



The UK Communications Infrastructure Report

Ofcom's approach to its new reporting duty

Statement

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Section 1

Executive Summary

- 1.1 The Digital Economy Act 2010 (“the Act”) gave Ofcom a new duty to provide a report to the Secretary of State every three years on the state of the UK’s communications infrastructure.
- 1.2 As this is a new duty and because the Act gives Ofcom some discretion over which networks and services we report on, we published a consultation in July 2010¹ setting out our proposed approach to fulfilling the new duty and inviting stakeholder views. Amongst other things, we set out our proposals on which networks and services we would report on, what types of data we would require and where the data could be sourced.
- 1.3 This statement summarises the responses we received and sets out our current views on the approach we will take to producing the first Infrastructure Report. The first report will focus on voice and data services provided to the general public and the networks which support them. We will also report on digital television and radio services and networks.
- 1.4 Over the coming months we will be gathering data from the largest providers of these services and networks and collating data already held by Ofcom. We will continue to engage with industry with a view to minimising the burden of data gathering whilst ensuring we gather the necessary data to fulfil our duties under the Act and produce a report of value to government, consumers and industry.
- 1.5 We are due to deliver the first report to the Secretary of State by 7 August 2011.

¹ <http://stakeholders.ofcom.org.uk/consultations/uk-comms-infrastructure/summary>

Section 2

Introduction

Background

- 2.1 In July 2010 Ofcom published a consultation (“the Consultation”) setting out our proposed approach to fulfilling the infrastructure reporting requirements of the Digital Economy Act 2010 (“the Act”). The Act gives Ofcom a new duty to provide a report to the Secretary of State every three years on the UK’s communications infrastructure. It was granted Royal Assent on 8 April 2010 and came into force two months later. The first report must relate to a reference date no more than twelve months from when the Act came into force. We have selected a reference date of 7 June 2011.
- 2.2 As this was a new duty and because the Act gives Ofcom some discretion on the networks and services on which to report, we made the decision to consult on our proposed approach. We received 22 responses to the Consultation, mostly from UK communications providers of fixed and mobile telecommunications services, networks operators and broadcasters. Following the end of the Consultation we have continued to meet with stakeholders to further refine our proposed approach.
- 2.3 This statement provides a summary of the responses to the Consultation and how we have taken these into consideration in refining our approach to fulfilling our new duty.
- 2.4 We will shortly be issuing information requests to affected stakeholders to ensure the necessary data is available in time to compile the report. It is possible that we may have to issue further information requests in the coming months where this is necessary in order to fulfil our new duty. In these cases we intend to follow our standard processes for information gathering and do not expect to undertake further public consultation.

Section 3

Approach to the infrastructure report

Introduction

3.1 The Act requires Ofcom to include only information and analysis of such networks, services and providers as we consider appropriate in the report to the Secretary of State. In our Consultation we set out our views on which networks, services and providers it would be appropriate to report on. This section sets out respondents' views on our proposals, our decisions on which networks and services to report on and the timetable for producing the first report.

Scope of Networks and Services included in the report

3.2 In the Consultation, we set out our plans for discharging the new infrastructure reporting duty, explaining our intended focus on the most widely available and most commonly used public networks and services. We set out the types of technical data which we thought we would require and asked for views on their relevance, availability and the extent to which gathering the data would place a burden on industry. We proposed to reuse data previously supplied and to collect additional data using industry standard forms where available. We acknowledged this approach would not give a complete picture of the state of the UK's infrastructure, but would give an indication of the vast majority of the market and the overall UK position.

3.3 We recognised this approach would mean providing less information about bespoke and private networks for businesses. However, we thought that the capacity and coverage of these networks were already negotiated on a commercial basis and designed to serve a particular customer need. Additionally the competitiveness of many of these services has been reviewed previously in the Business Connectivity Market Review².

3.4 We summarised our proposed approach for the first report as follows:

- i) Focusing on time-series data to monitor key metrics for the principal networks and technologies
- ii) Prioritising one or two issues of particular consumer or policy interest
- iii) Include a supplementary section describing any emerging technologies
- iv) Applying a threshold to determine which operators to include for each network and service

Response to the Consultation

3.5 Respondents largely agreed with Ofcom's proposed approach to focus on the networks and services most widely available and most commonly used in the UK. However, there were some suggestions of additional networks and services which should also be considered in the report. These included business radio, IPTV, Cable TV, analogue TV & radio, local DAB, Wi-Fi, GPS and the Airwave emergency services network. Some respondents argued that the selection of networks and

² <http://stakeholders.ofcom.org.uk/consultations/bcmr/>

services was not sufficiently forward looking and that the infrastructure report should seek data from new players in emerging markets.

- 3.6 During our stakeholder engagement process, some Communications Providers ('CPs') noted that it would be difficult to extract data relating to services provided to small businesses from data collected on business services more generally.
- 3.7 Some respondents to the consultation suggested that Ofcom should report on other aspects of communications networks and services in the UK, such as customer satisfaction and the environmental impact of the networks and services and that networks and services should be reported separately.

Our current view

- 3.8 We welcome stakeholders' suggestions relating to additional networks and services that could be included in the report. Some of these are emerging technologies, such as Wi-Fi 'hot spot' networks and IPTV. Where possible we will use information already in the public domain to report on them and we will discuss with stakeholders, where possible, to understand their plans for investment which will allow us to form a view on the likely future evolution of UK infrastructure. We remain of the view that there would be limited benefit on reporting on large private networks, such as Airwave, as the performance of these networks will generally be determined by service levels negotiated between the suppliers and the customers.
- 3.9 In relation to the difficulty in identify small and large business customers, we appreciate that it is not always possible for providers to differentiate between different categories of customer. It is also clear that many users of fixed line broadband and mobile telephony will be small businesses rather than residential customers. Where data is available which can be directly attributed to small business customers we will endeavour to report on this separately, but we recognise that this may not always be possible.
- 3.10 Ofcom already publishes a number of other reports specifically focussed on the consumer experience³. As the Act does not require us to report on these matters and it would place an unnecessary burden to gather additional information, we do not intend to report on these additional aspects.
- 3.11 Having carefully considered the responses to the consultation we have decided to report on the networks and services listed in Annex 1. However, there remains a possibility that we may include information on additional networks and services in the report if we consider that they are necessary to fulfil our reporting duty. There are common themes between networks and services, therefore we intend to produce a single publication. Where appropriate, we will report on networks and services separately in this document.

Scope of communications providers included in the report

- 3.12 In the Consultation we proposed to gather data from only those providers who make up a significant proportion of the markets under consideration in the Infrastructure Report. Respondents to the Consultation were generally in agreement with this approach. The selection criteria that we expect to apply in deciding whether to include a particular provider are detailed in Annex 1.

³ For example the "consumer experience report" <http://stakeholders.ofcom.org.uk/market-data-research/market-data/consumer-experience-reports/>

- 3.13 Whilst we intend only to collect data from those network and service providers that represent the majority of the market, we would welcome information from any other network and service providers. If any providers wish to submit data that may help us build up a more detailed picture of the industry in the report we would be pleased to consider it.

Timetable

- 3.14 The Act specifies that the initial report must relate to a specific date falling within the 12-month period starting 8 June 2010, to provide a 'snapshot' view of the UK's communication infrastructure.
- 3.15 It also requires us to submit the report to the Secretary of State within two months of the reference date. This is a relatively short period of time in which to collect and process a potentially large amount of complex data into a meaningful report. However, the majority of the data that we intend to seek remains relatively constant over the period of months and we think that the data collected earlier would still fairly represent the state of UK communications infrastructure on the reference date. Therefore we propose to collect some of the less time-sensitive data in advance. For the more time sensitive data relating to availability, we had proposed to ask for three months of availability data and for this data to be submitted within a week of the reference date.

Response to the Consultation

- 3.16 Respondents agreed with our proposal to select a reference date in June 2011 and many also asked that sufficient time is given to providers to collect information. Additionally, many also noted that one week would not give them enough time to collect and process the availability data.

Our current view

- 3.17 We have selected the latest possible reference date of 7 June 2011. A second report would follow in three years' time. In order to give more time for stakeholders to process the availability data, we now intend to request availability statistics covering two months, and give stakeholders one month to provide us with this data.

Burden on industry/ Related projects

- 3.18 In our consultation we noted the need to balance the value of the report against the burden placed on industry through any data collection. We proposed to apply a threshold to determine the operators to include in the report, in order to gather data in a proportionate way and to reuse information gathered as a part of Ofcom's existing activities.

Response to the Consultation

- 3.19 A number of responses noted that Ofcom already collects a lot of data from industry, and may already have all the information it needs to hand. Therefore it was suggested that Ofcom could reuse the data it holds to reduce the amount of new information that would be gathered from industry. Some other respondents commented that given the uncertainty of the purpose of the report for Government, Ofcom should scale back the scope of the first report, and wait for further feedback from Government before expanding future reports in the areas requested.

Our current view

- 3.20 It is not Ofcom's intention to burden industry with multiple information requests. Therefore, where possible, we intend to use information that is already available publicly or seek permission from the provider to reuse information made available to Ofcom. There are a number of Ofcom projects which are of relevance to this report. These include our research on fixed broadband speeds and mobile coverage. However there are other areas where Ofcom does not hold up to date information, such as in wholesale network access traffic for telecommunications, and would therefore need to ask for the relevant data. We consider our revised approach, as set out in this statement, will minimise the burden on operators whilst fulfilling the requirements as set out in the Digital Economy Act.
- 3.21 However, where providers have previously supplied relevant data, the existing data may be out of date, and we will need to ask for new data. In these cases where we do need to ask for an update, we will endeavour to use the same format as the existing data, to minimise the burden.
- 3.22 We will continue to engage with government to ensure that the report is of value and recognise that the scope and detail of the report may need to alter in response to changes in government policy or market developments. As a result, it may be necessary to request additional data to that described in the Consultation and this statement.

Impact Assessment

- 3.23 We did not conduct a separate Impact Assessment in our consultation. Instead we set out the impact alongside our proposals in that document. We have no evidence to suggest that our proposals will have an adverse impact on equality so we have not carried out a full Equality Impact Assessment.

Section 4

Reporting Metrics

Introduction

- 4.1 In this section, we summarise the industry’s response to our proposals on meeting the reporting requirements as set out in the Consultation. We also explain our view on data gathering for the first infrastructure report.
- 4.2 The Act requires us to report on various aspects of networks and services, including coverage, capacity, reliability, resilience and the extent to which networks are shared or services are made available on a wholesale basis. We are also required to report on the use of spectrum and provide international comparisons.

Spectrum

- 4.3 The Act requires Ofcom to report on the use of electromagnetic spectrum by wireless telegraphy in the UK. In the Consultation, we proposed that, for the purpose of the first infrastructure report, we will use data already held by Ofcom. We already hold data relating to the licenses issued for spectrum and proposed to use licence data as an indication of the demand for different parts of the spectrum.
- 4.4 Stakeholders generally agreed with our proposal to use Ofcom’s licensing data to report on the use of spectrum. In addition, some respondents thought that we should also consider how efficiently spectrum is used. One respondent commented that in some particular bands, allocation of spectrum may not represent demand. However, the Act requires us to report on the use of spectrum and not demand.

Our current view

We continue to believe that assignment of spectrum is a good, low burden proxy for use. In the first report, we will therefore report on spectrum largely as proposed in the consultation, using:

- The Frequency Allocation Table – to demonstrate how different parts of the spectrum are reserved for different types of device or application; and
- Ofcom Licensing Data – to illustrate the use of different frequency bands.

Coverage

- 4.5 The Act requires Ofcom to report on the geographic coverage of the different networks and services in the UK, and also on the proportion of the population covered by these networks and services.
- 4.6 In our consultation we proposed to report on the coverage of fixed networks using operator data provided at a postcode level. Respondents generally agreed with this approach. However a respondent noted that reporting at a rural region should be dealt with carefully, as postcode areas may cover large regions and may have different levels of performance contained within the same defined area.
- 4.7 For mobile coverage, we proposed to gather data from mobile operators generated from coverage models using 100m x 100m ‘tiles’. Mobile operators had differing

views about this approach. One supported our suggestion to only use data in the form it is currently held, whilst the others thought that it was important that any data that is published is made available in a comparable form. Additionally, it was also noted that the information gathered should be based on the end user experience rather than the technical details regarding network coverage.

- 4.8 For broadcast networks we proposed to use industry recognised models to report on the coverage of DTT and DAB networks. Respondents were generally supportive of this approach.

Our current view

- 4.9 Having considered the Consultation responses, we have decided to collect data broadly in line with the proposals we made for fixed and broadcast networks. For mobile coverage we now intend to use modelled data available from industry associations (such as the GSMA⁴) to improve data comparability. To help ensure data from coverage models is accurate we will use Ofcom's own data from field research, such as that collected from recent drive testing in Devon.
- 4.10 Whilst we will primarily be re-using data already held by Ofcom, we welcome any updates that operators may wish to provide in order to provide a more up to date view of the network on the reference date.

Infrastructure Sharing

- 4.11 The Act requires Ofcom to report on the extent to which providers share infrastructure. In the Consultation we proposed to gather data on the number of sites where passive sharing takes place and the proportion of the network that uses shared infrastructure. We also proposed to report on the geographic basis of sharing where this may help to assess the impact of sharing on rural coverage and regional variations in resilience.
- 4.12 In the responses, there were comments from some stakeholders that service providers may not be aware of any shared infrastructure that is used in the provision of their services, as they are using wholesale services provided by another provider.
- 4.13 There were some respondents who thought that it may not be possible to provide Ofcom with data relating to infrastructure sharing arrangements as these are confidential commercial arrangements.
- 4.14 Some respondents asked about Ofcom's definition of infrastructure sharing, giving their own suggestions of the types of sharing that they considered to be out of scope. It was also noted in some responses that with the new obligations on BT to provide passive access to its ducts and poles (Passive Infrastructure Access), there may be some duplication in reporting on this matter.

Our current view

- 4.15 We acknowledge that not all network and service providers may be aware of whether shared infrastructure is used to support their services. Therefore we think this question can only be answered by the owner of the passive infrastructure, who will also be able to provide data relating to the number of providers who are using that shared infrastructure.

⁴ The GSM Association

- 4.16 However, to provide a comprehensive report on the degree of passive infrastructure sharing in the UK, we would have to ask all owners of passive infrastructure, including roof spaces, masts of all kinds and other types of infrastructure. This would involve contacting private land and property owners. Ofcom's view is that it would be disproportionate to take such an approach and it would place an unnecessary burden on private individuals to provide such information. We therefore intend to focus our attention on those infrastructure providers operating primarily in the telecommunications sector that provides access to passive infrastructure to providers of the networks and services within the scope of this report. That is, for example, the sharing of passive infrastructure to aid the roll out of a fixed or mobile network.
- 4.17 We do not intend to gather information identifying individual communications providers who make use of these sharing arrangements. We will only ask for data relating to the type of sharing and the volume of sharing. This approach will mitigate concerns raised in relation to commercial confidentiality.
- 4.18 Ofcom already holds some data relating to passive sharing where it is the result of a regulatory obligation, for example with co-location of equipment at BT exchanges and PIA. Therefore we intend to only gather new information for sharing that takes place outside of a specific regulatory remedy.

Wholesale Network Access

- 4.19 The Act requires Ofcom to report on 'the extent to which the providers of different UK networks allow other communications providers to use their networks to provide services'. In our consultation we explained that we consider wholesale services to be the products sold to the third party provider which serves as an input to their offering to end users.
- 4.20 During our stakeholder engagement process a number of operators asked for clarification of the types of services which would be classed as wholesale.

Our current view

- 4.21 We consider wholesale provision as the services provided to third party service providers as an input to end user services. For the purposes of the report, we do not consider that this includes call termination. For mobile operators, we consider wholesale access to be the services provided to MVNOs and in broadcasting, wholesale access is the access to multiplexing and transmission services. A number of different wholesale services are provided for fixed voice and data services.
- 4.22 We will only request data from providers of Wholesale services where this information is not already held or collected by Ofcom or is not already in the public domain.

Capacity

- 4.23 The Act requires Ofcom to report on the capacity of UK networks. We noted in the consultation that although the Act does not specifically require Ofcom to report on the capacity of services, in practice it is not possible to differentiate between service and network capacity. We proposed that in some instances, we would use service capacity as a proxy for network capacity and use demand as a proxy for capacity.
- 4.24 There are many factors which affect the capacity on a network, ranging from the technology used on the network to the way that data is carried across on the

network. In their responses, operators agreed that we cannot compare the capacity between different types of network, and will need to report on each type of network separately. Some argued that it was also impossible to set metrics for operators of the same types of networks, as the measurements made are determined by the different vendors' equipment, which may not be comparable.

- 4.25 Operators generally agreed with our approach to use demand as a proxy for capacity. One respondent noted that we should also consider the variability in demand and supply and comparisons between never used and peak capacity.
- 4.26 Some providers thought that the data requirements for fixed broadband services proposed in the consultation would result in a significant amount of data collection.

Our current view

- 4.27 As set out in the Consultation, we intend to use capacity demand as a proxy of capacity supply.
- 4.28 For fixed broadband, we will use existing data collected from previous projects to assess capacity in access networks and will request data on total data transfer to assess capacity in core networks as proposed in the Consultation.
- 4.29 For fixed voice service and mobile voice and data services we will request data from operators.
- 4.30 Where available, we will use information in the public domain to assess the capacity of broadcast networks and utilise existing data in respect to the broadcast capacity of cable networks.

Availability

- 4.31 The Act requires Ofcom to report on the amount of time for which networks and services are available and on the steps taken by providers to maintain or improve availability. In the Consultation we explained that in order to collect useful information relating to availability, we planned to seek information in two ways: summaries of major outages and a consolidated view of minor outages within the reporting period.
- 4.32 Many respondents noted that thresholds for identifying and reporting major outages may need to be adapted for each type of service or network and the threshold value should be selected carefully taking into account the size of the provider's networks or services. Additionally, some respondents also noted that outages of services should be considered separately to the network outages. A service provider may experience outages, some of which may be out of their control, due to outages further down the supply chain.
- 4.33 The responses highlighted that most operators do not measure outages in the same way. This may be due to unavoidable differences between the technology of the networks, the different equipment used across the networks or because of differing business priorities between operators. The only exception is for digital terrestrial broadcasting, where multiplex operators are already required to submit annual reports to Ofcom on availability as a part of their licence condition.
- 4.34 In our consultation, we proposed that availability was calculated over a three month period from April to June 2011. In their responses, many operators argued they

would require at least a month to submit the data in order to give sufficient time for data validation.

Our current view

- 4.35 We recognise that it would be difficult to define a single comparable metric to measure availability across different types of networks. We also recognise that there are challenges in setting an appropriate threshold for reporting across different types of network and services.
- 4.36 We will need to develop these reporting thresholds in time to meet the new requirements arising from Article 13a of the European Framework Directive⁵. However, to avoid setting different thresholds to meet the requirements of Article 13 and for the Infrastructure Report, we now propose to ask providers to submit examples of the most significant outages, alongside an overall availability figure for the reporting period.
- 4.37 For DTT, we are already supplied with availability data and intend to request data in a similar format from DAB network operators. We will request availability data from providers of other network and services.
- 4.38 To allow providers time to validate their data, we are now proposing to measure the availability of networks and services over a two month period, from 23rd March 2011 to 23rd May 2011.

Resilience

- 4.39 The Act gives detailed guidance on the processes that should be included in the report to assess the resilience of networks. It was noted in the BIS guidance and in our consultation, that there were links between these requirements and the recent changes to the European Framework Directive. These are set out in Article 13a of the Directive, which is due to be implemented by May 2011. In our consultation we proposed to not duplicate any data gathering and analysis in this area but would gather some new data for the first report, as we will not have data arising from the requirements in Article 13a of the Directive in time for this publication.
- 4.40 In their responses some operators noted their concern with the general approach undertaken by Ofcom. Some suggested that in light of the overlapping duties from the Framework Directive, Ofcom should minimise the data gathering requirements for the first report.

Our current view

- 4.41 We acknowledge the views that the approach as outlined in our consultation may require significant input from providers, as this is an area where Ofcom do not currently gather provider specific data. We now intend not to collect any new information for the first infrastructure report. In the first infrastructure report we expect to provide a summary of industry activity that we are already aware of, such as the work of EC-RRG.

⁵ The revised European Framework Directive requires Member States to change the way that providers of publicly available networks and services plan for resilience, and to ensure that they “take appropriate measures to manage the network security and integrity.” Member States must implement the required changes by May 2011 and this may require new legislation.

International Comparisons

- 4.42 The Act requires Ofcom to compare the standard of networks and services in the UK against those in a range of other countries, having particular regard to coverage and capacity. In our consultation we noted our approach to use publicly available data on international communications and not to ask operators for further data. We asked for suggestions of other sources of international data.
- 4.43 We note the suggestions made by respondents and also the concerns around the comparability of this data. We will take these comments into consideration when carrying out our international comparisons.

Section 5

Next Steps

- 5.1 We will be issuing information requests to affected stakeholders in the near future and will continue to identify existing data sources that can be used to compile the report.
- 5.2 It may be necessary to issue additional information requests ahead of the reporting deadline where we deem this necessary to fulfil our duties under the Act.
- 5.3 We plan to send our report to the Secretary of State by the beginning of August.

Annex 1

Networks and Services within scope

Network and service included in the first report

Recurring networks and services		
Services	Networks	Technologies
Fixed Voice	Twisted copper pair Cable (HFC)	PSTN Voice
Fixed Broadband		ADSL/ADSL2+ , DOCSIS
Mobile voice	2G	GSM, GPRS, EDGE, W- CDMA/UMTS-FDD, HSPA
Mobile broadband	3G	
Television broadcast	Terrestrial/DTT Satellite Cable (HFC)	DVB-T and T2 DVB-Sand S2 DVB-C
Radio broadcast	National digital radio	DAB
Priority areas for 2011 report		
Topic	Network/Technologies	
Mobile coverage	2G, 3G	
Broadband service speed	Twisted copper pair Cable (HFC) 3G	
Emerging technology for 2011 report		
Topic	Network/Technologies	
Fixed and mobile next generation access networks	Copper delivered (e.g. FTTC/VDSL) Fibre delivered (e.g. FTTP) Cable delivered (DOCSIS 3) Mobile delivered (e.g. LTE)	
Wi-Fi 'hot spot' access IPTV		

Figure A1: List of networks and services

Selection Criteria

A1.1 The network and service providers falling within the scope of the first infrastructure report are defined as follows:

- Providers with Universal Service Obligations
- Providers of fixed voice, broadband and mobile services that make up 85% of the market share⁶.
- The operators of digital television and radio multiplexes

⁶ Assuming that market share data does not change very rapidly, the selection of providers is based on data from Q4 2009, for each of fixed voice, broadband and mobile markets.

A1.2 In addition to the network and service providers listed below (together with the aspects on which we will report), we may wish to contact some other providers of communications networks and services for further information about other aspects of the infrastructure report.

Provider	Networks/ Services in Scope	Coverage	Infrastructure Sharing	Wholesale Network Access	Capacity	Availability	Resilience
Arqiva	DTT and DAB services	✓	✓	✓	✓	✓	
BBC	DTT and DAB services	✓		✓	✓	✓	
BT	Fixed Network Fixed Voice services Broadband Services	✓	✓	✓	✓	✓	
D3 & SDN	DTT TV services	✓		✓	✓	✓	
Everything Everywhere	Broadband Services Mobile Network Mobile Voice and Data Services	✓	✓	✓	✓	✓	
KCOM	Fixed Network Fixed Voice services Broadband Services	✓	✓	✓	✓	✓	
O2	Broadband Services Mobile Network Mobile Voice and Data Services	✓	✓	✓	✓	✓	
Sky	Fixed Voice Services Broadband Services Digital satellite TV platform	✓			✓	✓	
Talk Talk	Fixed Voice Services Broadband Services	✓			✓	✓	
Three	Mobile Network Mobile Voice and Data Services	✓	✓	✓	✓	✓	
Virgin Media	Fixed Network Fixed Voice Services Broadband Services	✓	✓	✓	✓	✓	
Vodafone	Mobile Network Mobile Voice and Data Services	✓	✓	✓	✓	✓	