70112, 70230, 70240, 7031(6-9), 70354, 705728, 708646, 708648, 709305, 70948
Marathon Telecom Limited	701191
Mars Communications Limited	70560(0-9), 705620, 708450, 70858(2-4), 70858(6-9)
Maxadie Limited	709307, 709840

070 provider designated with SMP	070 number range(s) allocated by Ofcom
Media Telecom Limited	70342, 70349(6-8), 703513, 703515, 703519, 7037(0-9), 70429, 70437, 70458, 70491, 70523, 70531, 70539, 7065(7-9), 7066(0-9), 70671, 70678, 70680, 70682, 70684, 70686, 70762, 70780, 708927
Mi Telecom Limited	708740, 708748
Mintaka Limited	701171
Mobile FX Services Limited	708787
Nationwide Telephone Assistance Limited	70788
Net Solutions Europe Limited	70562(1-5), 70562(7-9), 70564(0-1), 70930(1-2)
Nexus Telecommunications Limited	70034, 70064, 70123, 70306, 70639, 70691
Nodemax Limited	70315(0-9), 70572(1-7), 705729, 70624
Numbergroup Network Limited	70051, 70901
Numbers Plus Limited	702386, 708768
Numbers Telecom Limited	704932, 704934, 704936, 708861, 708896, 709873, 709875, 709877, 709879
One Network Limited	708709, 708711, 708713, 708715, 708718, 70872(1-2), 708724, 708726, 708728, 708730, 708732, 708734
PageOne Communications Limited	70804, 70806, 70814, 70816
Phone Buddy Limited	70404, 70575, 70585, 70625
Phone Co-Op Numbering Limited	70212(1-2), 702388
Plus Telecom Limited	70434, 7052(0-1), 70577, 70619, 70638, 70869(2-5), 708698
Port 5060 Limited	708777
Premier Voicemail Limited	70797

070 provider designated with SMP	070 number range(s) allocated by Ofcom
Promotions4All Limited	702902, 702904, 702906, 702940, 702942, 40294(5-6), 70294(8-9), 704002, 704004, 704006, 704008, 705804, 705819, 707920, 707922, 707924, 707926, 707929, 708093, 708095, 708922
QX Telecom Limited	70647, 70723, 70729
Reality Network Services Limited	70494
Red Squared Limited	708098
Red Telecom Solutions Limited	701198, 709309, 709320
Redcentric Solutions Limited	70906
Relax Telecom Limited	702177, 702900
Sala Trading Limited	70310, 70992
Sentiro (UK) Limited	708898
Served Up Limited	70166
Simwood eSMS Limited	70538, 70549
SOS Technology Limited	708867, 708876
Sound Advertising Limited	700680, 702120, 702123, 702383, 702928, 703200, 703353, 703800, 703838, 70857, 70860, 708717
Spacetel UK Limited	708714, 708719, 708725, 708731, 708736, 708739, 708742, 708746, 70880(1-9), 70881(0-1), 708813, 70881(6-7), 708821, 70882(3-4), 708831
SPT Worldwide Limited	70238(0-1), 708761, 708763, 708765, 708767
Square1 Communications Limited	701193
Supported Business Limited	708788, 708799
Suretec Systems Limited	703510, 703512, 703514, 703516, 708669, 708623

070 provider designated with SMP	070 number range(s) allocated by Ofcom
Swiftel Limited	70875(0-9), 708760, 708854, 708892
Swiftnet Limited	70210, 70214
Syntec Limited	70081, 70084, 70089, 70189, 70280, 70778, 70785, 70944, 70969
Tabsoft Limited	70588
TalkTalk Communications Limited	7005(2-6), 70211, 7030(3-4), 70401, 7040(6-7), 70444, 70693, 70697, 70701, 70709
Telappliant Limited	703471
Telecom 10 Limited	70145, 70425, 70427, 70428, 70617, 70640, 70642, 70644, 70646, 70650, 70652, 7065(4-5), 70720, 70722, 70724, 7072(6-8), 70817, 70896
Telecom Essex Limited	70365
Telecom2 Limited	70062, 703472, 70347(4-6), 70347(8-9), 70349(1-3), 703495, 70391, 70557(0-9), 70735, 709820, 70994
TelecomIQ Limited	701177, 708770
Telecoms Cloud Networks Limited	701197, 708780
Telecoms World Plc	7077(2-4)
Telefónica UK Limited	7060(0-9)
Telemix Limited	701175, 701195
Telency Limited	70706, 70708, 70941
Telephone Box Limited	708685, 708691, 70869(6-7)
TeleSurf Limited	708710
TelXL Limited	70050, 70080, 70405
TGL Services (UK) Limited	70067, 704930, 7059(2-3), 708819, 70892(5-6), 708929, 709303
Tiscali UK Limited	70065, 70811

070 provider designated with SMP	070 number range(s) allocated by Ofcom
Tismi BV	708812, 708814, 708820
Top Gear Media Limited	700683
TTNC Limited	70110, 70222, 704362, 704365, 70478(3-4), 70478(6-9), 705560, 705566
Twelve Telecom Limited	701199, 709850
UK Number Store Limited	70690
Virtual Talk Limited	70030, 70128, 70283(1-2), 70424, 70576(0-9), 7080(0-2), 70807, 70859(0-9)
Visionate Limited	70692, 70779
Vodafone Business Solutions Limited	70771
Vodafone Limited	70039, 70060, 70147, 70155, 70330, 70426, 70430, 70432, 70435, 70440, 70443, 70447, 70524, 70526, 70528, 70530, 70532, 70534, 70536, 70590, 7059(6-9), 7092(0-9), 7096(5-6)
Vodafone UK Limited	7000(0-9), 7002(0-9), 7074(0-9)
Voice Simplified Limited	700685, 700689, 701170, 701190
Voicetec Systems Limited	70681(0-9), 70683(0-1), 70683(3-8), 708712, 708716, 708723, 708729, 708735, 708738, 708741, 708743, 708745
Wavecrest (UK) Limited	70219
Windsor Telecom Plc	70610, 70908
XoverX Limited	709874
Yim Siam Telecom	70088, 70791
Zestel Limited	70456(1-9), 70987(0-1)

A7. Evidence of concerns

A7.1 We have noted throughout this statement our concerns relating to the 070 number range. The evidence giving rise to those concerns is set out in this Annex.

Our key concerns

A7.2 As explained throughout this statement, in the case of 070 markets, our key concerns relate to the wholesale level. We consider that market power in the termination of calls to 070 numbers leads to high 070 WCT rates which, in turn, lead to:

a) **distortion to consumer choice arising from high retail prices (paragraphs A7.4-A7.13):** High WCT rates result in high retail prices for calls to 070 numbers (and prices that are high in relation to cost). Where consumers are aware that 070 call prices are high they are likely to be deterred from calling 070 numbers even though they value them more than the (marginal or incremental) cost. This leads to a distortion because, absent other factors, there are likely to be less calls to 070 numbers than is socially efficient (given the end-user's decision to take a 070 number);

b) **distortion to consumer choice arising from consumer confusion between 070 and 07x mobile numbers (paragraphs A7.14-A7.33):** Consumers are generally unable to distinguish between 070 numbers and '07x' mobile numbers and tend to be unaware that 070 calls attract much higher charges than calls to 07x mobile numbers. This is likely to lead to consumers making more and longer calls to such numbers than they would have done had they been aware of the charges they incur when calling 070 numbers;

c) **bill shock (paragraphs A7.19-A7.20, A7.31-A7.33):** Consumers are susceptible to 'bill shock' (higher than expected charges) when they call 070 numbers because they believe retail 070 call charges to be similar to those of calling 07x mobile numbers (which are often included as part of bundle) when in fact they are much higher;

d) **vulnerability to fraud and scams (paragraphs A7.34-A7.64):** Evidence (also discussed in paragraphs 4.21 to 4.37) confirms improper use of 070 numbers, particularly with respect to consumers being misled into making lengthy 070 calls which incur high retail charges. Those engaging in fraudulent activity can also use 070 numbers to make it more difficult to be traced; and

e) **poor reputation (paragraphs A7.65-A7.69):** Evidence (discussed in paragraphs 4.16 to 4.20) suggests that misuse of the 070 range has in the past undermined the use of these numbers for innovative delivery of electronic communications services.

A7.3 The evidence and analysis relating to our finding that 070 TRs are high in relation to costs can be found in Annex 4. We set out in this Annex the evidence that gives rise to our key concerns.

High retail prices

A7.4 As noted above, we consider that market power in the termination of 070 numbers leads to high 070 WCT rates which, in turn, leads to high retail prices.

A7.5 Our research shows that the published retail prices for calls to a 070 number are generally significantly higher than those for a call to a mobile or fixed line phone number.

A7.6 Figure A7.1 provides an overview of the range of maximum prices (in ppm) charged by a selection of mobile providers for calls to 070 numbers, as well as the charges for a standard voice call.[229]

A7.7 It should be noted that calls to 070 numbers are not included in customers' monthly allowance in any of the tariffs we have considered and therefore such calls will always be charged at the rate indicated, irrespective of whether the customer has available minutes in their allowance on their chosen tariff.

[229] The information contained in Figure A7.1 has been sourced from operators' websites and is subject to change. Some of the charges vary depending on the tariff, hence the range of charges indicated for some providers. Owing to the variance depending on tariff, whilst every care has been taken to gain an accurate overview, the ranges indicated may vary. This information is accurate as of 27 September 2018.

Figure A7.1: Maximum retail mobile call prices (ppm) out of inclusive call bundles

Telecoms Provider (mobile)	070 (pay monthly)	Voice call (pay monthly)	070 (PAYG)	Voice call (PAYG)
Giffgaff[230]	-	-	50.00	15.00
Tesco Mobile[231]	50.00	25.00	50.00	25.00
Vodafone[232]	55.00	55.00	45.00	35.00[233]
O2[234]	55.00	55.00	66.00	35.00[235]
EE[236]	75.00[237]	55.00	75.00	40.00[238]
Virgin Media[239]	75.00	58.00	75.00	40.00
Plusnet Mobile[240]	76.60	40.00	-	-
Three[241]	104.00	55.00	104.00	3.00
Sky[242]	110.00	10.00	-	-

Source: Operator websites, 27 September 2018.

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[230] **Giffgaff** https://www.giffgaff.com/pricing. Giffgaff do not offer any pay monthly services.

[231] **Tesco Mobile** (monthly) https://www.tescomobile.com/help-and-support/pay-monthly/call-charges/call-charges-for-pay-monthly; (PAYG) https://www.tescomobile.com/help-and-support/pay-as-you-go/call-charges/call-charges-for-pay-as-you-go.

[232] **Vodafone** (monthly) https://www.vodafone.co.uk/explore/costs/call-charges/index.htm; **Vodafone** (PAYG) https://www.vodafone.co.uk/cs/groups/public/documents/document/vfcon091263.pdf, https://www.vodafone.co.uk/terms-and-conditions/consumer/mobile/pay-as-you-go/pay-as-you-go1/.

[233] Most calls are 30ppm, only Vodafone Big Value Bundle out-of-bundle calls are 35ppm. Customers opted into the Pay as you go 1 tariff pay 20ppm.

[234] **O2** 070 (pay monthly and PAYG) and voice call (monthly) https://www.o2.co.uk/help/account-and-billing/other-numbers-and-charges; **O2** voice call (PAYG) https://www.o2.co.uk/termsandconditions/mobile/pay-as-you-go-big-bundle-tariff-charges.

[235] The highest tariff rates (pay as you go Big Bundle) are 35ppm, calls from Classic Pay As You Go sims are charged at 3ppm (https://www.o2.co.uk/termsandconditions/mobile/pay-as-you-go-charges-terms-classic-pay-as-you-go).

[236] **EE** 070 (monthly) http://ee.co.uk/content/dam/ee-help/Help-PDFs/pay-monthly-what-it-costs-07-march-2017.pdf; **EE** 070 (PAYG) http://ee.co.uk/content/dam/ee-help/Help-PDFs/EE-PAYM-07-Calling-010715.pdf; **EE** voice call (monthly) https://ee.co.uk/content/dam/ee-help/help-pdfs/ee-monthly-price-plan-guide-june-2018.pdf; **EE** voice call (PAYG) Orange customers https://ee.co.uk/content/dam/ee-help/help-pdfs/ouk-payg-price-guide-august-2018.pdf, EE customers https://ee.co.uk/content/dam/ee-help/help-pdfs/ee-pay-as-you-go-standard-price-guide-9-july-2018.pdf.

[237] For pay monthly and PAYG, the charge to call 070 numbers is either 35ppm or 75ppm. The majority of numbers are charged at 75ppm.

[238] Most calls are 35ppm, only legacy Orange and T-Mobile plans price voice calls at 40ppm.

[239] **Virgin Media** (monthly) https://store.virginmedia.com/virgin-media-mobile/pay-monthly/pay-monthly-call-charges.html ; **Virgin Media** (PAYG) http://store.virginmedia.com/virgin-media-mobile/pay-as-you-go/call-charges.html. 070 pay-as-you-go calls cost between 35ppm and 75ppm.

[240] **Plusnet** https://www.plus.net/help/legal/mobile-price-guide/. Voice calls can range from 33-40ppm. Plusnet do not offer any PAYG services.

A7.8 Figure A7.2 provides an overview of the range of maximum prices (in ppm) that fixed line providers charge customers for calls to 070 numbers, local/national numbers, and mobile numbers.[243]

Figure A7.2: Maximum retail fixed call prices (in ppm)

Telecoms Provider	Calls to 070 numbers	Calls to local/national numbers	Calls to mobile numbers
BT[244]	48.51	15.00	18.00
Sky[245]	50.88	14.65	19.35
TalkTalk[246]	50.88	15.00	20.00
Virgin Media[247]	51.07	14.50	19.35
Post Office[248]	51.52	13.00	16.00
EE[249]	59.00	13.50	16.00
Vonage[250]	83.00	0.00	10.00

Source: Operator websites, 27 September 2018.

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[241] **Three** http://www.three.co.uk/Three_price_guide. Depending on the band, 070 charges range from 30.6ppm to 104ppm. Band 3 calls cost 85.8ppm plus a 122p call charge, therefore the total charge for the first minute would be 207.8p. This applies to PAYG and pay monthly calls.

[242] **Sky** https://www.sky.com/shop/terms-conditions/mobile/tariff-guide/__PDF/Sky-Mobile-Tariff-Guide-01Sep18.pdf. Sky does not offer any PAYG services.

[243] The information contained in Figure A7.2 has been sourced from operators' websites and is subject to change. Some of the charges vary depending on the tariff, hence the range of charges indicated for some providers. Owing to the variance depending on tariff, whilst every care has been taken to gain an accurate overview, the ranges indicated may vary. This information is accurate as of 27 September 2018.

[244] **BT** https://www.productsandservices.bt.com/assets/pdf/BT_PhoneTariff_Residential.pdf. Rates for calls to 070 numbers are listed under "Personalised Numbering Services" (pages 54 and 55) and range from 1.021ppm to 48.51ppm, depending on the time of day and categorisation of number. For the cheapest calls a fixed fee of 51.10p per call applies.

[245] **Sky** http://www.sky.com/shop/__PDF/SkyTalk_TG_01_May_2018.pdf. Calls to 070 numbers range from 1.02ppm to 50.88ppm, depending on the time of day and categorisation of number.

[246] **TalkTalk** 070 https://m0.ttxm.co.uk/gfx/help/other_call_charges.pdf. It is our understanding that the 'PN' and 'Pn' rates relate to 070 numbers; **TalkTalk** local/national https://m0.ttxm.co.uk/gfx/help/forms/standard_uk_landline.pdf; **TalkTalk** mobile https://m0.ttxm.co.uk/gfx/help/forms/call_rates_to_uk_mobiles_jm.pdf. Mobile charges range from 6.25-20ppm.

[247] **Virgin Media** http://www.virginmedia.com/content/dam/virginmedia/dotcom/images/shop/downloads/010618_Everyday_Call_Charges_V1.pdf. It is our understanding that the charge bands PN1-PN22 relate to 070 numbers. Calls to 070 numbers range from 1.02ppm to 51.07ppm, depending on the time of day and categorisation of number.

[248] **Post Office** https://www.postoffice.co.uk/dam/jcr:679f5d00-eb81-4df8-9746-f4911d522972/Pricing%20Tables%20v18.pdf.

[249] **EE** https://ee.co.uk/content/dam/ee-help/Help-PDFs/home-broadband/ee-home-price-guide.pdf.

[250] **Vonage** Search Tool https://www.vonage.co.uk/home/call-plans/rates/. All Vonage products include unlimited free local and national calls.

A7.9 As can be seen from the evidence in the Figures above, calls to 070 numbers are generally charged at a higher rate, and in some cases at a considerably higher rate, than calls to mobile or fixed line numbers.

A7.10 Similarly, in respect of fixed line providers, the connection charges for calls to 070 numbers can be substantially higher than the charges for calls to mobile or local/national numbers.

A7.11 Figure A7.3 below provides the maximum call connection charges that the above fixed line providers require (in pence per call, "ppc") to set up or connect the calls to 070 numbers, local/national numbers, and mobile numbers.[251]

Figure A7.3: Maximum Call Connection Charges[252] for retail fixed call prices (ppc)

Telecoms Provider	Calls to 070 numbers	Calls to local/national numbers	Calls to mobile numbers
Vonage[253]	19.00	0.00	19.00
Post Office[254]	21.00	21.00	21.00
Virgin Media[255]	51.07[256]	21.00	21.00
BT[257]	51.10[258]	23.00	23.00
TalkTalk[259]	51.12[260]	20.00	20.00[261]
Sky[262]	51.17[263]	22.00	22.00

[251] The information contained in Figure A7.3 has been sourced from operators' websites and is subject to change. Some of the charges vary depending on the tariff, hence the range of charges indicated for some providers. Owing to the variance depending on tariff, whilst every care has been taken to gain an accurate overview, the ranges indicated may vary. All the information contained in the table can be found at the same sources as the data in Figure A7.2. This information is accurate as of 27 September 2018.
[252] Call connection charges are sometimes also referred to by providers as 'Call set-up fee' or 'Call charge'.
[253] See footnote 250.
[254] See footnote 248.
[255] See footnote 247.
[256] A 51.07ppc connection fee only applies to one band of 070 numbers, all other 070 numbers have 21ppc connection fee.
[257] See footnote 244.
[258] Most 070 calls have a minimum call charge of 5.5p (see page 27, https://www.productsandservices.bt.com/assets/pdf/BT_PhoneTariff_Residential.pdf), apart from one charge band where a 51.10ppc charge applies.
[259] See footnote 246.
[260] A 51.12ppc connection fee only applies to one band of 070 numbers, all other 070 numbers have 20ppc connection fee. https://m0.ttxm.co.uk/gfx/help/other_call_charges.pdf.
[261] The TalkTalk call rates to UK mobiles do not list the connection charge for these calls. The figure of 20ppc is correct as of 27 September 2018 and in line with the price guides for other numbers.
[262] See footnote 245.
[263] A 22ppc connection fee applies to all calls apart from one charge band where a 51.17ppc fee is charged.

Telecoms Provider	Calls to 070 numbers	Calls to local/national numbers	Calls to mobile numbers
EE[264]	60.00[265]	21.00	21.00

Source: Operator websites, 27 September 2018.

A7.12 In addition, we note that Auto Trader, who previously used 070 services for personal numbering, no longer uses the 070 number range and instead now uses a service called 'Protect Your Number[266]' to avoid callers being charged at a premium rate. When a seller places an advertisement with Auto Trader, it is given a unique Auto Trader phone number (from a non-premium number range) which it can use instead of publishing its own phone number. The number is included in the advert price and costs the caller the same as an ordinary landline call.[267]

A7.13 Auto Trader moved away from the 070 range because the high cost of calls meant that they could not negotiate a better retail outcome for their consumers without changing the number range.

Distortion to consumer choice and bill shock arising from consumer confusion between 070 and 07x mobile numbers

A7.14 As noted throughout this statement, we are concerned that consumers are generally unable to distinguish between 070 and 07x mobile numbers and tend to be unaware of 070 calls attracting much higher charges than calls to 07x mobile numbers.

A7.15 We consider it likely that consumers make longer calls to 070 numbers than they would if they were aware of the charges incurred when calling such numbers. Some customers will therefore experience bill shock because they believe that they would be charged for calling an 07x mobile number, which a customer may typically expect to be included in a call bundle.

A7.16 Our concerns are based on evidence from Ofcom's complaints data and previous external publications, all of which are summarised below.

Ofcom complaints data

A7.17 Ofcom has received 178 complaints relating to 070 numbers between January 2013 and July 2018. The complaints relating to 070 numbers can be broadly placed into two categories:

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[264] See footnote 249.
[265] Connection charges for 070 numbers are either 15ppc, 20ppc or 60ppc (the latter applies to one charge band only).
[266] https://www.autotrader.co.uk/safety_and_security_centre/protect_your_number.
[267] In the December 2017 Consultation we said that Auto Trader's 'Protect Your Number' service used the '03' number range. [✂] commented that this was misleading and that the service uses geographic numbers. Further to this comment we have spoken to Auto Trader and corrected our statement.

- complaints relating to the price of calls to 070 numbers (90); and
- complaints relating to 'range misuse' (88).[268]

A7.18 Between 1 August 2017 and 31 July 2018 there were 17 complaints relating to the price of calls and one relating to 'range misuse'. This demonstrates that the issues raised remain relevant to consumers, particularly with respect to the price of calls.

A7.19 Of the 90 complaints relating to the price of calls to 070 numbers, most of these relate to consumers' shock at receiving a higher than normal bill following a call being made to a 070 number. We note that for some of these complaints, consumers specifically said that they thought that they were calling a mobile number. In some cases, consumers also noted that they did not know that calls to these numbers would not be included in their monthly plan and that they were not warned that the call would cost more than a voice call to a fixed or mobile number.

A7.20 Of the 88 complaints concerning 'range misuse', most of these relate to consumers feeling that they have been tricked into calling an 070 number, and when they realise the cost of the call they consider this to be fraudulent or excessive. We note that:

- 21 of the complaints relate to consumers applying for a job online and receiving a response asking them to call a 070 number to discuss the job or set up an interview and then being kept on hold for a prolonged period of time;
- a number of complaints relate to consumers being provided with a 070 number to call on a dating website (17 complaints), or receiving a missed call or text from a 070 number asking for a call back (20 complaints); and
- 43 of these complaints also relate to bill shock, with consumers expressing surprise at receiving a higher than normal bill, with some specifically stating that they thought they were calling a mobile number.[269]

A7.21 Whilst we acknowledge the relatively low numbers of complaints about 070 numbers in the last five years, we consider that the level of complaints is nonetheless high relative to the call volumes on the range and that as such they evidence the type of consumer harm that can arise from the use (and misuse) of the 070 number range. In addition, the fact that we are continuing to receive complaints, particularly relating to the price of calls shows that the issues associated with this number range remain.

Evidence from Ofcom publications

A7.22 Ofcom has completed several reviews of the regulation relating to non-geographic calls since 2010. Some of the evidence gathered in these reviews is relevant to our consideration of consumer harm relating to the 070 range and we set out the evidence relied on below.

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[268] In the December 2017 Consultation we stated that there were 94 complaints relating to 'range misuse' on the 070 range. After further data analysis, we found that 7 of these complaints were incorrectly categorised as relating to 070 numbers and have therefore corrected our statement to reflect this.
[269] Note that some complaints may fall into one or more of these categories.

A7.23 This data continues to be relevant evidence of consumer behaviour towards 070 numbers today, particularly when coupled with:

- the complaints relating to this number range, as noted above (see paragraphs A7.17 to A7.21);
- the evidence of continued fraudulent activity on this number range, set out below (see paragraphs A7.34 to A7.64); and
- the consistency between the surveys noted below (see paragraphs A7.30 to A7.33) which themselves were undertaken several years apart.

Simplifying non-geographic numbers

A7.24 Ofcom undertook a review on simplifying non-geographic numbers between 2010 and 2013. Ofcom completed two consultations in this time, one in December 2010[270] (the "2010 NGS Consultation") and one in April 2012[271], the 2012 NGS Consultation.

The 2010 NGS Consultation

A7.25 In the 2010 Consultation, we highlighted the concerns we had over the continuing abuses on the 070 range. We highlighted evidence from our consumer research which showed that a large proportion of consumers confused 070 numbers with mobile numbers.[272] We noted that much of the consumer detriment on these ranges arose from this confusion.

A7.26 In addition, we noted that the combination of uncertainty, confusion and high non-geographic number prices led to higher consumer vulnerability to fraud. Evidence cited included two complaints received by the Ofcom Advisory Team in relation to 070 numbers.[273]

A7.27 The vast majority of respondents to the 2010 NGS Consultation agreed that there was a real case for intervention in the 070 (and 076[274]) range because of the tangible consumer harm from fraud. For example:

- EE noted that "the proximity of the 070 …. number range to the other 07x mobile ranges creates significant scope for customer confusion and deception. Ofcom's evidence shows not only that consumers are confused – but more worryingly, they do not know that they are confused (as illustrated by the fact 34% of consumers claim to

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[270] Ofcom, 2010. *Consultation on simplifying non-geographic numbers, improving customer confidence in 03, 08, 09,118 and other non-geographic numbers.* https://www.ofcom.org.uk/__data/assets/pdf_file/0020/63380/non-geo.pdf.
[271] See footnote 40.
[272] This consumer research was from a 2009 consumer survey which shows that 34% of consumers claimed to recognise 070 numbers, but 48% of these respondents thought they were mobile numbers. Only 8% recognised them as personal numbers. See the 2010 NGS Consultation, paragraph 6.151.
[273] 2010 NGS Consultation, paragraph 4.63.
[274] Whereas we have previously assessed the 070 and the 076 number range together, we have excluded 076 range from this review as the competition position is very different as compared to the 070 market. To the extent that any of our analysis in this Annex relates to the 076 number range, we will so indicate.

understand 070 numbers, but 48% of these people thought they were mobile numbers)."[275]

- O2 referred to consumers mistaking 070 numbers for mobile numbers. It stated that "we consider that customer exposure to fraud is greater where…a number range can be confused with other number ranges that are commonly found in a bundle (070)."[276]
- Three reported that "070 numbers are often confused with mobile numbers" as an example that "the complex structure of non-geographic number ranges likely contributes to consumer confusion."[277]

The 2012 NGS Consultation

A7.28 Ofcom published a further consultation on simplifying non-geographic numbers in April 2012. In that consultation, we set out that there were specific issues with the 070 number range which needed to be addressed, in particular around consumer detriment arising from an inability for consumers to distinguish 070 (and 076) numbers from UK mobile numbers.[278]

A7.29 We noted that the considerations for the 070 (and 076) number range were somewhat different to the other non-geographic ranges that were being considered in the review because of the greater risk of fraud on these ranges and the potential confusion with UK mobile numbers. We therefore decided to publish a separate consultation.[279]

Non-geographic telephone numbers Omnibus Survey 2012

A7.30 Following the 2012 NGS Consultation, Ofcom commissioned research in relation to its strategic review of non-geographic numbers. This included the Omnibus Survey 2012 which provided evidence to assist Ofcom in evaluating the potential options for intervention in relation to non-geographic numbers.[280]

A7.31 In relation to the 070 number range the findings from the Omnibus Survey 2012 showed that:

[275] Everything Everywhere Ltd (EE), response to 2010 NGS Consultation, page 75, paragraph 6. Available at http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/responses/Everything_Everywhere.pdf.
[276] Telefónica O2 UK Limited (O2), response to 2010 NGS Consultation, paragraphs 96 to 98; available at http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/responses/O2.pdf.
[277] Three, response to 2010 NGS Consultation, paragraph 27, page 9, available at http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/responses/Three.pdf.
[278] 2012 NGS Consultation, paragraph 6.33.
[279] 2012 NGS Consultation, paragraph 6.37.
[280] See footnote 42.

a) **Awareness and understanding:** 21% of respondents with a telephone claimed to be aware of 070 numbers. However, there was confusion between mobile numbers and 070 numbers among those respondents: 59% of those claiming to be aware of 070 numbers thought they were within the mobile telephone range. Overall, less than 1% of respondents with a telephone were aware of and correctly understood the nature of the 070 number range.[281]

b) **Price perception:** When asked to estimate the price of calls to 070 numbers, 62% of all respondents with a telephone said that they did not know the price, while 38% of the respondents who were aware of the number range also did not know the price. Among those who gave estimates of the price, the average price given for calling 070 numbers on mobile telephones was 42p and on landline telephones was 37p.[282]

c) **Claimed calling behaviour:** 7% of respondents with a telephone recalled ever calling a 070 number (however, this figure may be greater due to the customer confusion between 070 and 07x mobile numbers). When asked how likely they would be to call a number back after receiving a missed call, the most common answer from telephone users was that they would be unlikely to return the call irrespective of the number range. Specifically referring to 070 numbers, 19% of telephone users said they were likely (either fairly or very likely) to call back if they missed a call and only 8% of telephone users said they were likely to call back if they got a text or email message from an unknown business asking them to call back a 070 number.[283]

MCT 2015-2018 Review

A7.32 The consultation for the MCT 2015-18 Review was published on 4 June 2014.[284] As part of this consultation Ofcom commissioned research from Kantar Media relating to consumers' awareness of the charges that calls to 070 numbers attract.

A7.33 Kantar Media surveyed consumers' awareness of call charge differentials across the 07x number range.[285] The responses showed that:

- 42% of respondents thought that not all 07x calls cost the same; 37% thought that all 07x calls cost the same; and 22% did not know;[286] and
- of the 42% of respondents that thought that not all 07x calls cost the same, 30% thought that 070 call charges differ from charges of calls to other 07x services. This means that just 13% of respondents understood that 070 call charges differ from charges to other 07x services.

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281 See section 4.1 of the Omnibus Survey 2012.
282 See section 4.3 of the Omnibus Survey 2012.
283 See section 4.2 of the Omnibus Survey 2012.
284 Ofcom, 2014. *Consultation to the MCT 2015-2018 Review*. https://www.ofcom.org.uk/__data/assets/pdf_file/0016/74221/mct_consultation.pdf.
285 Commissioned as part of Ofcom's work on the MCT 2015-2018 Review. Kantar Media carried out the research in February 2014 using telephone interviews for a total base of 2069 respondents. See MCT 2015-2018 Review, Annex 18.
286 Q15A (When making calls to numbers starting with 07 and followed by other digits, do you think that all calls will cost the same?) and Q15B (Which of the following types of calls do you think have different rates?).

Vulnerability to fraud and scams

A7.34 As noted throughout this statement, we are also concerned that there is substantial improper use of 070 numbers, which results in consumers being misled into making 070 calls and incurring high retail charges. In addition, the anonymity of users of the 070 number range means that those who use it for fraudulent activity are difficult to trace.

A7.35 The evidence we have set out above is relevant to fraud on the 070 number range, particularly the complaints data which provides examples of where consumers have been the victims of such scams (see paragraphs A7.20, A7.31 to A7.33). In addition to the above, we have also relied on the following sources of information to assess the extent to which scams are present on the 070 number range:

a) information from BT regarding artificially inflated traffic;

b) data from the National Fraud Intelligence Bureau;

c) information from the Serious Organised Crime Agency;

d) information from the Phone-paid Services Authority; and

e) information from academic reports.

Artificially Inflated Traffic (AIT)

A7.36 AIT relates to where the flow of calls to a number is disproportionate to the flow of calls which would be expected from good faith commercial practice and usage of the network, as a result of any activity by or on behalf of the party operating that number. It commonly takes place over revenue share numbers where the CP operating the service aims to inflate the traffic for financial gain.

A7.37 In the case of 070 we consider that it is worth distinguishing between UK and international AIT.

a) Domestic AIT arises generally from encouraging individuals to call to a 070 number though a variety of methods such as:

   i) including a 070 number in an advertisement for a (non-existent) job opportunity;

   ii) arranging for mobiles to see a missed call; and

   iii) promoting a 070 number as a contact number for a fake contest.

b) International AIT uses the fact that many overseas CPs do not have a separate tariff for 070 numbers and UK 07x mobile numbers, meaning that income can be generated when fraudulent calls are made in locations where confusion between the two types of numbers exists and the retail cost of the call is below the international 070 TR.

A7.38 Given the above, patterns of unusual call behaviour may be indicative of potential fraud. An example of this is an elevated level of concurrent calls, where a single number is the target of multiple calls at one time. This would not be expected with an ordinary personal number, where a single number is used by a single end-user.

A7.39 Similarly, a high level of internationally originated calls can be indicative of AIT because legitimate 070 numbers in the UK would be advertised in the UK with a customer base largely in the UK rather than receiving high numbers of calls originated overseas.

A7.40 In order to understand the level of potential AIT on the 070 range we sent BT two formal Notices under section 135 of the Act, on 7 September 2017 and 15 May 2018 (referred to as the AIT Notices). The AIT Notices requested data (covering the period from 1 January 2017 to 31 March 2018) on:

- the volume of calls to 070 numbers which used BT's network and had international origination;
- the frequency of concurrent calls to 070 numbers[287];
- the percentage of calls estimated to contravene the Ofcom Numbering Plan; and
- the number of cases raised that relate to AIT.

A7.41 In response to the May 2018 AIT Notice, BT provided us with a list of what it considers to be AIT indicators. These include, but are not restricted to:

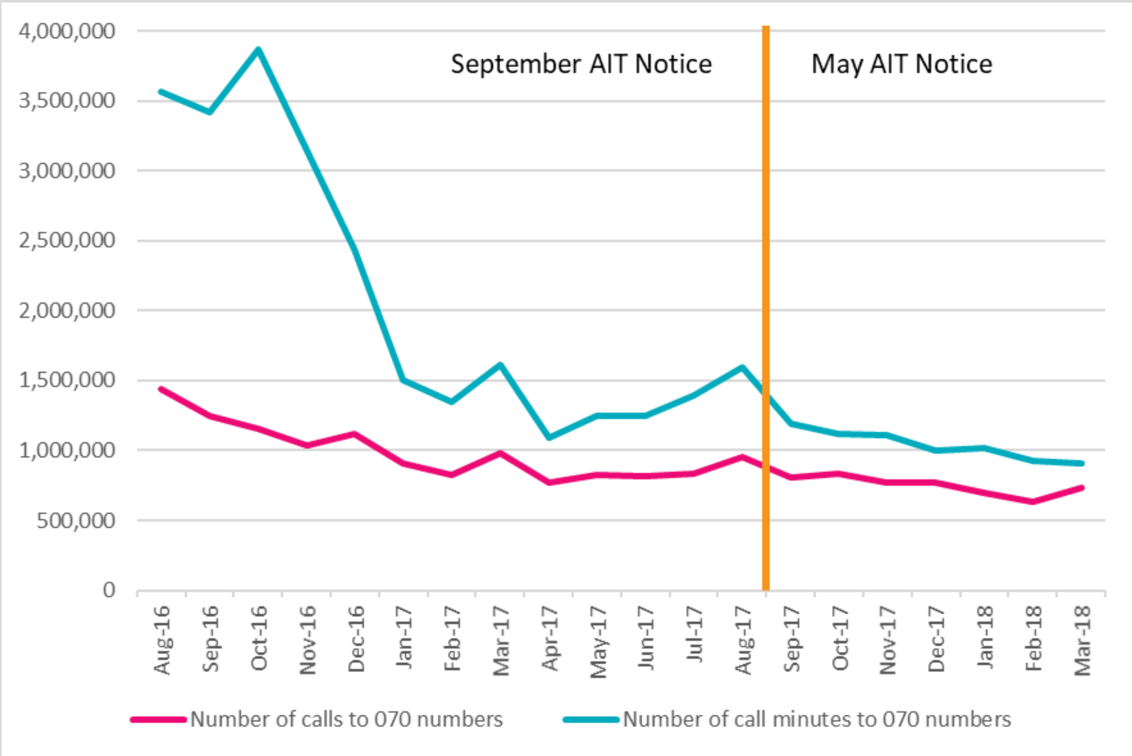
- excessive calls or an excessive growth in calls;
- a small number of call origination points, calls originated at a payphone or self-generated calls the telecommunication service;
- differing call durations; and
- missed calls used solely to generate call backs.

Internationally originated calls

A7.42 Figure A7.4 below shows the number of calls to 070 numbers and the number of call minutes to 070 numbers which used BT's transit network from August 2016 to March 2018.

[287] Concurrent calls occur where more than one call is being routed to the same 070 number simultaneously.

Figure A7.4: Number of calls and call minutes to 070 numbers using the BT transit network



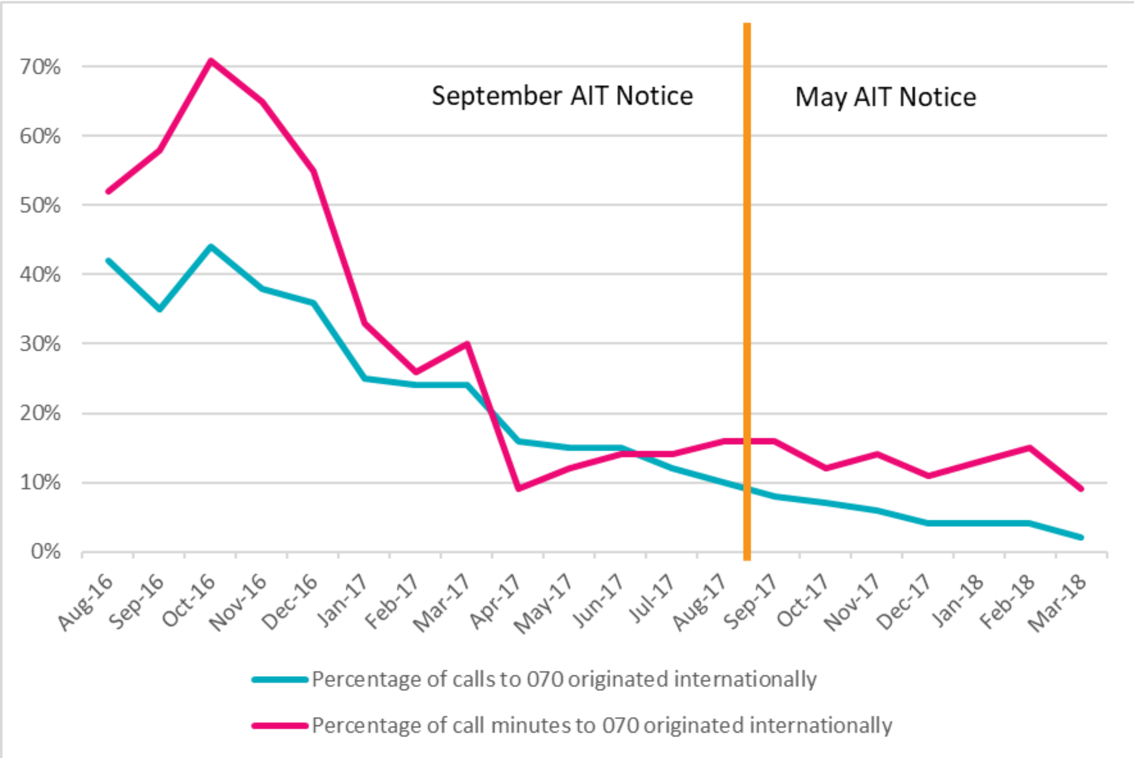
Source: BT's response to the AIT Notices

A7.43 Figure A7.4 shows a decline in volume of calls and call minutes to 070 numbers. BT has indicated that it does not view this as a trend for all CPs, with some CPs experiencing an increase in volume and minutes over this period. Over this same period, BT has stated that it has remained vigilant in identifying all AIT and continues to focus its resources on areas of misuse. While it is not possible to draw a definitive connection, it would appear that this course of action may have led to a reduction in call volumes over time, where those seeking to fraudulently use the 070 number range have, at least temporarily, withdrawn from the market.

A7.44 While we are encouraged by the efforts of BT in tackling fraud on the 070 number range, we note that relying on a CP to address this harm not only comes at a cost to that provider, but also should not be considered a permanent solution. We consider that by implementing our regulation, in addition to BT's efforts, this will ensure that further progress is made in addressing fraud on the 070 number range. This should ultimately lead to restoring the reputation of the number range.

A7.45 Figure A7.5 below shows the percentage of those 070 calls indicated in Figure A7.4 that originated internationally, and the percentage of call minutes to 070 numbers that originated internationally.

Figure A7.5: Percentage of calls and call minutes to 070 numbers originated internationally



Source: BT's response to the AIT Notices

A7.46 We note that the percentage of traffic that is internationally originated has fallen since March 2017; as above we believe that this can in part be attributed to BT's efforts to address AIT-related fraud, but this cannot be relied on as a permanent solution.

A7.47 BT explained that where 070 numbers are used in place of geographic or mobile numbers, it could be assumed that the origination points would be similar. BT provided the data set out in Figure A7.6 below which shows that there is a greater percentage of calls made to 070 numbers originated from "other" sources compared to geographic and mobile numbers. "Other" includes International calls, as well as where partial or non-geographic CLIs are presented.

Figure A7.6: Percentage of calls BT sent to terminating operators from three types of operating line: Geographic, Mobile and "Other" between January 2016 to August 2017

CLI Type	**Destination**					
	Geographic		Mobile		PNS (070)	
	Total calls	Total Duration (mins)	Total Calls	Total Duration (mins)	Total Calls	Total Duration (mins)
Geographic	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

CLI Type	**Destination**					
	Geographic		Mobile		PNS (070)	
Mobile	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
International/Other	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Total	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

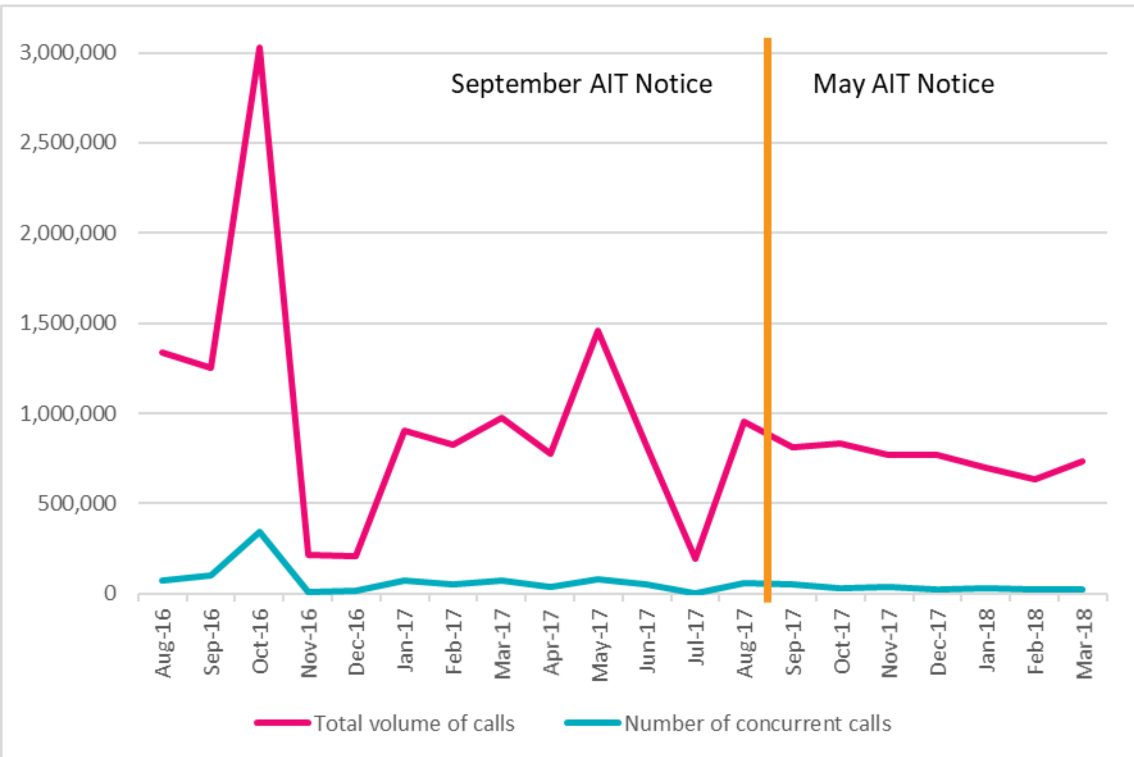
Source: BT's response to the AIT Notice of September 2017

A7.48 BT explained that "over the period analysed (Jan 16 to Aug 17), there are approximately 30% more calls generated to PNS destination numbers from abroad when compared to the relative distribution for both Geographic and Mobile destination numbers."[288] This suggests that these calls relate to AIT and contravene the Ofcom Numbering Plan because legitimate users of 070 would be unlikely to attract considerable volumes of international call traffic.

Concurrent calls

A7.49 Figure A7.7 below shows the frequency of instances of concurrent calls to 070 numbers on the BT transit network from August 2016 to May 2018.

Figure A7.7: Total call volumes and number of concurrent calls on the BT transit network



[288] Response to AIT Notice of September 2017.

Source: BT's response to the AIT Notices

A7.50 As can be seen from Figure A7.7 above, the volumes of concurrent calls fluctuated until August 2017 and has since been more stable. The reduction relative to the peak in October 2016 does not mean that the issue of concurrent calls has disappeared; this reduction may be tied to BT's recent efforts to reduce AIT-related fraud. Similar fraudulent activity may also be continuing in a less detectable form. Again, we consider that evidence of concurrent calls is indicative that AIT is a concern on the 070 number range.

BT comments on use of the 070 range

A7.51 We asked BT to provide an estimate of the percentage of calls which involve the use of the 070 number range which it considers contravene the Ofcom Numbering Plan (and/or any other regulatory rules in relation to the use of telephone numbers, including their AIT indicators), and the basis for these views. BT explained:

> "we would estimate that the percentage of calls believed to be involve misuse of PNS on the 070 number range would be a minimum of 20% of all 070 calls. This estimate of potential misuse should also not be taken as an indication that BT believes 80% of 070 traffic is genuine."[289]

A7.52 BT set out that 'AIT cases' have been raised to challenge the validity of this traffic against various operators.[290] [✂].

National Fraud Intelligence Bureau

A7.53 The NFIB provided a report to Ofcom in 2013 which gives an overview of the scale of fraud offences using Personal Numbering Services, specifically those prefixed 070 (and 076[291]), reported to Action Fraud in the period 1 January 2011 to 31 July 2013.

A7.54 In this period, there were 4,596 offences reported to Action Fraud referencing 070 or 076 numbers (approximately 4.9 reports per day) with a reported loss[292] of £17,170,522 (approximately £1,324 per day). Whilst this overall figure included reports relating to the

[289] Correspondence between BT and Ofcom in relation to the AIT Notices, 17 July 2018.
[290] BT explained that it receives an 'A1 retention notice' from the Originating Network Operator (ONO) providing details of why it suspects that traffic has been artificially inflated by the Terminating Network Operator (TNO). BT then forwards the received A1 notice to the TNO and temporarily deducts the value set out in the A1 notice from the payment due to the TNO. The TNO has until AIT day 34 to reject the A1 notice. If the notice is not rejected by AIT day 34 then BT permanently withholds the payment from the TNO and provides a credit to the ONO. If the TNO rejects the A1 notice then the ONO has until AIT day 49 to file a dispute notice. When a dispute notice is filed then the case then enters a 10 month dispute period. The ONO and TNO use the 10 month period to try and resolve the case amicably. If the case remains unresolved when the 10 months has expired and legal action has not been instigated, the case is ruled in favour of the party who raised the A1 notice.
[291] The NFIB conducted a search based on a list of numbers with 070 and 076 prefixes. This list was provided to the NFIB by Ofcom.
[292] Reported losses are provided by the victim and are not verified. These losses include the cost of calls and consequential losses as a result of the fraud, such as the cost of undelivered goods or non-existent benefits.

076 number range, of the 4,596 offences reported in relation to these number ranges, 4,415 (96.1%) of these related to 070 numbers and only 175 concerned 076 numbers.

A7.55 Following our December 2017 Consultation, we have received updated information from the NFIB regarding the number of reports of fraud which relate to 070 numbers. According to this information, 6,646 instances of fraud relating to 070 numbers were reported between 1 January 2016 and 31 December 2017.[293]

The Serious Organised Crime Agency

A7.56 A representative from the Serious Organised Crime Agency (“SOCA”), working in a team that tackles international mass marketing fraud, wrote to us in response to the 2010 NGS Consultation in relation to mass marketing fraud on 070 numbers.

A7.57 Mass marketing fraud involves uninvited contact by email, letter, phone or advertising, which makes false promises designed to take money from consumers in exchange for a non-existent benefit. Examples of this include false promises of large cash prizes or goods and services in exchange for upfront fees.

A7.58 The SOCA representative noted that the 070 number range “is a well known enabler of this type of fraud” and went on to say that “SOCA considers that victims of fraud are unaware that 070 number may potentially not go through to somebody in the UK, due to confusion with UK mobile numbers, and that in many cases of mass marketing fraud this is exploited by criminals. SOCA would therefore support the reconsideration of a move away from the 070 range.”[294]

Phone-paid Services Authority data

A7.59 The PSA is the UK regulator for content, goods and services charged to a phone bill. In this capacity the PSA can investigate services on 070 numbers if they are found to offer phone-paid services[295] and/or the number is being misused and if the cost of the call exceeds 10p per minute.[296]

A7.60 The PSA explained that overall it sees a limited number of complaints about 070 numbers (currently one or two per week on average). However, it highlighted that it faces difficulties

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[293] The NFIB obtained this figure by conducting a search of the NFIB’s database of all reports containing data prefixed with ‘070’. The search results have been manually audited to remove reports which do not relate to 070 numbers. Whereas every effort has been made to remove unrelated reports, a limited number of non-070 number related reports may remain.

[294] Email from [✂], officer with the Serious Organised Crime Agency, to the Ofcom NGCS Review e-mail address, dated 5 November 2010.

[295] Phone paid services is a generic name for goods and services that can be purchased over the phone and are charged to your telephone bill or pay-as-you-go credit.

[296] It should be noted that the PSA has explained that “the 070 number range is not intended to be used to deliver premium rate services (PRS) and revenue sharing between the user and the network provider is not permitted by Ofcom for this number range. As such, where the number range is used as intended by Ofcom (for example, as ‘follow me’ numbers) the Phone-paid Services Authority (PSA) does not currently enforce its Code of Practice notwithstanding that under the current PRS Condition, 070 numbers that are charged at over 10ppm fall within sub-paragraph (e)(ii) of the PRS Condition and are therefore technically regulated by PSA.”

with investigation and enforcement when it does receive these complaints. It noted the following difficulties in particular:

a) **Identifying the user of the 070 number** – The PSA noted that "070 numbers are not supposed to have a revenue sharing element or to be a route to consumption of a traditional premium rate service. Consequently where the numbers are being used correctly PSA does not enforce its Code and users of 070 numbers do not register with PSA."[297] It went on to say that they "therefore have no means in the first instance of identifying who is operating a 070 number when an issue arises.";

b) **Evidence gathering** – The PSA noted that even where they are able to identify the user of a 070 number, since 070 numbers are not supposed to be used to provide PRS, "companies doing so have little incentive to co-operate with PSA investigations." It went on to say that it is "difficult to establish where the money is going and demonstrate the relationships between parties in the value chain. The complexity and effort required to gather the evidence is significant.";

c) **Impact, including deterrence** – The PSA noted that "Identification of those parties and individuals responsible for abuse of these numbers is difficult and it is possible for substantial sums of money to have been made prior to detection or investigation. In the past, enforcement has had limited effect on reducing abuse of such numbers by those who have obtained or used them...".[298]; and

d) **Resource management** – The PSA noted that "aside from cases where a consumer is merely seeking to check a number, we have a limited ability to help individual consumers and there is a resource cost to us in looking into complaints…".

A7.61 Alongside this information, the PSA also provided some comments on the preliminary assessments it had completed in the form of 'initial assessments' and 'informal enquiries'. It said that these have highlighted the following trends:

a) while the ultimate use of numbers is described in accordance with Ofcom's designated purpose, the PSA are seeing longer value chains where revenue is shared across a group of companies, all claiming to be resellers;

b) some individuals appear to be turning to 070 numbers for business use, where 08 or 03 numbers would be more suitable. The challenge is proving revenue share, which may suggest misuse of the numbers for financial gain;

c) [✂]; and

d) [✂].

[297] Our understanding is that the registration requirement is intended to provide information that helps the value chain perform due diligence on third parties and therefore is directed at services which have a revenue sharing element.
[298] The PSA noted that they have sanctions available of imposing a bar on participation in the PRS industry on either the company in question or where appropriate, named individuals.

Academic papers

A7.62 In response to the December 2017 Consultation, we were presented with a draft academic paper by Merve Sahin and Aurélien Francillon entitled '*Exploring International Revenue Share Fraud via Number Providers'* and a published paper entitled *The Role of Phone Numbers in Understanding Cyber-Crime Schemes*. These provide an overview of telephone fraud in the UK and other European countries. The published paper refers specifically to the use of the 070 range in fraud.

A7.63 As part of their research, academics from Eurecom have been collecting phone numbers advertised by 'international premium rate' number[299] providers, of which 948 are personal numbers. They observed almost a hundred calls that were aiming for fraud to UK PNS numbers, which suggests that the 070 range is abused for international revenue share fraud, particularly because of the high termination rates.[300]

A7.64 The Cyber Crime paper highlights that personal numbering services can be used to deceive a victim into calling a number with a higher cost than they expected. The call forwarding characteristic of 070 allows the perpetrator of the fraud to hide their actual geographic location.[301] The paper finds that amongst personal numbering services providers, the top four providers (from a total of 88) provide more than 90% of fraud-related UK personal numbering services numbers. It identifies that in one case, fraud-related numbers represent almost 5% of an operators' allocated number range.

Poor reputation undermining commercial use

A7.65 Finally, we consider there is evidence that the high cost and examples of misuse of the 070 range presented above have in the past undermined the use of these numbers for innovative delivery of electronic communications services.

A7.66 For example, we were approached [✂] by [✂] and [✂] to discuss a potential joint venture for the development of a [✂] application using mobile numbers. The parties' intention was that the parties would use a mobile network and numbers to provide a personal numbering service. [✂].

A7.67 In fact, the parties considered alternative numbering options, including using the 070 range; however, 070 numbers were rejected as an option due to a) their negative reputation and b) as calls to 070 numbers were being charged by mobile operators in excess of 50ppm and were not included in bundled minutes.

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[299] In their paper, Sahin and Francillon define International Revenue Share Fraud using these numbers as involving "a fraudulent telecom operator, in collaboration with a premium rate service provider, who advertise regular international phone numbers as premium rate numbers in various parts of the world" (Sahin, M. and Francillon, A., 2018 (unpublished). Exploring International Revenue Share Fraud via Number Providers).
[300] Eurecom's response to the December 2017 Consultation.
[301] Cyber Crime paper, see footnote 116.

A7.68 In addition, volumes of 070 minutes have declined over time which may partly reflect a decline in interest in using the range. 070 minutes were estimated to be 98 million minutes in 2008[302], whereas we estimate that there were 39 million in 2016[303], which is a decline of around 60%. We note that Auto Trader, who previously used the 070 number range for personal numbering services, no longer uses the 070 number range because it was no longer an attractive range to operate on (see paragraph A7.13).

A7.69 Stakeholder input to our review suggests that some CPs are reluctant to innovate and invest in services operating on the 070 range because of a negative reputation with both CPs and customers but have suggested that they would be open to reconsidering this once our regulation is in place. For example, Digital Mail Limited noted that if fraud and retail prices were reduced then 070 numbers could be given a new lease of life.[304]

[302] 2009 070 Statement, paragraph 2.9. We used information provided by eight fixed and mobile originating CPs following an information Notice for data on traffic volumes. We also used BT transit data to triangulate figures for the whole 070 market (paragraph A1.13 of the 2009 070 Statement).
[303] Figure derived from OCP Notices. See A4.29.
[304] Digital Mail Limited's response to the December 2017 Consultation.

A8. Sources of evidence

A8.1 We have noted throughout this statement the evidence we have collected to inform our analysis and how we have relied upon that evidence. This Annex provides a list of the main sources of evidence used and, where possible, the web links to where that information is published online. We also list all respondents to our formal Notices sent under section 135 of the Act.

A8.2 While this Annex lists the main evidence we have relied upon, the list is for convenience only and is not intended to be exhaustive.

Responses to December 2017 Consultation

A8.3 On 6 December 2017 we published a consultation to gather stakeholders' views on the work we had undertaken in assessing the state of competition in the personal numbering market, with particular reference to the 070 number range, in the UK and our proposals for regulating this market.

A8.4 20 stakeholders provided written responses to the December 2017 Consultation:

- Association for Interactive Media and Entertainment (AIMM)
- Atlas Interactive Group Limited
- British Telecommunications plc
- Digital Mail Limited
- [✂]
- Eurecom
- Franzcom Ltd
- [✂]
- GCI Network Solutions Ltd
- Individual 1
- Individual 2
- Individual 3
- The Internet Telephony Services Providers' Association ("ITSPA")
- Lexgreen Services Ltd
- Magrathea Telecommunications Ltd
- Netcollex Ltd
- Premtext Limited
- The Risk & Assurance Group (RAG) and Biaas
- Telecom2 Ltd
- Vodafone Limited

A8.5 We have published non-confidential versions of the responses from the stakeholders listed above. These can be found on our website.[305]

Information gathering using statutory powers under section 135 of the Act

A8.6 During this market review, we have issued a series of Notices under section 135 of the Act requiring various communications providers to provide specified information.

A8.7 Notices were addressed to the following:

- 24Seven Communications Ltd
- Affiniti Integrated Solutions Ltd
- British Telecommunications plc
- Business Broadcast Communications Ltd
- Cheers International Sales Ltd
- Citrus Telecommunications Ltd
- Digital Select Ltd
- Dynamic Mobile Billing Ltd
- Flextel Ltd
- [✂]
- GCI Network Solutions Ltd
- I-Net Communications Group plc
- ITSPA
- JTEC UK Ltd
- Lexgreen Services Limited
- Magrathea Telecommunications Ltd
- Netcollex Ltd
- Nexus Telecommunications Limited
- Premtext Limited
- Swiftnet Ltd
- Telecom2 Ltd
- Vodafone Ltd (UK)

UK legislation

A8.8 The Competition Act 1998: http://www.legislation.gov.uk/ukpga/1998/41/contents

A8.9 The Enterprise Act 2002: http://www.legislation.gov.uk/ukpga/2002/40/contents

A8.10 The Communications Act 2003 ("the Act"), as amended: http://www.legislation.gov.uk/ukpga/2003/21/contents

[305] Responses to the December 2017 Consultation: https://www.ofcom.org.uk/consultations-and-statements/category-1/review-070-number-range.

Ofcom documents

A8.11 Oftel, 1997. Statement on *The National Numbering Scheme*: http://webarchive.nationalarchives.gov.uk/20080715021746/http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/nnsjan97/numsch97.htm

A8.12 Oftel, 1998. *Consultation on Personal Numbering Services*: http://webarchive.nationalarchives.gov.uk/20080715022429/http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/fair_trading/pnum398.htm

A8.13 Oftel, 2001. *Restoring trust in Personal Numbering, A statement issued by the Director General of Telecommunications on proposals to stop abuse of the 070 range*: http://webarchive.nationalarchives.gov.uk/20080715053137/http://www.ofcom.org.uk/static/archive/oftel/publications/numbering/pers1001.htm

A8.14 Oftel, 2003. *Annual report 2003*: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/5927/annual_report.pdf

A8.15 Ofcom, 2005. *Better Policy Making, Ofcom's approach to Impact Assessment*: https://www.ofcom.org.uk/__data/assets/pdf_file/0026/57194/better_policy_making.pdf

A8.16 Ofcom, 2006. *Statement on Telephone Numbering: Safeguarding the future of numbers*: http://stakeholders.ofcom.org.uk/binaries/consultations/numberingreview/statement/statement.pdf

A8.17 Ofcom, 2007. *Statement on raising confidence in telephone numbers, Amending General Condition 17*: http://stakeholders.ofcom.org.uk/binaries/consultations/numbering03/statement/gc17statement.pdf

A8.18 Ofcom, 2007. *Removal of the requirement for pre-call announcements on 070 numbers*: http://webarchive.nationalarchives.gov.uk/20160704070444/http://stakeholders.ofcom.org.uk/consultations/numbering03/070precall/

A8.19 Ofcom, 2008. *NCCN 500*: http://webarchive.nationalarchives.gov.uk/20160704065459/http://stakeholders.ofcom.org.uk/binaries/enforcement/competition-bulletins/closed-cases/all-closed-cases/cw_823/NCCN_500.pdf

A8.20 Ofcom, 2009. *Personal Numbering,- Guidance on the acceptable use of 070 numbers*: http://stakeholders.ofcom.org.uk/telecoms/numbering/guidance-tele-no/070-guidance

A8.21 Ofcom, 2009. *Statement on the review of the 070 personal numbering range*: http://stakeholders.ofcom.org.uk/binaries/consultations/070options/statement/statement.pdf

A8.22 Ofcom, 2009. *Statement on fixed narrowband retail services markets, identification of markets and determination of market power*: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/51836/statement.pdf

A8.23 Ofcom, 2010. *Consultation on Simplifying non-geographic numbers, improving consumer confidence in 03, 08, 09, 118 and other non-geographic numbers*: https://www.ofcom.org.uk/__data/assets/pdf_file/0020/63380/non-geo.pdf

- Responses to the 2010 NGS Consultation: https://www.ofcom.org.uk/consultations-and-statements/category-1/simplifying-non-geo-numbers
- Everything Everywhere Ltd (EE), response to 2010 NGS Consultation: http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/responses/Everything_Everywhere.pdf
- Telefónica O2 UK Limited (O2), response to 2010 NGS Consultation: http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/responses/O2.pdf
- Three, response to 2010 NGS Consultation: http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/responses/Three.pdf

A8.24 Ofcom, 2011. *Further consultation on wholesale charges for number translation services and premium rate services, NTS retail uplift charge control and PRS bad debt surcharge*: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/63546/nts-retail-uplift.pdf

A8.25 Ofcom, 2011. *Statement on wholesale charges for number translation services and premium rate services, NTS retail uplift charge control and PRS bad debt surcharge*: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/62795/ntsru_statement.pdf

A8.26 Ofcom, 2012. *Consultation Part A on simplifying non-geographic numbers, - Detailed proposals on the unbundled tariff and Freephone*: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/63440/parta.pdf

A8.27 Ofcom, 2012. *Consultation Part B on simplifying non-geographic numbers,Detailed proposals on the unbundled tariff and Freephone*: http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geographic-no/summary/Partb.pdf

A8.28 Ofcom, 2013. *Review of the fixed narrowband services markets, statement on the proposed markets, market power determinations and remedies*: https://www.ofcom.org.uk/__data/assets/pdf_file/0014/50720/final_statement.pdf

A8.29 Ofcom, 2013. *Simplifying non-geographic numbers, Final statement on the unbundled tariff and making the 080 and 116 ranges free-to-caller*: http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-no/statement/final-statement.pdf

A8.30 Ofcom, 2014. *The 03 Number Range, Decision to clarify the revenue-sharing with callers is prohibited on the 03 number range*: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/51944/statement.pdf

A8.31 Ofcom, 2014. *Consultation on the mobile call termination market review 2015-18*: https://www.ofcom.org.uk/__data/assets/pdf_file/0016/74221/mct_consultation.pdf

A8.32 Ofcom, 2015. *Final determination on the dispute between BT and each of EE and Three regarding BT's charges for terminating calls to 03 numbers*: https://www.ofcom.org.uk/__data/assets/pdf_file/0019/84124/final_determination_cw01139.pdf

A8.33 Ofcom, 2015. *Statement on Mobile call termination market review 2015-18*: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/76385/mct_final_statement.pdf

A8.34 Ofcom, 2015. *Statement on Fixed Access Market Reviews, Approach to the VULA margin*,: https://www.ofcom.org.uk/__data/assets/pdf_file/0015/72420/vula_margin_final_statement.pdf

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A8.36 Ofcom, 2017. *Telephone review to ensure value for callers*: https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2017/telephone-review-value-callers.

A8.37 Ofcom, 2017. *Consultation on Mobile call termination market review 2018-21*, : https://www.ofcom.org.uk/__data/assets/pdf_file/0011/103340/mobile-call-termination-consultation.pdf

A8.38 Ofcom, 2017. *Consultation on the review of mobile donor conveyance charges for the period 2018 to 2021*: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/104658/consultation-donor-conveyance-charges.pdf

A8.39 Ofcom, 2017. *Statement on the review of the market for standalone landline telephone services*: https://www.ofcom.org.uk/__data/assets/pdf_file/0015/107322/standalone-landline-statement.pdf

A8.40 Ofcom, 2017. *Statement on Narrowband Market Review*: https://www.ofcom.org.uk/__data/assets/pdf_file/0020/108353/final-statement-narrowband-market-review.pdf

A8.41 Ofcom, 2017. *Consultation on personal numbering, review of the 070 number range*: https://www.ofcom.org.uk/__data/assets/pdf_file/0020/108245/consultation-070-number-range.pdf

- In response to stakeholder enquiries, we provided two updates to the 070 December 2017 Consultation relating to the confidentiality of redacted material and statistical information relating to complaints. These can be found at the following links:
  - Update – 5 February 2018: https://www.ofcom.org.uk/__data/assets/pdf_file/0027/110799/070-update.pdf
  - Update – 6 February 2018: https://www.ofcom.org.uk/__data/assets/pdf_file/0020/110936/further-update-070-consultation.pdf

- Responses to the December 2017 Consultation: https://www.ofcom.org.uk/consultations-and-statements/category-1/review-070-number-range

A8.42 Ofcom, 2018. *Telecommunications Market Data Update Q3 2017*: https://www.ofcom.org.uk/__data/assets/pdf_file/0012/110154/Q3-2017-Telecoms-Data.pdf

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A8.44 Ofcom, 2018. *The National Telephone Numbering Plan*: https://www.ofcom.org.uk/__data/assets/pdf_file/0013/102613/national-numbering-plan.pdf

A8.45 Ofcom, 2018. *Communications Market Report*: https://www.ofcom.org.uk/__data/assets/pdf_file/0022/117256/CMR-2018-narrative-report.pdf

A8.46 Ofcom, 2018. *Draft statement on personal numbering, review of the 070 number range*: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/118464/Draft-statement-Review-of-the-070-number-range.pdf

- European Commission, 2018. *Commission Decision concerning Case UK/2018/2106*. https://circabc.europa.eu/d/d/workspace/SpacesStore/f8798d47-414f-4acc-93c5-31f1b4abc032/UK-2018-2106%20Adopted_EN_Redacted.pdf

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A8.47 *Flynn Pharma Limited, Flynn Pharma (Holdings) Limited, Pfizer Inc and Pfizer Ltd v Competition and Markets Authority* [2018] CAT 11, 7 June 2018: http://www.catribunal.org.uk/files/1275-1276_Flynn_Judgment_CAT_11_070618.pdf

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A8.48 *Viho v European Commission,* Case C-73/95 P [1997] ECR I-5447, 24 October 1996: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61995CJ0073:EN:PDF

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A8.49 Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services, 7 March 2002 (the "Framework Directive"): https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32002L0021

A8.50 Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C 165/03), 11 July 2002 (the "SMP Guidelines"): http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF

A8.51 Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators of Electronic Communications (BEREC) and the Office, 18 December 2009 (the "BEREC Regulation"): http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R1211&from=EN

A8.52 Treaty on the Functioning of the European Union, 30 March 2010: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:FULL:EN:PDF

A8.53 Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex-ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (2014/710/EU), which replaces the corresponding Commission Recommendation of 17 December 2007 (2007/879/EC), 9 October 2014 ("2014 EC Recommendation"): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014H0710

A8.54 Explanatory Note accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector, 9 October 2014: https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets

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A8.56 Commission Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services (2018/C 159/01), 7 May 2018: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.159.01.0001.01.ENG&toc=OJ:C:2018:159:TOC

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A8.66 The National Fraud Intelligence Bureau, report on the scale of fraud offences where Personal Numbering Services – specifically prefixed 070/076 have been reported to Action Fraud in the period 1 January 2011 to 31 July 2013.

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A8.73 Evidence gathered by Ofcom from the following websites in relation the maximum retail prices charged by CPs for calls to 070, mobile, local and national numbers, as specified in Annex 7:

BT

- https://www.productsandservices.bt.com/landline/calling-costs/
- https://www.productsandservices.bt.com/assets/pdf/BT_PhoneTariff_Residential.pdf
- https://img01.products.bt.co.uk/content/dam/bt/storefront/pdfs/BT_PhoneTariff_SpecialNos.pdf
- https://www.bt.com/pricing/current/Call_Charges_boo/0016_d0e5.htm#0016-d0e5

EE

- https://ee.co.uk/content/dam/ee-help/Help-PDFs/home-broadband/ee-home-price-guide.pdf
- http://ee.co.uk/content/dam/ee-help/Help-PDFs/pay-monthly-what-it-costs-07-march-2017.pdf
- http://ee.co.uk/content/dam/ee-help/Help-PDFs/EE-PAYM-07-Calling-010715.pdf

- https://ee.co.uk/content/dam/ee-help/help-pdfs/ee-monthly-price-plan-guide-june-2018.pdf
- https://ee.co.uk/content/dam/ee-help/help-pdfs/ouk-payg-price-guide-august-2018.pdf
- https://ee.co.uk/content/dam/ee-help/help-pdfs/ee-pay-as-you-go-standard-price-guide-9-july-2018.pdf

GiffGaff

- https://www.giffgaff.com/pricing

O2

- https://www.o2.co.uk/termsandconditions/mobile/pay-as-you-go-big-bundle-tariff-charges
- https://www.o2.co.uk/help/account-and-billing/other-numbers-and-charges
- https://www.o2.co.uk/termsandconditions/mobile/pay-as-you-go-charges-terms-classic-pay-as-you-go

PlusNet

- https://www.plus.net/help/legal/mobile-price-guide/

Post Office

- https://www.postoffice.co.uk/broadband-phone/prices
- https://www.postoffice.co.uk/dam/jcr:679f5d00-eb81-4df8-9746-f4911d522972/Pricing%20Tables%20v18.pdf

Sky

- https://www.sky.com/shop/terms-conditions/talk/code-of-practice/tariff-guide
- https://www.sky.com/shop/__PDF/SkyTalk_TG_01_May_2018.pdf
- https://www.sky.com/shop/terms-conditions/mobile/tariff-guide/__PDF/Sky-Mobile-Tariff-Guide-01Sep18.pdf

TalkTalk

- https://m0.ttxm.co.uk/gfx/help/other_call_charges.pdf
- https://m0.ttxm.co.uk/gfx/help/forms/standard_uk_landline.pdf
- https://m0.ttxm.co.uk/gfx/help/forms/call_rates_to_uk_mobiles_jm.pdf

Tesco

- https://www.tescomobile.com/help-and-support/pay-monthly/call-charges/call-charges-for-pay-monthly
- https://www.tescomobile.com/help-and-support/pay-as-you-go/call-charges/call-charges-for-pay-as-you-go

Three

- http://www.three.co.uk/termspdf/Essential_Plan_Priceguide_190718.pdf
- http://www.three.co.uk/termspdf/PAYG_Price_guide_240718.pdf
- http://www.three.co.uk/Three_price_guide

Virgin Media

- http://www.virginmedia.com/content/dam/virginmedia/dotcom/images/shop/downloads/010618_Everyday_Call_Charges_V1.pdf
- http://www.virginmedia.com/shop/phone/compare.html
- http://www.virginmedia.com/content/dam/virginmedia/dotcom/images/shop/downloads/011117_Call_Charges_By_%20Dial_Code_V3.pdf
- https://store.virginmedia.com/virgin-media-mobile/pay-monthly/pay-monthly-call-charges.html
- http://store.virginmedia.com/virgin-media-mobile/pay-as-you-go/call-charges.html

Vonage

- https://www.vonage.co.uk/home/call-plans/rates/

Vodafone

- https://www.vodafone.co.uk/cs/groups/public/documents/document/vfcon091263.pdf
- https://www.vodafone.co.uk/explore/costs/call-charges/index.htm
- https://www.vodafone.co.uk/terms-and-conditions/consumer/mobile/pay-as-you-go/pay-as-you-go1/

A9. Glossary

03 TR: The termination rate set for numbers on the 03 number range.

070 provider: a communications provider able to set the termination rate for calls to 070 numbers allocated to it by Ofcom.

070 TRs: The wholesale charge levied by 070 providers for 070 termination services.

070 WCT: The provision of wholesale call termination services for voice calls to 070 numbers.

2009 070 Statement: The statement published on 27 February 2009 containing our decisions on the 070 personal numbering range.

2010 NGS Consultation: The consultation published on 16 December 2010 containing our proposals for simplifying non-geographic numbers.

2012 NGS Consultation: The consultation published on 4 April 2012 containing our proposals for simplifying non-geographic numbers.

2013 NGS Statement: The statement published on 12 December 2013 containing our decisions on simplifying non-geographic numbers.

2014 EC Recommendation: Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex-ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (2014/710/EU), which replaces the corresponding Commission Recommendation of 17 December 2007 (2007/879/EC).

2017 Standalone Landline Statement: The statement published on 26 October 2017 containing our decision on standalone landline telephone services.

AIT: Artificial inflation of traffic.

Allocatee: The CP which has been allocated the use of a range of 070 numbers by Ofcom for a PNS. The allocatee agrees with other CPs (subject to any regulatory constraint) the termination rate for its range and arranges for them to be contactable through networks operated by other CPs.

Auto-dialler: A function provided by termination CPs, whereby a user configures a device (for example, a burglar alarm) to use a 070 number to call a specified telephone number.

BEREC: Body of European Regulators for Electronic Communications.

BT: British Telecommunications plc.

Calling Party Pays (CPP): The billing principle where retail charges for telephone calls are set in such a way that only the calling party (and not the called party) pays a charge when a call is made.

Countervailing buyer power (CBP): The restraint that a buyer is able to place on any attempt by the seller to set its prices above the competitive level.

Charge control: A control which sets the maximum price that a communication provider can charge for a particular product or service.

Common costs: Costs which are shared across multiple services supplied by a CP.

Communications Act or "the Act": The Communications Act 2003.

Communications Provider (CP): Provider of telecommunications services as defined in the Communications Act 2003.

December 2017 Consultation: The consultation published on 6 December 2017 containing our proposals with respect to the 070 number range.

EC: The European Commission.

End-user: The final consumer of a product or service. In the case of 070 numbers, the end-user is the call recipient.

EIA: Equality Impact Assessment.

ERG: European Regulators Group; replaced by BEREC in 2005.

EU: The European Union.

Fixed call termination (FCT): The service provided by a fixed CP to allow an originating CP to connect a caller with the intended call recipient on that fixed CP's network.

Fixed termination rate (FTR): The wholesale charge levied by fixed CPs for FCT services provided by them.

Framework Directive: Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, as amended by Directive 2009/140/EC and Regulation 544/2009.

Incremental costs: The incremental costs of a service are the difference between the total costs in a situation where the service is provided and the costs in another situation where the service is not provided.

Long Run Incremental Costs (LRIC): LRIC is defined as the long run avoidable cost of an operator carrying a particular increment of traffic. The increment in question is treated as the final traffic increment on the network.

MCT 2015-2018 Review: The review of the MCT market, in respect of which we published a statement on 17 March 2018.

MCT 2018 Statement: The Statement published on 27 March 2018 containing our decisions on the regulation of MCT.

Mobile call termination (MCT): The wholesale service provided by a mobile CP to allow an originating CP to connect a caller with the intended mobile call recipient on that mobile CP's network.

Mobile termination rate (MTR): The wholesale charge levied by mobile CPs for MCT.

Multi Party Pays (MPP): The billing principle where retail charges for telephone calls are set in such a way that the calling party and the receiving party both pay a charge when a call is made.

National Regulatory Authority (NRA): The relevant communications regulatory body for each country in the EU. Ofcom is the NRA for the United Kingdom.

National Telephone Numbering Plan: The Plan published by Ofcom setting out the telephone numbers available for allocation and any restrictions on how they may be adopted or used.

NFIB: National Fraud Intelligence Bureau.

Notices: Notices sent under section 135 of the Communications Act 2003 requiring various stakeholders to provide the information specified in these Notices.

NTS call termination determination: The determination published on 1 August 2008 containing our decision regarding a complaint from Energis Communications Ltd about BT's charges for NTS call termination.

Omnibus Survey 2012: Non-geographic telephone numbers Omnibus survey conducted in connection with the 2012 NGS Consultation.

Originating CP: The CP from which the call originates.

Over-the-top (OTT) service: A type of service provided 'over-the-top' of an existing data network connection such as a fixed or wireless broadband connection.

PNS: Personal numbering service.

Ppc: Pence per call.

Ppm: Pence per minute.

PSA: Phone-paid Services Authority.

Receiving Party Pays (RPP): The billing principle where retail charges for telephone calls are set in such a way that only the receiving party (and not the calling party) pays a charge when a call is made.

SMP: Significant market power.

SSNIP: Small but Significant Non-transitory Increase in Price. This is typically taken to be an increase in price of between 5-10% above the competitive level and is used when considering whether hypothetical monopolies in a market could sustain a profit at such a price.

Sub-allocatee: An organisation granted the management of a sub-set of the 070 range controlled by an allocatee under a contract.

Terminating CP: The CP of the end-user receiving a call, i.e. the CP that terminates the call.

Termination rate: The rate charged by a terminating CP to an originating CP for terminating a call.

Voice over Internet Protocol (VoIP): A method of carrying voice calls on fixed and mobile networks by converting speech into data packets (and back) and carrying it using IP.

Wholesale Call Termination (WCT): Wholesale termination services.