UHF spectrum strategy

Research report

Prepared for Ofcom

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KANTAR MEDIA | Custom

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1 Executive summary

Research rationale

This qualitative research study explored consumer views of potential changes to the delivery of the free-to-view DTT platform and the way viewers access it. The changes discussed in the research were based on hypothetical scenarios developed by Ofcom. The results give an indication of consumers' claimed responses and predicted intentions[1]. The research explored views among those consumers from DTT only households[2] as they are the group of people likely to be most heavily impacted by any potential future changes. This research therefore gives a view of the worst case scenario as a result of technology changes among those at the most vulnerable end of the spectrum.

Background and overview

The BBC has been operating a multiplex since 2010 that provides the HD version of the four main DTT channels that are also available in SD. Since 2013, new HD channels have become available following the launch in 2013 of interim DTT multiplexes. In light of developments on other TV platforms (satellite, cable) and technological developments, a number of industry stakeholders have raised the possibility of potential further developments of the DTT platform, such as providing more HD content and/or more channels or, in some cases, envisaging the provision of all DTT channels in HD. In addition, potential changes in frequencies that the DTT platform uses could lead to some viewers needing replace their rooftop aerials to continue to receive their DTT services in the same way. Ofcom gave full consideration of these issues and others surrounding UHF spectrum strategy within the UHF Strategy Statement of November 2012 and more recently stakeholders were given the opportunity to present their views on implementation of the strategy to Ofcom in their Call for Inputs document of April 2013.

Whilst all such changes have the potential to deliver improved DTT and mobile data services to consumers, there may also be costs and / or disruption to DTT viewers, e.g. to upgrade their standard definition (SD) equipment (TVs and / or set-top boxes), depending upon the nature and timing of any changes implemented.

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[1] Note: Participants stated intentions may not reflect their actual behaviour should these changes go ahead. The research can only give an indication of intent.

[2] The penetration of Freeview-only households in the UK is 32%. Source: Ofcom Technology tracker Q1 2014. *QH1A. Which, if any, of these types of television does your household receive at the moment?* Base: All UK respondents (n=2,539 weighted).
http://stakeholders.ofcom.org.uk/binaries/research/statistics/2014apr/2014w1.pdf

This study investigated consumer responses among Freeview-only households to a range of hypothetical change scenarios, designed to investigate respondents' perspectives on potentially incurring costs to retain existing services or to gain additional services, particularly in HD. The scenarios informed participants and presented them with clear options in terms of actions they could take as a result of the potential changes.

The research sample included people from two groups of Freeview-only households. The first group included Freeview-only households who were already able to access additional high definition (HD) versions of current channels on the Freeview HD service through their main TV set (defined as the one watched most often) either via an HD-enabled television set or set-top box. They had at least one TV set operating in HD but also at least one secondary set operating in SD only to allow them to respond to all of the hypothetical change scenarios. The second group included households using Freeview who had access to the same channels but only in standard definition (SD) format because they did not have HD compatible equipment in their household. Around half of the participants in the second group only had one TV set in their household to allow comparisons to be made between single and multi-set households, in relation to the potential changes to Freeview.

Participants responded on the basis that, for illustrative purposes, potential changes could be introduced from 2018, with their reactions guided by their current views. However, it is possible that consumer reactions at the time of change scenarios from 2018 may be influenced by evolving preferences between now and then.

Overall, participants understood the case for change, yet raised several concerns about how the potential changes would impact them. Participants valued the 'free' nature of Freeview and its content offering and, accordingly, concerns centred on any additional costs incurred and an aversion to any channel losses. With scenarios for potential gains centring mainly on new HD channels, participant responses varied by their existing attitudes towards HD content. Throughout the research, participants' individual top-of-mind and more considered, subsequent responses were captured to help shed light on their motivations and decision-making processes. The main findings of the research study are summarised below.

The role of Freeview and perceptions of HD services

Freeview-only users were motivated by the 'free' nature of the service and were broadly satisfied with the existing content offering. Freeview appealed to many participants as it was 'free' of ongoing subscription fees, and this resulted in an aversion to any charges following initial equipment purchases. The vast majority of participants placed a high value on the Freeview channel offering, and regularly viewed beyond the 'five main channels', and also used the +1 variants. Participants'

expectations of Freeview were shaped by their experiences of a cost-free service delivering a range of channels.

For the majority of participants, in both the HD and SD groups, HD was currently viewed as being 'nice to have', but not essential. The SD groups, in particular, showed little desire for HD content with many participants expressing the view that they could not tell the difference between HD and SD content. Amongst those with Freeview HD, several continued to watch SD channels out of habit, rather than taking the effort to view HD equivalents that were further along the electronic programme guide (EPG). With HD currently regarded by many participants as 'nice to have' rather than essential, the prospect of new HD channels as part of potential future changes held limited appeal.

Initial reactions to change scenarios

Participants readily understood the case for potential changes to the delivery of DTT when these were presented to them, yet expressed some initial concerns. At the outset of the research sessions, participants were given a briefing presentation explaining the background to the potential changes and how they may be affected by them (Appendix A). The vast majority of participants readily understood the case for change, for example in terms of the allocation of UHF spectrum for DTT and mobile data services. However, there were initial top-of-mind concerns expressed, with most participants wondering if they would lose any channels as a result of the changes, the extent of any cost implications, and the impact on their existing TV equipment. Participants also expressed frustrations at why the need for change was seemingly not anticipated at the time of the digital switchover, and why DTT – and not mobile data services – has to move elsewhere in the spectrum.

The more constructive responses associated this aspect of potential changes with continuing technological evolution, and the increasing role that mobile data services play in daily lives. Several participants recognised that potential changes in 2018 would offer time to decide upon a course of action and potentially upgrade or replace equipment. More affluent and younger participants, and heavier users of mobile services, were most likely to be less concerned by the changes. By contrast, older participants, those on lower incomes and lighter mobile users were more likely to express concerns.

Responses to technology change scenarios

The study explored reactions to a set of four hypothetical technology change scenarios, where people who currently receive standard definition Freeview services could take action to upgrade their service in a variety of ways. In today's context, this would give them access to the current high definition channel offer. In our illustrative hypothetical scenarios, further channels and functionality

could be acquired or lost depending on the action they chose to take. Participants who currently have HD access on their main set were asked to think about their secondary SD set(s) as well, given that no action would be required in most of the scenarios presented to them.

Table 1: Descriptions of hypothetical technology change scenarios

Scenario	Description
5C1/2	This represents the current channel offer. Viewers with no HD access can upgrade home equipment with a new set-top box or Freeview HD enabled television and would gain access to 5 HD versions of current channels.
SU1/2	Here, the commercial multiplexes change the way they are delivered, reducing the standard definition offer but increasing the high definition offer. Equipment upgrades for those with no HD access would maintain current channels and enable high definition viewing.
BU1/2	Almost all the Freeview service changes the way it is delivered, reducing the standard definition offer to around 10 channels for those with no HD access but increasing the high definition offer for those who already have HD access. Equipment upgrades for those with no HD access would enable access to standard and high definition channels with the potential for some new additional channels not available today.
FU1/2	The whole Freeview service changes the way it is delivered. Viewers that do not have HD access who take no action would see blank screens. An equipment upgrade to high definition (set-top box or new television) would give access to standard and high definition channels as well as some new additional channels not available today. Access to an even larger HD channel offer would require a household to upgrade to completely new technology also through a set-top box or television that would be newer to the market and potentially more expensive to consumers.

Those without access to HD services, i.e. SD Freeview only households, were more likely to incur content losses if participants chose to take no action, and required a Freeview equipment upgrade (set-top box, TV with built-in tuner, or Freeview DVR box) or TV service switch (e.g. Freesat, Sky, Virgin Media) to guard against any content losses. By contrast, the scenarios all entailed content gains for those with Freeview HD equipment, with only one (FU2) requiring those consumers to decide on a course of action.

Across the sample as a whole, there was a strong aversion to scenarios that entailed channel losses. Indeed, as the volume of channel losses increased across the scenarios, participants' acceptability ratings decreased markedly. Participants' loss aversion was further evidenced by an

increased likelihood to take action in response to scenarios that entailed greater content losses especially where these were well used, familiar channels or those which performed a practical function, such as +1 variants, which offered the benefits of time-shifting capabilities.

Technology change scenarios for those without existing high definition access via HD enabled television or set top box

In the scenario with participants who do not currently have HD access (5C1), no channels were lost. The majority of participants stated that they would do nothing and therefore wouldn't see the gain of a few new HD channels as strong enough motivation to upgrade to HD equipment. However, as soon as scenario SU1 was presented signalling the potential loss, by way of example of a significant change, of 30 out of a total of 50 SD channels, the majority of participants claimed that they would take action – with the vast majority choosing to upgrade Freeview equipment. In the final two scenarios (BU1 & FU1) where either 40 or all channels were lost, participants displayed greater anger and irritation feeling that they were being 'forced' to incur the costs of upgrading equipment. This increased emotion that greeted the final two scenarios increasingly drove participants to claim that they would switch to another TV service. These initial, more impulsive responses overlooked the ongoing subscription costs of switching to paid services. On further reflection, several participants stated that they would consider switching to Freesat to avoid monthly costs and to future proof their equipment against spectrum changes.

The participants with no HD access were most exposed to channel losses given their reliance on standard definition Freeview services. As a result, the majority of participants without HD access felt the hypothetical losses more keenly and displayed greater concern at the potential changes. The second scenario (SU1) was again the main tipping point for action with most participants who do not currently have access to HD likely to upgrade their Freeview equipment or change TV service to avoid losing 30 SD channels. SD participants were more likely than than those participants with HD on at least one set to exhibit emotional reactions to the final two scenarios (BU1 & FU1) where most or all of the SD channels were lost. Furthermore, participants without any HD access were also more likely than HD users to claim that they would switch to another TV service.

The participants with Freeview HD displayed broadly similar responses in terms of the likely actions they would take as a result of the technology change scenarios. However, the majority of HD participants were less concerned by the potential changes and reacted less emotionally. The HD participants had already been exposed to the potential content gains of the HD scenarios (as discussed below) and were less dependent on televisions only giving access to standard Freeview services as they tended to be secondary TV sets. Indeed, the responses of HD participants were

influenced by the specific uses of secondary Freeview sets without HD access in their households. HD participants expressed greater concern where the secondary sets were used heavily, such as by a child or in a bedroom; conversely, where standard definition services were used on less viewed sets, such as in a kitchen or guest room, less concern was exhibited. In line with the overall trends, the HD participants' main tipping point for taking action was the second scenario (SU1) where an illustrative 30 SD channels would be lost. However, even for the last two scenarios where their secondary standard definition sets were being considered (BU1 & FU1 which incurred significant channel losses), the HD participants were more likely than the SD only users to upgrade Freeview equipment rather than switch TV service. This reflected the less emotional responses of HD participants to the channel losses, given their HD service alternatives and, in most cases, the lower value they placed in secondary sets.

Technology change scenarios for those with access to high definition on their main set

The first three scenarios did not entail content losses and, accordingly, were viewed as more acceptable by Freeview HD participants. Moreover, rather than losses, each of the first three scenarios actually included gaining various quantities of new HD channels. Nevertheless, several participants reacted less positively to the fourth scenario (FU2) that introduced an element of choice, even where no content losses were involved. These participants were keen to keep their options open, and were averse to the risk of making the 'wrong' decision.

(The main body of this report provides an overview of each scenario tested, along with detailed discussion of participants' responses.)

Aerial change and mobile interference scenarios

Two further hypothetical scenarios were presented to participants that did not alter the available content or channel offer but that impacted the ability to receive television via participants' current aerial set up (aerial change scenario) and another that could affect the quality of their viewing experience (mobile interference scenario).

In the aerial change scenario, a change would occur where some people might need to upgrade their aerial at a cost of around £150 as their current one would no longer be capable of receiving Freeview. **Participants' responses to the aerial change scenario depended upon whether they would be responsible for covering the costs of a new aerial.** Participants who were renting homes privately or through a housing association were less likely to be concerned by the aerial change scenarios, as they were less likely to be responsible for replacing equipment. For participants responsible for replacing their own aerial, the scenario garnered negative responses, especially if a new aerial would be required in addition to other potential technology changes. Furthermore,

whereas many participants had experience of buying new TV equipment, having an aerial installed was often a less familiar and potentially more involved process[3].

In the mobile interference scenario, a situation was described where participants may experience some disruption to their sound and picture intermittently which could be resolved by fitting a small filter to their cabling which would cost around £15. **The majority of participants reacted constructively to the potential prospect of fitting mobile interference filters, given the relatively low costs involved.** However, several participants thought that mobile companies should be responsible for covering costs as their services were viewed as causing the potential disruption to DTT. Less heavy mobile users were most likely to question why they, rather than the mobile companies, were potentially being asked to cover the cost of the filters. The majority of participants thought that they would be able to fit the filters themselves, as long as the instructions provided were clear.

Vulnerable groups

For older, lower social grade participants, Freeview played a valuable role in providing entertainment and, in some cases, companionship. These vulnerable participants expressed concerns about the potential loss of channels they watched (including +1 variants) and costs resulting from any changes to the way Freeview is delivered. The low income participants felt that they would wait and see how changes affected them, given the relatively high costs of replacing TV equipment. The caution expressed by participants also reflected a lower level of confidence with keeping up to date with technology. Whilst most of the vulnerable participants recognised the value in technological advances, any changes would need to be clearly explained and, in some cases, practical help may be required.

[3] Previous quantitative research conducted by Kantar Media on behalf of Ofcom investigating consumer responses to aerial change can be found in Appendices K and L

2 Introduction

Spectrum is 'an essential building block in the communications sector' – supporting and delivering a range of services. However, spectrum is also a limited resource and one which is in high demand; it is therefore important to ensure that its use continues to maximise benefits to consumers.

Frequencies in Ultra High Frequency (UHF) bands of the spectrum – IV and V – are particularly scarce, as its characteristics make it an attractive space for a wide range of services. One service, experiencing unprecedented growth and demand, is mobile data. Meeting this increased demand could require changes in the distribution of wave frequencies. Part of the UHF spectrum currently used by Digital Terrestrial Television (DTT) – the 700 MHz band – could be used to meet the demands of increased mobile data usage.

Alongside the prospect of change of use at 700 MHz, changes to the technologies used by DTT networks could enable the delivery of new services, HD channels in particular. This would also imply the need for viewers using equipment that does not offer access to HD services to upgrade their TV or set-top box. Should a change in technology take place, viewers who do not upgrade their kit could lose access to some channels.

All these potential changes combined could have significant effects for DTT services as well as potentially delivering further benefits to consumers, through new and improved mobile data services.

In order for these possible shifts in the spectrum and technologies used for DTT to happen, DTT viewers may face some disruption to their service in the short term with some potentially affected permanently. This disruption may involve viewers carrying out or experiencing one or more of the following in order to keep up with these changes:

- Purchasing new television equipment – a set-top box or a new television;
- Replacing their television aerial;
- Tolerating some level of interference;
- A reduced/altered channel offer.

Qualitative research was therefore required to provide insights into consumers' opinions towards potential changes. The research needed to explore the acceptability of a number of 'transition scenarios' to consumers – what were the perceived strengths and weaknesses of each scenario and is there a 'hierarchy' of acceptability? This report details the findings of the qualitative research that was commissioned by Ofcom to meet these objectives.

3 Research approach

3.1 Research design considerations

The research process was designed to address the significant challenges of discussing the technical subject of potential spectrum changes with participants, and exploring their potential future behaviours as a result of any changes. With regards to the technical subject matter, a deliberative approach was developed to allow participants to provide informed responses to potential changes. The approach was founded on the development of a range of user-friendly stimulus materials to explain the technical context of the potential changes, how they may affect participants, and the options open to participants as a result of any changes. The stimulus materials distilled complex technical themes down into relevant and easy-to-follow information for participants. Moreover, the stimulus materials were refined through cognitive testing to ensure that the information was readily understood.

Given the complexity of the groups and the subject matter the table below provides a clear picture of what we are referring to throughout this report with various terms:

Table 2: Definitions of terms used in report

Term	Definition
SD participant	A participant who has standard definition Freeview TV equipment **only** in their home, they can access SD channels today but cannot access the HD services currently being broadcast.
HD participant	A participant who'sprimary set is HD enabled and gives them access to the HD services currently broadcast. At least one of their other television(s) only offers SD access meaning that they cannot access the HD services listed below through these other sets.
SD equipment	This is a standard definition television or television and set-top box giving access to television via the Freeview platform. It can currently access standard definition channels but not any of the services being broadcast in HD. You can convert SD equipment to enable access to HD channels by fitting an HD enabled set-top box. Some SD televisions have an 'HD Ready' logo, and these still require an HD input from a set-top box to give access to HD channels.
HD equipment	If you're using Freeview you may have a television or set top box which gives access to both SD and HD services, some of which are the same channel but broadcast in both formats. The HD channels are at a higher number on the Electronic Programme Guide (EPG), for example BBC1 HD is channel number 101. HD means that the picture has more pixels offering enhanced detail and should appear to be sharper and brighter to the viewer.

A phased approach was used to take participants from an informed position regarding the context of potential spectrum changes through to evaluation of a series of scenarios of how the changes may be implemented. The research approach facilitated exploration of two levels of response, from participants' initial reactions to the scenarios, through to more considered feedback uncovered through discussion. A comparative approach was adopted, with participants able to readily compare and contrast the relative gains and losses of each scenario. By making these trade-offs, participants were better placed to discuss their likely courses of action, and this was reflected in a range of potential actions within each scenario. The approach has facilitated detailed feedback on each individual scenario, as well as giving broader insights into how they compare with each other. The following section provides more detailed discussion of the research design and the techniques used to inform participants and research their potential future behaviours.

3.2 Research design overview

A multistage qualitative research programme was undertaken to explore consumer reactions to potential changes to the way Freeview is delivered. The research programme was founded on rigorous development and cognitive testing of stimulus materials. The materials included a briefing presentation explaining the background to the potential changes, and a series of scenarios outlining how participants may be affected. To facilitate informed and constructive feedback from participants, it was essential that these materials were readily understood.

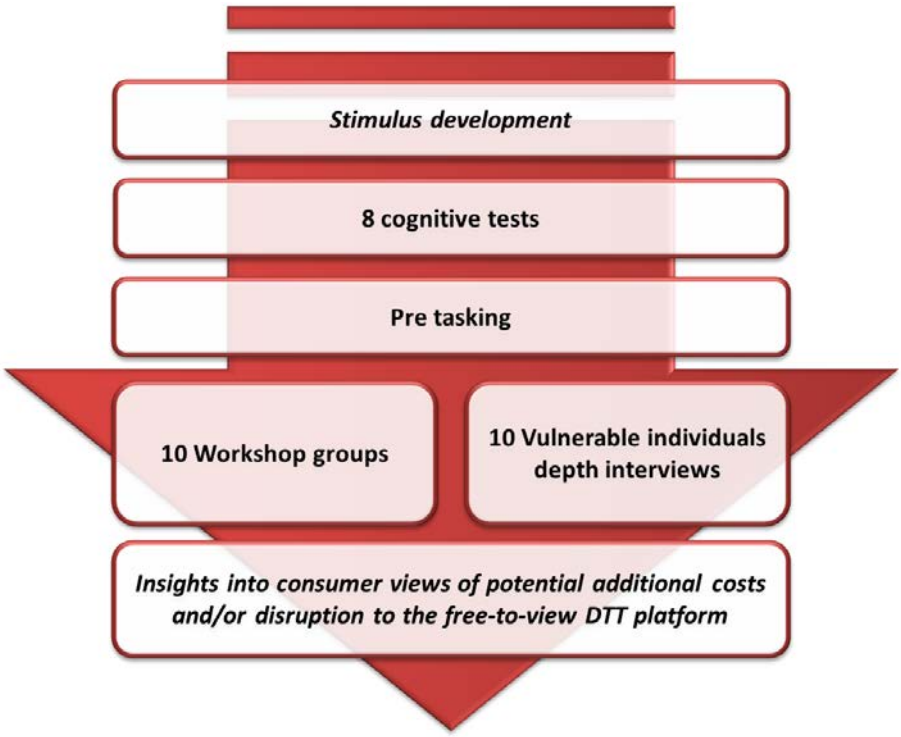

Figure 1: Research design flow

Participants were asked to complete a pre-task, which included a TV viewing diary and questions on their television equipment and technology ownership. The pre-task sensitised participants to their existing Freeview viewing habits, and the televisions and other technology items they owned.

The main stage fieldwork included a series of workshop groups and 'vulnerable individuals' depth interviews across the UK. The workshop groups were split between those with no access to HD services and those who could access Freeview HD services, and encompassed a mixture of demographics. The 'vulnerable individuals' depth interviews focused on older, low-income participants who may be most exposed to costs and/or disruption arising from any potential changes to Freeview.

3.3 Stimulus development and cognitive testing

Cognitive testing was undertaken to tailor the briefing presentation explaining the potential changes to Freeview, along with a series of potential change scenarios. 8 individual cognitive test interviews were conducted with Freeview-only users (i.e. those with Freeview in their household, but no paid subscription services). Each cognitive test lasted 30-60 minutes, and explored comprehension and understanding of the stimulus materials. The sessions were run over 3 days, to allow materials to be adapted and tested in line with emerging feedback.

The sample was principally split between those who only had access to Freeview SD and those with Freeview HD services, but also encompassed a mix of demographics, locations and multiple vs. single television set ownership. This split between Freeview SD and HD services was required as scenarios were tested that were specific to standard and high definition services. Indeed, the impact of the potential technology change scenarios would vary depending upon whether a standard definition Freeview service or a high definition service was involved.

Table 3: Cognitive testing sample structure

	Status of main set	Main set or second set(s)	Age	SEG	Location
1	Freeview SD	One TV set in household	Young	Mid/ Low	London
2	Freeview HD	One TV set in household	Mid	High/Mid	London
3	Freeview SD	More than one TV set in household	Mid	Mid/ Low	London
4	Freeview HD	More than one TV set in household	Mid	High/ Mid	London
5	Freeview SD	One TV set in household	Older	Low	London
6	Freeview HD	One TV set in household	Young	High/ Mid	London
7	Freeview SD	More than one TV set in household	Older	High/ Mid	London
8	Freeview SD	More than one TV set in household	Older	Mid/ Low	London

3.4 Pre-tasking prior to workshop participation

Participants were required to complete a pre task prior to the workshop groups and 'vulnerable individuals' depth interviews. The pre task included a viewing diary, plus questions on their household television equipment and technology ownership. The viewing diary tasked participants with logging their viewing habits over 2 days. This included noting the programmes and channels watched and the TV services used. Participants were sensitised to their viewing habits and Freeview use by completing the diary.

The television equipment questions made participants aware of items owned, the technical specifications of the items, and their purchase motivations. Capturing this information helped anchor participants' responses to potential future scenarios in appreciation of their existing television equipment and purchasing habits. Participants also completed questions relating to other technology items in their household. This helped identify items that may be used as alternatives to Freeview television viewing.

3.5 Workshop groups

Overview and sample

10 x 2-hour workshop groups were conducted, covering locations across the UK. The workshop groups focused on Freeview-only participants, and were split between those with no access to high definition services via Freeview and those with access to Freeview HD services on main TV sets.

The 'Freeview SD' groups were comprised of participants who only had access to standard definition channels via Freeview, excluding those with Freeview HD or paid subscription services (e.g. Sky, Virgin Media, BT TV, and TalkTalk). Within the Freeview SD groups, around half of the participants had one TV set only. This allowed comparisons to be made between single and multi-set households, in relation to the potential changes to Freeview.

The 'Freeview HD' groups were made up of participants with Freeview HD on their main TV set and standard definition Freeview on at least one secondary set. (The main TV set was defined as the TV set used most often.) The mix of Freeview HD and Freeview SD services allowed the 'Freeview HD' groups to evaluate the Freeview HD and SD scenarios.

The Freeview SD and Freeview HD groups encompassed a demographic spread, including a mix of age, gender and social grade. When making comparisons between geographical locations in this report, care has been taken to factor in the influence of demographic differences.

Table 4: Workshop groups sample structure

	Status of main set	Main set or second set(s)	Age	SEG	Location
1	Freeview SD	About 4 per group with only one TV set in household	Mid	ABC1	London
2	Freeview HD	All have at least one second set which has Freeview SD	45+	Mix	London
3	Freeview SD	About 4 per group with only one TV set in household	Older	DE	Manchester
4	Freeview HD	All have at least one second set which has Freeview SD	<45	Mix	Manchester
5	Freeview SD	About 4 per group with only one TV set in household	Young	C1C2	Glasgow
6	Freeview HD	All have at least one second set which has Freeview SD	45+	Mix	Glasgow
7	Freeview SD	About 4 per group with only one TV set in household	Older	C1C2D	Cardiff
8	Freeview HD	All have at least one second set which has Freeview SD	<45	Mix	Cardiff
9	Freeview SD	About 4 per group with only one TV set in household	Mid	C1C2	Belfast
10	Freeview HD	All have at least one second set which has Freeview SD	45+	Mix	Belfast

Additional sample specifications:

- Across main groups, included some respondents who have experienced Freeview reception problems; some who have bought a TV set in the last 12 months; some who have acquired equipment (e.g. TV set or Freeview box) as a result of the digital switchover (DSO)
- Mix of urban, suburban and rural respondents

Discussion flow and tasks

The table below provides an overview of the workshop group discussion guide, detailing where individual and group feedback was gathered and the order in which scenarios were presented.[4]

Table 5: Overview of discussion flow and order of tasks

Workshop groups discussion flow – duration 2 hours
1. Welcome and introductions
2. Television & technology • TV, technology & aerial equipment used • Freeview devices owned (e.g. set-top box, recorder box, TV with built-in tuner) • Existing viewing habits (drawing on pre-task diary) • Exploring the role of Freeview – why Freeview only? Why not paid subscription service? • Attitudes towards HD content & services
3. Digital switchover (DSO) • Contextual exploration of DSO experiences • Equipment purchased, and ease or difficulty of transition
4. Briefing on spectrum changes • Briefing presentation on reasons for & potential impact of potential changes • Comprehension gauged & glossary of key terms provided • Individual self-completion responses to spectrum changes gathered; then, • Group discussion around potential changes
5. Technology change scenarios • Status quo 'scenario' slides (Freeview SD & Freeview HD) presented • Format of scenarios explained, including: o What happens in scenario (HD and SD content gained or lost, and other impacts) o What happens if they choose to do nothing o Options to keep up-to-date with Freeview & guideline prices (STB, recorder box, TV with built-in tuner) o Options for alternative subscription services (including channel lists & prices for basic packages) • SD groups then evaluate the 4 tech change scenarios in turn • HD groups evaluate the 4 scenarios based on their primary HD set followed by the 4scenarios thinking about their secondary SD sets • (Note: Scenarios presented in ascending order of scale of change. Piloting showed that ascending order was easiest for participants to follow, and helped facilitate comparisons between relative gains & losses of each scenario.)

[4] See Appendix J for a full version of the discussion guide

- Each scenario presented in turn, with individual self-completion responses followed by group discussion. This order allowed the research to capture immediate individual reactions, followed by more considered reactions drawn from group discussion.
- Individual self-completion evaluation of each scenario:
  - Acceptability rating on scale of 1-10, with 1 being 'completely unacceptable' and 10 being 'completely acceptable'
  - Likely action as a result of the scenario (do nothing, keep up to date with Freeview, or change to other service)
  - Open-ended reasons for option chosen
- Group discussion of scenario:
  - Following individual feedback, scenarios discussed amongst group
- Ranking of scenarios
  - Having evaluated each scenario in turn, participants individually rank scenarios and discuss amongst group
  - HD and SD scenarios ranked separately. For example, HD groups ranked the scenarios based on their primary HD set before moving onto individual consideration and ranking of the scenarios thinking about their secondary SD set or sets

6. Aerial change scenario

- Aerial change scenario presented. Participants asked to hypothetically consider on the basis that they would be affected.
- Individual self-completion evaluation:
  - Acceptability rating on scale of 1-10, with 1 being 'completely unacceptable' and 10 being 'completely acceptable'
  - Likely action as a result of the scenario (do nothing, replace aerial, or change to other service)
  - Open-ended reasons for option chosen
- Group discussion of scenario

7. Mobile interference scenario

- Mobile interference scenario presented
- Individual self-completion evaluation:
  - Acceptability rating on scale of 1-10, with 1 being 'completely unacceptable' and 10 being 'completely acceptable'
  - Likely action as a result of the scenario (do nothing, buy filter(s), or change to other service)
  - Open-ended reasons for option chosen
- Group discussion of scenario

8. Summing up

- Individual self-completion sheet to capture overall thoughts, including overall likelihood to stay with Freeview
- Recommendations for those overseeing the potential changes

3.6 Depth interviews among vulnerable individuals

In addition to the workshop groups, 10 x 1-hour depth interviews were conducted in each location with individuals from 'vulnerable groups'. The interviews centred on elderly and lower income participants who may be most exposed to the potential costs and disruption arising from any changes to Freeview.

Table 6: 'Vulnerable individuals' depth interview sample structure

	Status of main set	Main set or second set(s)	Age	Gender	SEG	Location
1	Freeview SD	One TV set in household	74	Female	D	London
2	Freeview SD	One TV set in household	65	Male	E	London
3	Freeview SD	One TV set in household	78	Female	D	Manchester
4	Freeview SD	One TV set in household	70	Female	D	Manchester
5	Freeview SD	One TV set in household	65+	Female	D	Glasgow
6	Freeview SD	One TV set in household	65+	F/M couple	E	Glasgow
7	Freeview SD	One TV set in household	65+	Female	D	Cardiff
8	Freeview SD	One TV set in household	75+	Male	E	Cardiff
9	Freeview SD	One TV set in household	87	Female	D	Belfast
10	Freeview SD	One TV set in household	78	Male	D	Belfast

The sample was comprised of Freeview SD viewers with one television in their household. Again, this provided a focus on those possibly most exposed to the potential changes. In addition, the sample included a mix of age, gender and social grade.

The participants completed the pre task, with the interview following the same discussion flow as the workshop groups. This included reactions to the briefing presentation and feedback on the scenarios. Participants provided self-completion feedback, before discussing their thoughts with the interviewer.

3.7 Contextual quantitative research

Kantar Media conducted a *Freeview HD and TV Aerials* quantitative study on behalf of Ofcom in spring 2013. The results for the Freeview HD questions indicated a significant level of confusion amongst consumers over their current technology use. Consumers were unsure as to whether they actually received HD services because of ambiguity over the use of the term 'HD Ready' on equipment and in a quantitative environment this self-declaration formed an intrinsic part of the selection process. As such, the data from the Freeview HD section of this survey was deemed

unreliable. This learning was however very useful for the development and design of the qualitative research, which overcame these issues for both recruitment and discussion.

The study also encompassed exploration of the types of aerials used by TV-viewing households in the UK, whether the aerials were recently replaced, and the likelihood to replace aerials in response to hypothetical changes to the delivery of DTT. This part of the survey did produce strong results and the quantitative findings from the outdoor and indoor aerials can be found in Appendices K and L.

4 The role of Freeview

4.1 Motivations of Freeview-only households

To understand the likely consumer responses to potential changes to the way Freeview is delivered, it was firstly important to explore *why* people use Freeview only and *what* they value about it. At the start of the research sessions, participants discussed their current television viewing habits, and the reasons for using Freeview. These discussions drew upon participants' pre-task viewing diaries, and reference to the TV and technology items that they owned.

For the majority of participants, cost and content were the most influential drivers in their decision to use Freeview only rather than paid subscription services (e.g. Sky, Virgin Media, BT TV, and TalkTalk).

In terms of cost, Freeview appealed to many participants as it was 'free' with no ongoing subscription fees. There was a strong zero price appeal associated with Freeview use, once initial equipment purchases had been made. Several participants had previously subscribed to paid TV services. They had switched to Freeview because they did not value the additional content offered on paid services enough to justify the extra costs.

> "*With Freeview you pay a one-off payment and that is it. With the other ones [paid subscription services] you've got to be paying every month. That got on my nerves."* (Female, SD, Cardiff, 45+)

Across the sessions, participants were also using devices such as laptops, desktops, tablets, games consoles and smartphones to use free catch-up services such as BBC iPlayer and 4oD, along with paid options such as Netflix. Indeed, many younger participants claimed they were using catch-up and on-demand services more often than watching content at the time of broadcast through a TV set.

> "*I mostly watch telly on my laptop, Netflix and stuff. Occasionally on Freeview, but mostly we plug our laptops in [to the TV set] to watch stuff on the internet.*" (Male, SD, Glasgow, 18-24)

The vast majority of participants expressed satisfaction with the range of content available on Freeview. The viewing diaries showed that many participants, of all ages, had a repertoire of channels that went beyond the 'five main channels'. Whilst the 'five main channels' were still

viewed frequently, other channels were an important part of viewing routines. These channels included familiar brands with familiar content expectations, such as BBC Three and BBC Four; ITV2, ITV3, and ITV4; E4, More4, and Film4; and 5* and 5USA. Several participants also regularly watched channels such as Dave and Yesterday, which again featured familiar content. The Freeview-only users felt that the range of content available was sufficient, and there was no evidence of a willingness to pay for additional channels as they were satisfied with the range available.

> "*I think pretty much what is on Freeview is about right, there is not much rubbish like Sky*." (Male, HD, Manchester, <45)

> "*When I lived with my mum we had Sky, but I find myself watching the same channels and just sticking to the ones you can get on Freeview anyway. I don't think if I had Sky I would use it for anything that I don't have now."* (Female, SD, Glasgow, 18-24)

In addition, many participants frequently used the +1 channel variants when two programmes they wanted to watch were on at the same time. The +1 channels also played a catch-up role for participants, where they had missed the start of a programme.

> "*I do watch a lot of +1. If there are two programmes on at the same time, because I don't have a recorder or anything, two programmes on at the same time that I really want to watch, you can watch that on +1."* (Male, HD, Manchester, <45)

Throughout this report, reference will be made to how participants' reactions to potential changes to Freeview are influenced by their current channel viewing repertoire.

4.2 Perceptions of HD services

For the majority of participants, in both the HD and SD groups, HD was viewed as being 'nice to have', but not essential. The SD groups, in particular, showed little desire for HD content. Several participants expressed the view that they could not tell the difference between HD and SD content – this view was especially prevalent amongst older participants. Many participants with Freeview HD had acquired the service as a result of buying new TV equipment, rather than specifically seeking to access HD content. Amongst those with Freeview HD, several continued to watch SD channels out of habit, or needing to make a special effort to view HD equivalents that were further along the electronic programme guide (EPG).

"*I would never think of going up to the HD, 101, 102, 103. I would watch it down 1, 2, 3, 4, 5. Because the picture, it's good enough quality to me. I would never dream of going up there.*" (Male, HD, Belfast, 45+)

"*I think my wife does it [watches SD channels] on purpose now, if she is watching something on BBC I will say 'but it is on HD', so put it on HD I spent a lot of money on that.*" (Male, HD, Manchester, <45)

For the few participants who placed a high value in HD content, this appreciation was derived from specific viewing genres. Film, sport and nature documentaries were seen to harness the potential of the HD format in particular.

5 Initial reactions to potential changes

Participants were given a briefing presentation explaining the background to, and possible impact of '*Changes to Freeview TV*'[5]. The briefing presentation included:

- Explanation of the finite nature of the UHF spectrum and the demands placed upon it;
- The impact of the increased use of mobile devices;
- The potential shift of Freeview TV to a different part of the UHF spectrum;
- Possible impact on Freeview service (keep the channels they have, gain some new channels, or lose channels);
- Consumer options as a result of potential changes (do nothing, purchase new Freeview equipment, or choose a different TV service provider); and,
- Explanation that the potential changes will not happen before 2018.

Participants recorded written responses to the potential changes, before they were discussed in the groups. The responses generated ranged from positive to negative, and the main themes emerging are discussed in the following sections.

5.1 Constructive responses to potential changes

The majority of participants offered at least some constructive responses to the briefing presentation:

Reasons for potential changes were clear and understood

Across the sessions, most participants understood the need for change given the demands placed on the UHF spectrum. Despite the technical nature of the subject, participants were readily able to envisage how the potential changes may affect their Freeview service, and the options open to them as a result. Several participants likened the potential changes to the digital switchover (DSO), which also required equipment upgrades.

> "*Due to the explanation of the UHF system then it is clear that there's a need for change. If disruption is as minimal as the previous switchover then it should be quite smooth*." (HD, Glasgow, 45+)

[5] A full version of the briefing presentation is provided in Appendix A

Recognition that technology is constantly changing

Several participants noted that technology is always changing, and they did not expect devices and services to operate in the same way forever. A small number of participants (particularly those with an interest in technology) greeted the potential changes with excitement. For these participants, the advance of technology was associated with the potential for new features and functions.

> "*I put 'exciting', maybe like new developments, new trials. I think by then [2018] if it stayed how it was now, then it would be a bit boring.*" (Female, HD, Manchester, <45)

Appreciation of increased use of mobile devices

The more tech savvy and younger participants recognised the increased use of mobile devices and understood the resulting demands on spectrum. Those using these devices frequently were more open to Freeview TV moving to accommodate burgeoning mobile internet services.

> "*It did occur to me why don't the mobile phones all move and leave the TVs alone, but we have all got mobile phones so something has to give.*" (Male, HD, Glasgow, 45+)

2018 gives advance warning

Many participants observed that 2018 was relatively far in the future, and would allow ample warning of the potential changes. Several of these participants thought that they might upgrade to new TV equipment before 2018 anyway, and could therefore accommodate the potential changes. Other participants thought that with 2018 sometime away, they would wait and see what happens before responding to the potential changes.

> "*I thought that the change is quite far away so I would just wait and see what happens and…then I would assess what my options are and then I would try and keep my existing equipment if I could."* (Female, HD, Manchester, <45)

Potential for new content welcome

A majority of participants identified the potential for extra channels as a positive outcome of the possible changes. However, the participants were hoping for new channels, rather than HD versions of existing channels. A few participants also noted that it would depend on the quality of the new channels and their interest in them.

"*People might be annoyed at first, but if new channels [are available] they will quickly forget*." (Glasgow, SD, 18-24)

5.2 Concerns regarding potential changes

Whilst participants gave some constructive feedback, the majority of responses to the potential changes highlighted concerns. Participants raised a series of concerns regarding the potential changes, with the key questions discussed below.

Why were changes not anticipated at the time of the digital switchover?

Several of the Freeview-only users expressed frustrations that potential changes to DTT's positioning in the UHF spectrum was not addressed during the digital switchover period. These participants felt that it would have been easier to make equipment upgrades on a single occasion (in response to the DSO and potential changes to the position of Freeview in the UHF spectrum), rather than twice within a decade.

How much is it going to cost?

In response to the briefing presentation, many Freeview-only users raised concerns about the potential costs of responding to any future changes. These concerns jarred against their view that Freeview is a 'free' service. Moreover, for many participants, the potential for extra content was not offset by possible additional costs.

"*Feels like you're forced to buy something. If it's only a tenner or something then I don't mind but if it's going to be more than that that'll be rubbish*." (Female, SD, London, 25-54)

Several Freeview-only users raised concerns about whether their existing TV equipment (TV sets and STBs) would work following any changes. Yet again, this reflected the value placed in owned equipment and fears regarding possible costs incurred. Participants who had purchased TVs or equipment recently were particularly concerned about these items becoming obsolete.

"*Annoyed! Maybe have to replace TV? Freeview box? How does one find out? Current TV, etc., obsolete? At least we have 4 years' notice*." (HD, Glasgow, 45+)

The more affluent Freeview-only users were more open to the possibility of having to purchase new equipment as a result of any changes as they saw this as part of a normal upgrade cycle.

"*The cost, my TV will be ancient by 2018 anyway, so doesn't bother me. The only thing I would wonder is if I'm looking at buying a TV right now…are there TVs out there that would cope with these changes?"* (Male, HD, Manchester, <45)

Will I lose any channels?

The majority of participants were concerned that they may lose existing channels of interest as a result of potential changes. This fear of loss particularly related to channels watched regularly, with entrenched repertoires observed in participants' viewing diaries.

"*What channels would be affected? What would the cost be to buy a new box?"* (HD, Glasgow, 45+)

Why does Freeview TV have to move in the UHF spectrum and not mobile?

Some participants questioned why Freeview TV had to move in the UHF spectrum and not mobile services. Older participants and less heavy mobile device users were particularly likely to question why Freeview TV had to 'give way' in an increasingly congested spectrum. By contrast, younger participants and heavier mobile users, who appreciated the value of the proliferation of mobile, were more open to the potential changes.

"*So why don't they change mobile phone frequencies then rather than the televisions?*" (Female, HD, Manchester, <45)

How will TV equipment purchased before 2018 be affected?

Finally, several participants wondered whether TV equipment purchased before 2018 would be affected by any changes. These participants expressed the view that TV equipment sold from now on should be future proofed against any potential changes. The more affluent and Freeview HD participants were most likely to raise questions around future TV equipment purchases and the potential spectrum changes. Less affluent and Freeview SD participants had concerns that mainly centred on existing equipment.

5.3 Varying responses to potential changes by sub groups

The levels of concern towards the potential changes varied by the type of Freeview service used and participant demographics. The figure below summarises the types of participants most likely to be 'concerned' or 'unconcerned' by the potential changes.

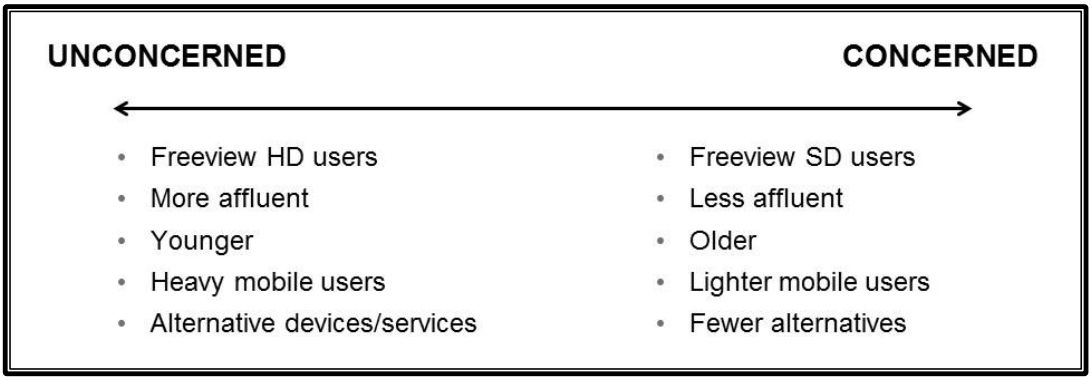

Figure 2: Levels of concern by key sub groups

"It wouldn't affect me but would be annoying if I had bought a new telly to then have to buy another after the changes. I use my mobile quite a lot so would likely benefit. I wouldn't go to much trouble if my TV stopped working." (SD, Glasgow, 18-24)

"I would not want to lose channels, and there's a need for advice and a practical service to make changes…instructions need to be clear and concise for people as they get older." (Female, SD, 65+, Glasgow, D)

6 Responses to technology change scenarios

This chapter explores participants' reactions to a series of scenarios for the potential changes to Freeview. The scenarios entailed different technology changes, resulting in a variety of possible content gains and losses. The sections below outline the approach used in the research to present and evaluate the scenarios, along with the rationale behind the scenario format. This is followed by an overview of the types of responses encountered, before discussing responses to each scenario in turn. Where appropriate, reactions to the scenarios are split out by Freeview SD and Freeview HD users, with contrasts and comparisons made.

6.1 The presentation and evaluation of technology change scenarios

Eight technology change scenarios were tested, comprising four relating to Freeview SD services, and four describing the equivalent impact on Freeview HD services.[6]

The Freeview HD groups evaluated the technology change scenarios based on their primary HD set followed by the same scenarios but thinking about their SD secondary set or sets. The Freeview HD groups were recruited to include those with Freeview HD on their main set, and Freeview SD on at least one of their secondary set(s).

Freeview SD participants only evaluated the scenarios once, in relation to their SD set(s). In the Freeview HD groups, around half of the participants had more than one TV set in their household. This split facilitated consideration of the impact of changes on single and multiple TV set households.

As was shown in the discussion flow (pages 14-15), participants evaluated scenarios individually before discussing them as a group. Participants were asked to individually rate each scenario on a 1-10 scale, with 1 being 'completely unacceptable' and 10 being 'completely acceptable'. They were also asked to indicate their likely course of action as a result of the scenario, along with explaining their decision. This order allowed the research to capture initial individual reactions, before drawing out considered responses from subsequent discussion. Ultimately, participants ranked the technology change scenarios in order of preference and discussed their views amongst the group. In the Freeview HD groups, the four scenarios were ranked immediately after discussion, and before any discussion of thinking about their SD set(s).

Within the HD and SD sets, the technology change scenarios were presented to participants in ascending order of the level of technology change. Therefore, with each scenario shown, the level of content gains and/or losses increased. Piloting showed that this order allowed participants to make

[6] The 4 Freeview technology change scenarios are included in Appendix E, with the 4 Freeview HD equivalents in Appendix F.

sense of the relative gains and losses between the scenarios, and make informed decisions regarding acceptability ratings and preference rankings. By contrast, when the scenario order was randomised, participants were more likely to be confused, and to lose sight of comparisons between the scenarios. Presenting scenarios in ascending order of change helped participants draw out the relative benefits and costs of each scenario, and the trade-offs involved.

6.2 Presenting the scenario format and status quo

Participants were firstly presented with the existing Freeview offer 'scenario', which would be different depending on whether they were able to access HD services through their current equipment.[7] This facilitated informed responses grounded in knowledge of the current Freeview offer and served to familiarise participants with the scenario format before the potential technology changes were introduced. The existing Freeview 'scenario' (N1) is provided below to illustrate the design and format of the scenarios.

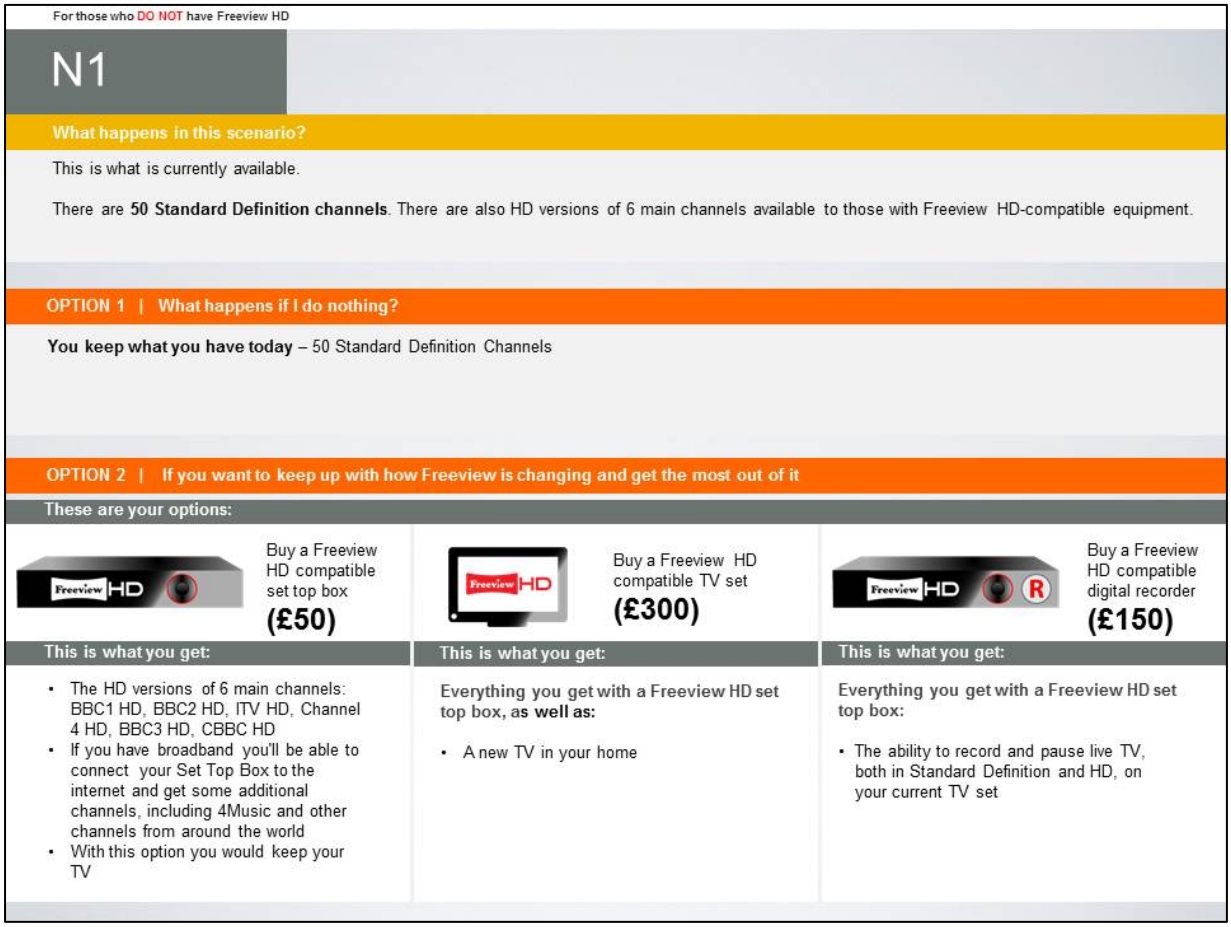

Figure 3: The existing Freeview SD offer 'scenario'

[7] The current Freeview 'scenario' relating to SD equipment is provided in Appendix C, with the Freeview HD equipment version in Appendix D. These scenarios (N1 and N2) also serve to illustrate the format used subsequently for the hypothetical technology change scenarios.

The scenarios were labelled neutrally to avoid participants making assumptions based on sequential numbering or lettering. Accordingly, the 4 Freeview technology change scenarios presented in relation to SD equipment were labelled: 5C1, SU1, BU1, and FU1; with those applicable to HD users labelled 5C2, SU2, BU2, and FU2.

Each scenario was split into 2 main sections: firstly, an overview of what happens in the scenario, and; secondly, the 3 options available to participants as a result of the changes. The first option clearly described to participants the implications of doing nothing as a result of the technology change, in terms of the channels that would be retained, gained, or lost. The second option detailed the options for keeping abreast of the changes by upgrading Freeview equipment. Option 3 provided details of alternative services, including Freesat and entry-level Sky and Virgin Media TV packages.[8] These alternative provider options were presented along with corresponding listings of the channels (TV and radio) included in each package.

By presenting information in this way, participants were able to weigh up the costs and benefits *within* scenarios and *between* the scenarios. These decisions were based upon sound understanding of their existing service, and of the avenues available as a result of the changes – both in terms of the costs and content implications.

6.3 Three distinct reactions to potential changes

It is useful to consider the broad types of responses encountered, before looking at reactions to each technology change scenario in turn. The 3 categories of response are summarised in the 'traffic light' diagram below, ranging from 'emotional response' (red), through to 'caution and circumspection' (amber), and 'calm pragmatism' (green).

In some cases, responses dissipated from initial annoyance through to greater openness to change based upon greater consideration of the benefits and costs. These stages of response were effectively captured in the research through the combination of individual self-completion and group-based tasks.

[8] Appendix G provides the Option 3 breakdown of alternative TV service providers and channel listings. The channel listings were tailored for each fieldwork location, with regional channel variants included. Participants had details of the alterative service providers and channel listings on hand throughout the considerations and evaluation of each technology change scenario.

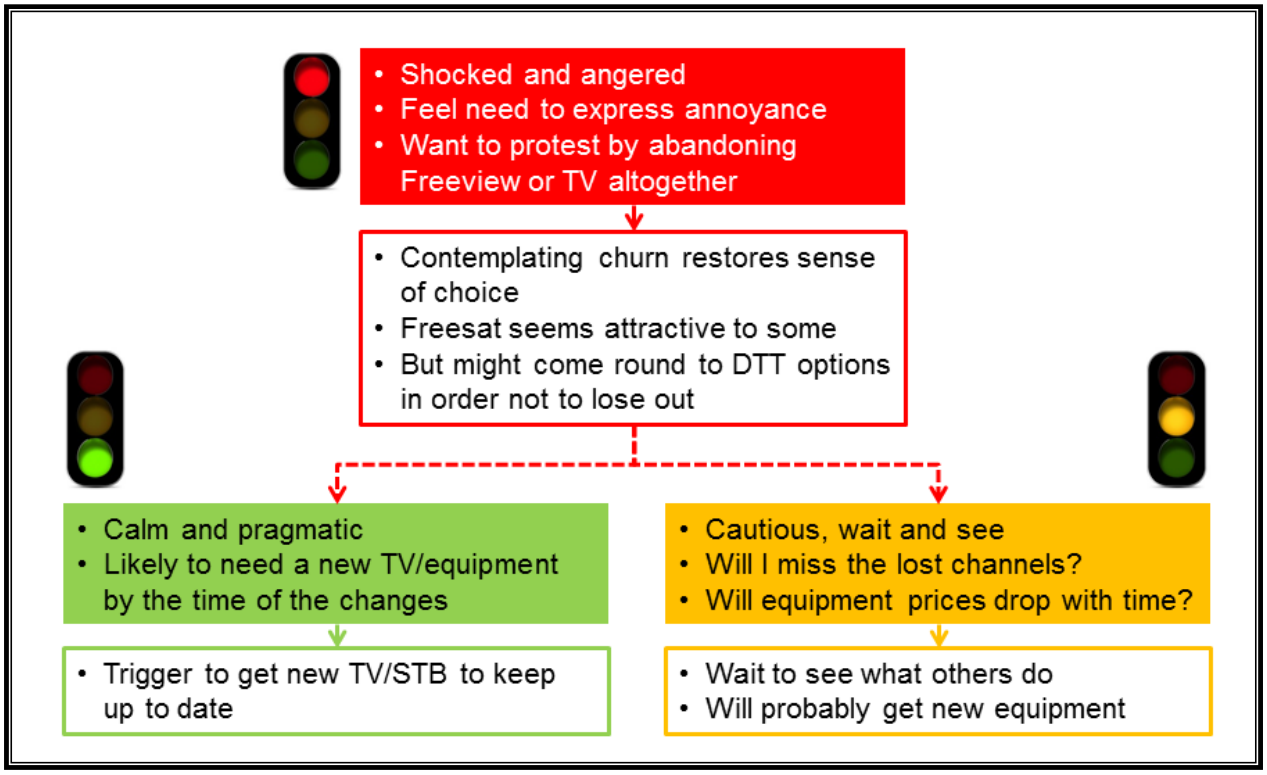

Figure 4: Three distinct reactions to possible changes to Freeview technology change scenarios

Whilst participants often failed to make a considered cost-benefit analysis (at least not in the first instance), consistent patterns of response did emerge.

Emotional response

The first category of response ('red' light) was typified by an impassioned state, often conveyed via anger and irritation at the potential changes. Many participants exhibited such an emotional state in response to scenarios that incurred significant channel losses and made the costs of upgrading appear more of a necessity than a free choice. For these participants, such reactions were anchored in the value they place in their existing Freeview service, with a sense of ownership following initial equipment purchases. Many participants were attracted by the existing zero price nature of Freeview, with potential costs to maintain a comparable service provoking emotional responses.

For several participants, feelings of anger and irritation (often directed at Freeview) resulted in claims that they would switch to another provider under such a scenario. In responses of this type, participants – fuelled by emotion – failed to objectively weigh up a 'one-off' equipment cost to keep up-to-date with Freeview against set-up and ongoing subscription payments for an alternative TV provider. However, once initial anger dissipated, participants often began to more objectively trade-off the relative costs and benefits of the actions available to them.

Caution and circumspection

Many participants greeted the change scenarios with circumspection ('amber' light), and stated that they would most likely 'wait and see' before deciding on a course of action. This reflected an innate desire to keep their options open and not risk making an imprudent choice. Participants stated that they would 'wait and see' both in terms of seeing how they would cope with potential channel losses, and how others (friends and family) would respond to the changes.

This category of reaction encompassed a secondary, more considered component, with a few participants observing that equipment prices would be likely to decrease over time. The majority of participants expressing caution, whilst irritated by scenarios that entailed significant channel losses, were generally open to upgrading equipment at some point in the future.

Calm pragmatism

The final response category ('green' light) was characterised by largely calm and pragmatic reactions from participants, and a general openness to the potential technology change scenarios. This typically included participants who had responded constructively to the initial briefing and were relatively unconcerned about the potential changes (as discussed in chapter 5).

Participants who were more affluent and interested in technology generally reacted with less emotion, and were more inclined to fully weigh up the costs and benefits of each scenario. Several participants observed that with any changes unlikely to happen before 2018, they would most likely go ahead and buy new equipment at that point. For those currently in the market for new TV equipment, whether for a new TV or, as in several cases, a DVR, the potential to gain additional content by keeping up to date with the scenarios offered greater motivation to purchase.

There was also evidence of loss aversion, with many participants keen to take action to avoid losing channels. This greater likelihood to take action increased in line with scenarios that entailed greater content losses.

6.4 Responses to Freeview technology change scenarios – SD equipment

This section discusses participants' reactions to the 4 technology change scenarios.[9] Responses for each scenario are detailed for the Freeview SD groups before progressing to the Freeview HD groups. Where appropriate, comparisons are drawn between the responses of Freeview SD and Freeview HD users.

[9] The versions of the 4 technology change scenarios relating to SD equipment are included in Appendix E

As was highlighted in the discussion flow, Freeview HD groups evaluated the technology change scenarios on their secondary standard definition set(s) after considering their primary HD equipment. Therefore, the responses of the Freeview HD groups to the scenarios were somewhat anchored in exposure to the generally more positive scenarios of technology changes that their current equipment could cope with. However, this order was key to achieving unbiased responses to the scenarios in the Freeview HD and Freeview SD groups respectively.

For each scenario, a short description of what happens will be provided along with an explanation of the impact if participants choose to do nothing.

6.5 Freeview SD participants

- **Scenario 5C1**

Table 7: Scenario 5C1 summary

5C1
What happens in this scenario?
In this scenario new HD channels become available to those with compatible TV kit. If you upgrade your kit, you could get between 10 and 15 new channels in HD, in addition to the 50 Standard Definition channels that you already have. The HD channels will include: BBC1 HD, BBC2 HD, ITV HD, Channel 4 HD, BBC3 HD, BBC4 HD, CBBC HD, CBeebies HD, Al Jazeera HD.
What happens if I do nothing?
You keep what you have today – 50 Standard Definition Channels

The vast majority of Freeview SD participants responded positively to 5C1 and it was the highest rated scenario in terms of acceptability. At the heart of its appeal was the absence of content losses if participants chose to do nothing as a result of the potential changes. As has been discussed, a principal concern for many participants was retaining a content offer that they value.

> *"You've got the choice, it says you can stay as you were and I will."* (Female, SD, Cardiff, 55+)

Around two-thirds of SD participants stated that they would take no action as a result of such a scenario. The stated lack of action reflected both satisfaction with the current content offer, and a limited appeal of HD channels. Several participants mentioned that gaining new channels would be more appealing than getting HD versions of existing channels. In addition, for some participants, taking advantage of HD channels would require purchasing an HD-enabled TV set rather than the less expensive option of a Freeview HD STB.

"The same channels but they are just in HD aren't they?" (Female, HD, Cardiff, 55+)

Despite this, a small proportion of participants thought that they would be likely to upgrade their Freeview equipment as a result of the changes. However, for such participants, the likelihood to upgrade was driven mainly by the potential need for new TV equipment by 2018, or an existing interest in purchasing a new TV set or upgrading to a DVR box. In such considerations, the HD content was an additional benefit that would encourage participants to pursue an equipment upgrade that they already had in mind.

"I've always felt that I needed to upgrade equipment so it would be a good opportunity to do it and that would be sort of within my price range. I don't want to spend too much." (Female, SD, London, 25-54)

- **Scenario SU1**

Table 8: Scenario SU1 summary

SU1
What happens in this scenario?
In this scenario, about half of the Freeview service changes the way it is delivered: this means that there will be about 20 channels in HD and 60 in Standard Definition. The 5 main channels (BBC1, BBC2, ITV, Channel 4, Channel 5) will be available both in Standard Definition and HD.
What happens if I do nothing?
You would keep about 20 Standard Definition channels in total: these would include the main BBC channels including BBC3, BBC4, CBBC, CBeebies and the national BBC variants, plus ITV, ITV2, ITV3, Channel 4, E4, Film4 and Channel 5. You lose about 30 commercial channels including Sky News, 5*, 5USA, CITV, Dave, Really and others.

SU1 provoked a stronger reaction amongst participants, given the loss of 30 commercial channels. The SD participants were averse to losing channels, and this was particularly pronounced amongst those currently viewing channels that would be lost. The more vociferous participant reactions were reflected in lower scenario acceptability ratings and a higher likelihood to take action. Despite the stronger reactions, participants ultimately ranked the scenario 2nd to 5C1.

Around half of the SD participants indicated that they would do nothing as a result of such a scenario. However, for many participants, this was fuelled by a desire to wait and see how the changes affected them and to keep their options open.

"I'd do nothing. I'd be irritated to lose channels but I've got the main ones. I wouldn't really miss Dave and wouldn't want to buy new equipment." (Female, SD, Cardiff, 55+)

The other half of the SD participants were likely to upgrade their Freeview service as a result of the changes. Such likely actions were driven by participants' desire not to lose channels, especially where ones would be lost from existing viewing repertoires. As with 5C1, a few participants claimed they would upgrade in line with existing desires for new TV equipment, with the greater number of HD channels gained helping them rationalise their decision.

> "*I wouldn't want to lose any channels. It may not be the ones that I really watch, but I would still like the option of having them."* (Male, SD, Glasgow, 18-24)

> "*That would annoy me because I do watch occasionally Five USA, Dave, and Really.*" (Female, SD, Cardiff, 55+)

> "*If you do nothing what you will lose is a lot because, to be perfectly honest with you, I think people will be a bit sort of fed up with BBC and fed up with general ITV. It's just got that way."* (Female, SD, Cardiff, 55+)

- **Scenario BU1**

Table 9: Scenario BU1 summary

BU1
What happens in this scenario?
In this scenario, almost all of the Freeview service changes the way it is delivered. This means that Freeview will provide about 25 HD channels and 50 channels in Standard Definition, with some new channels that are not available today.
What happens if I do nothing?
You keep 10 Standard Definition channels, including the main BBC channels including BBC3, BBC4, CBBC, CBeebies and the national BBC variants, plus ITV, Channel 4 and Channel 5. You lose the 40 commercial channels including ITV2, ITV3, E4, Film 4, 5*, 5USA, Sky News, Dave and other channels including the +1 variants of most services.

The majority of SD participants displayed strong emotional responses to BU1, giving the scenario very low acceptability ratings. Participants' lower acceptability scores stemmed from an aversion to lose a yet greater number of channels. Given the greater quantity of channels affected, more participants were likely to lose channels that they viewed regularly. Several SD participants equated the scale of the change with a return to an analogue era. For many, this was difficult to accept, with their viewing range expectations anchored by the current multi-channel Freeview offer. In addition, many participants reacted strongly to the loss of +1 channels which, as has been discussed, performed an important catch-up and time-shift role.

Around one-third, stated that they were likely to do nothing as a result of the potential changes.

Participants who would do nothing were most likely to be younger and those with alternative devices and services.

> "*Almost like we pay for this equipment and then we're not getting what we pay for. So it's forcing us to buy – but I'd still do nothing.*" (Male, SD, London, 25-54)

Around half of participants (about the same level as SU1) suggested that they would upgrade their Freeview equipment as a result of the change. For most participants this was to prevent channel losses, with others already considering equipment upgrades with 25 HD channels an additional benefit. Several SD participants stated that the extent of channel losses was such that it effectively would 'force' them to upgrade and was therefore less of a free choice.

> "*Exactly – lose your television or go for one of them [upgrade options]. So that's the charge.*" (Female, SD, Cardiff, 55+)

> *"I'd feel like I'm being forced to pay money which I don't want to pay when the service we've got now is fine."* (Female, SD, London, 25-54)

The anger resulted in a minority of participants claiming that they would switch service under such a scenario. These strong initial reactions drew on a contention that they stood to lose content when they had already purchased Freeview equipment in good faith. Several of these participants placed a high value in the equipment they owned and the service received, and losses provoked annoyance and irritation. Amongst these participants, there was little evidence of full consideration of the benefits of upgrading Freeview equipment versus taking up a paid subscription service.

> "*I'm completely unhappy and I'd just move to a different service."* (Female, SD, London, 25-34)

The greater discontent amongst participants was reflected in BU1 being ranked 3rd of the SD technology change scenarios.

- **Scenario FU1**

Table 10: Scenario FU1 summary

FU1
What happens in this scenario?
The whole of the Freeview service changes the way it is delivered, moving partly to Freeview HD and partly a new service yet to be implemented (let's call it 'Freeview XS' – for Extra Special – for now). This means that Freeview will provide around 40 HD channels and 40 channels in Standard Definition, with some new channels that are not available today – but to get all of the new HD channels you will need to upgrade your equipment to the newest service i.e. Freeview XS.
What happens if I do nothing?
You will lose access to all channels.

FU1 sparked the greatest level of anger amongst SD participants, with subsequent responses fuelled by emotion. With participants averse to losing channels, FU1 was viewed as unacceptable by the vast majority as it resulted in all channels being lost. Participants gave the scenario very low acceptability ratings (essentially 1 out of 10) with FU1 ranking last amongst the potential technology changes.

Around half of the SD participants stated that they would upgrade their Freeview equipment as a result of the FU1 changes. Many participants chose this option begrudgingly, with doing nothing essentially making their TV set(s) obsolete. The majority of participants lost sight of the potential additional content (including around 40 HD channels) amidst the overwhelming SD content loss faced. A minority of those who would upgrade their Freeview equipment recognised the volume of extra HD content on offer. However, for several participants, extra HD content was not a strong enough motivating factor in isolation, with upgrade decisions mainly influenced by existing desires to purchase new TV equipment.

> "*It's a bit unfair to lose all the channels, that is drastic, so you would be forced to get something, you would have to get a box or something else, you don't get an option, being forced into it."* (Female, SD, Glasgow, 18-24)

> *"[It] doesn't seem like it's actually offering any benefits over the current service."* (Male, SD, London, 25-54)

An increasing number of participants (around a quarter) thought that they would switch TV service should the changes described in FU1 be implemented. As was observed with scenario BU1, this was largely sparked by participants' annoyance and irritation with the volume of channels lost and the

impact on existing TV equipment owned. The initial emotional response of such participants did not fully weigh up the relative costs and benefits of taking up a new service instead of upgrading Freeview equipment. However, secondary, more rationalised thought led several participants to favour Freesat as a switching option, given the one-off installation fee and lack of subscription payments.

> *"I'd move straight away, I'd give it a [acceptability rating of] one!"* (Female, SD, Cardiff, 55+)

A minority of participants claimed that they would take no action as a result of the FU1 scenario. These participants were likely to be younger and users of other devices and services to watch TV content. A few participants claimed that they would give up on TV altogether, and listen to the radio or read books instead.

FU1 was also the catalyst for participants to raise broader societal viewpoints in relation to the potential changes. Indeed, several participants felt that older and lower-income people would be more exposed to changes that resulted in a complete loss of service.

> *"I mean I wouldn't mind doing that [upgrading Freeview service] but maybe older people, it is not fair to…not give them the option."* (Male, SD, Glasgow, 18-24)

6.6 Freeview HD participants

As was noted in subsection 6.1, it is important to recognise that the Freeview HD groups evaluated the scenarios in relation to their SD equipment following exposure to the same technology change scenarios but when thinking about their primary HD enabled sets. This order was required to ensure unbiased responses to the scenarios when thinking about their HD equipment, but should be considered when interpreting HD participants' responses in each circumstance. Indeed, in thinking about the scenarios in relation to their HD equipment, involving fewer losses and requiring less action, this did somewhat shape expectations when thinking about their SD equipment. Nonetheless, the HD participants evaluated the scenarios again, which provided additional insight into the impact of potential changes.

- **Scenario 5C1**

The majority of HD participants considered the potential changes in scenario 5C1 to be acceptable and ranked it 1st amongst the scenarios when thinking about their SD equipment.[10] Participants were generally satisfied with the scenario, with no content lost and a sense that upgrades were not being forced upon them.

The vast majority of HD participants stated that they would do nothing in response to the potential changes described in 5C1. With their secondary set(s) affected, many participants felt that such viewing did not require HD quality and, accordingly, chose to take no action. Participants explained this in relation to secondary TV sets being used in kitchens and bedrooms, as opposed to the HD equipment used on their main TV set. Indeed, in many instances, participants noted that their secondary set(s) were not HD enabled and that a new TV would be required to view extra HD channels, rather than the smaller investment of a STB or DVR. For the majority of participants, the extra content on offer was not enough to justify the purchase of a new TV set.

> "*The only option you are getting in option 2 [Freeview equipment upgrade] is the extra HD channels, so you wouldn't bother doing that."* (Female, HD, Manchester, 18-44)

> *"HD channels…but if your TV is not HD then you can't have it – so you might as well do nothing."* (Male, HD, Manchester, 18-44)

> *"The one [TV set] in the kitchen we just use to watch the news or breakfast television and I am quite happy with the way it is now. I am not bothered about having HD."* (Female, HD, Glasgow, 45+)

- **Scenario SU1**

The HD participants were generally less satisfied with scenario SU1 than 5C1, yet exhibited little emotion and provided less impulsive responses. For the HD participants, SU1 was somewhat less acceptable given the number of channels that would be lost. However, for HD participants, the general aversion to loss and desire to counter it, was somewhat tempered by channels still being available on their HD set(s). The HD participants ranked SU1 2nd amongst the technology change scenarios when thinking about their secondary SD set(s).

[10] Descriptions of the technology change scenarios are provided in the 'Freeview SD participants' section (from p.34)

Around half of the HD participants stated that they would upgrade their Freeview SD equipment in response to the changes. These participants were more likely to upgrade second-set equipment where it was more widely used, such as in their bedroom or in a child's bedroom. Moreover, participants were more likely to upgrade equipment where the changes entailed the loss of channel(s) that they viewed frequently. In addition, the HD participants were generally more affluent and open to TV equipment purchases than the SD participants, which made upgrading slightly more likely. However, several HD participants were still irritated at having to buy new equipment for secondary viewing given the channel losses.

> *"You can't take something away from someone if they have already got it. You can offer them something new and dangle a carrot, but you can't try and sell someone something by taking something away."* (Male, HD, Manchester, 18-44)

> *"We are scoring pretty low [acceptability ratings] because again if it is a non-main TV I wouldn't be pleased about losing as many channels…and I wouldn't really want to fork out for a TV that wasn't the main TV."* (Male, HD, Glasgow, 45+)

The other half of the HD participants claimed that they were likely to do nothing as a result of the potential changes. For such participants, the TV sets involved tended to be used less frequently, and often with a more limited channel repertoire. For example, TV sets in kitchens were often used for news, radio or background noise, compared to main TV sets with much broader and engaged use.

> *"I wouldn't even bother. I would just let the TV go and just watch the one [main TV]. I find that I don't watch it that much."* (Male, HD, Belfast, 45+)

- **Scenario BU1**

The majority of Freeview HD participants responded more negatively to BU1, given the greater loss of channels incurred. HD participants generally gave the scenario very low acceptability ratings and it was ranked 3rd amongst the scenarios when thinking about their SD equipment. Despite this, the scenario was greeted with less emotion than in the SD participant sessions. Furthermore, while individual ratings were consistently low across the HD and SD groups, HD participants' responses were, to an extent, anchored in expectations from prior exposure to the more positive HD technology change scenarios.

Over half of the HD participants claimed they would upgrade their Freeview equipment in response to the changes described in scenario BU1. For such participants, the overarching motivation for

upgrading was to counter the likely loss of channels. Several participants noted channel brands that would be missed by doing nothing in this scenario, along with the +1 variants of popular channels. Whilst participants fixated on channel *losses*, they were less likely to pick up on the HD channels *gained*. Indeed, for HD participants, HD channels were not necessarily seen as being gained when they were available already on their main TV set.

> *"We lost 30 before. You're losing more but what are you gaining? You're not gaining nothing, you're just losing."* (Male, HD, Belfast, 45+)

As with SU1, participants were most likely to upgrade equipment where the TV set was widely used – such as in a bedroom, or by a child. In addition, whilst HD participants were generally more affluent and accustomed to investing in TV equipment, the requirement to upgrade was not without irritation.

Around a quarter of HD participants stated that they would do nothing as a result of the changes. Again, reflecting responses to SU1, this centred on participants who had limited viewing repertoires on and/or usage of their secondary Freeview SD set(s). Several of these participants also claimed that by doing nothing, they would wait and see how they were affected by the changes. This highlighted participants' desire to keep their options open, and not rush into an unwise decision.

> *"Well that's definitely a [acceptability rating of] 1 – throw the TV in the bin."* (Male, HD, Belfast, 45+)

> *"I usually put TV on in the background to fall asleep to, so if I have got ten channels I will find something on it and fall asleep."* (Male, HD, Manchester, 18-44)

The HD participants were less likely to consider switching service than the SD participants as a result of the BU1 changes. This reflected the less emotional responses of the HD groups, with channel losses not impacting on their main TV set viewing. As a result, Freeview HD participants were less likely to claim that they would switch service and potentially incur greater long-term costs from subscription fees.

- **Scenario FU1**

The Freeview HD participants rated FU1 as the least acceptable of the scenarios tested and ranked it in 4th place. The vast majority of participants were unhappy at the prospect of losing their entire Freeview SD service if they did not upgrade their secondary TV equipment. For many, a necessary

upgrade to maintain access to existing channels was seen to be forced upon them rather than representing a free choice.

Given that all channels would be lost, the majority of Freeview HD participants claimed that they would upgrade their Freeview SD equipment. As with scenarios SU1 and BU1, participants were motivated by a desire to guard against potential channel losses, rather than taking advantage of a greatly increased HD channel selection. Participants were again more likely to upgrade their Freeview service where secondary sets were used more widely, such as in bedrooms or by children. Despite being more affluent and open to purchasing TV equipment, the majority of HD participants were annoyed at being 'forced' to acquire new secondary TV equipment given the potential losses.

When thinking about their secondary SD set(s) Freeview HD users were reacting more emotionally to FU1 than to the other scenarios, this was accompanied by evidence of less considered likely courses of action. Indeed, with secondary sets involved, several HD participants stated that they would simply dispose of the set rather than be 'forced' to pay for new equipment. In addition, several participants (particularly the younger and more tech savvy) thought it was likely that they would use other devices (e.g. tablets, laptops) rather than replace SD TV equipment.

> *"You kind of have to [upgrade]…but I'd take it [Freeview SD equipment] to the skip – I'm not happy about it!"* (Male, HD, Belfast, 45+)

> *"Well my thing is doing nothing, go into the other room and watch it there."* (Male, HD, Belfast, 45+)

> *"I would throw mine in the bin, my second TV, they are completely rubbish and I would use my iPad, not bothered."* (Male, HD, Manchester, 18-44)

Nonetheless, amongst HD participants, there was less of a tendency to look towards alternative service providers. The reluctance to switch to another provider stemmed from the costs entailed, and the fact that HD main TV sets would not be (negatively) impacted.

Several HD participants mentioned the wider societal implications of such extensive changes, particularly for those less able to invest in new equipment. Participants noted that elderly people would be most exposed to the changes and could be unable to afford or take practical steps to replace equipment.

6.7 Responses to Freeview technology change scenarios – HD equipment

The section below discusses reactions to the 4 technology change scenarios. These scenarios were evaluated twice by the Freeview HD groups; once in relation to their HD equipment and once in relation to their SD equipment. The HD and SD equipment were evaluated separately as the impact of each scenario was different depending on whether the current equipment offered access to HD content. HD equipment was evaluated prior to participants evaluating the same scenarios in relation their SD equipment. All of the HD participants had Freeview HD on their main set, with some also having the service on secondary set(s). They viewed the 4 scenarios generally more positively when thinking about their primary set(s), with each encompassing HD channel gains. Indeed, only the 4th scenario, FU2, required participants to choose a course of action that would influence the volume of HD channels acquired.

- **Scenario 5C2**

Table 11: Scenario 5C2 summary

5C2
What happens in this scenario?
In this scenario, up to 10 new channels in HD will be available, in addition to the 6 HD channels and 50 Standard Definition channels that are already available today. The new channels will include: BBC4 HD, BBC News HD, CBeebies HD, Al Jazeera HD.
What happens if I do nothing?
You get the new HD channels as listed above.

The vast majority of Freeview HD participants responded positively to scenario 5C2, and this was reflected in very high acceptability scores. Many participants welcomed the chance to gain extra HD channels for no cost (and requiring no effort on their behalf). Participants who were less interested in HD content reacted slightly less positively to the prospect of new HD channels. The scenario was ranked 4th by the HD participants, with subsequent scenarios offering yet more new HD channels.

> *"Ten [acceptability rating]. No hassle – you don't have to do anything."* (Female, HD, Glasgow, 45+)

> *"I don't think it is bad and I wouldn't say it is the worst scenario it is just the least that you get."* (Male, HD, Manchester, 18-44)

- **Scenario SU2**

Table 12: Scenario SU2 summary

SU2
What happens in this scenario?
In this scenario, about half of the Freeview service changes the way it is delivered: this means that the service delivers about 20 channels in HD and 60 in Standard Definition. The 5 main channels (BBC1, 2, ITV 1, Channel 4, Five) will be available both in Standard Definition and HD.
What happens if I do nothing?
You get 15-16 new channels in HD, in addition to the 6 that are already available today + 60 channels in Standard Definition.

The HD participants reacted yet more positively to scenario SU2 than 5C2. Again, the vast majority of participants gave the scenario a high acceptability rating, with the promise of even more HD channels and no effort involved. With more new HD channels offered, SU2 ranked 3rd in participants' preferences (ahead of 5C2).

> *"You don't need to do anything and you are getting more channels."* (Male, HD, Glasgow, 45+)

- **Scenario BU2**

Table 13: Scenario BU2 summary

BU2
What happens in this scenario?
In this scenario, almost all of the Freeview service changes the way it is delivered. This means that Freeview delivers around 25 HD channels and 50 channels in Standard Definition, with some new channels that are not available today.
What happens if I do nothing?
You get 20-22 new channels in HD, in addition to the 6 that are already available today and 50 in Standard Definition.

The HD participants were offered yet more additional HD channels by scenario BU2. There were no potential losses to incur, and participants rated the scenario very highly in terms of acceptability. The scenario was most likely to be ranked 2nd, with HD participants appreciating the easy gains with no decision or investment required.

> *"No cost and maximum value. And no one is pressurising you to buy anything more."* (Male, HD, Manchester, 18-44)

- **Scenario FU2**

Table 14: Scenario FU2 summary

FU2
What happens in this scenario?
The whole of the Freeview service changes the way it is delivered, moving partly to Freeview HD and partly a new service yet to be implemented (let's call it 'Freeview XS' – for Extra Special – for now). This means that the service delivers around 40 HD channels and 40 channels in Standard Definition, with some new channels that are not available today – but to get all of the new HD channels you will need to upgrade your equipment to the newest service i.e. Freeview XS.
What happens if I do nothing?
You get 20-22 new channels in HD, in addition to the 6 that are already available today and 50 in Standard Definition.

FU2 was more polarising, drawing a more complex set of responses from participants as the scenario introduced an element of choice. If participants chose to do nothing, 20-22 new channels in HD were provided with no channel losses. However, if they upgraded to a new Freeview service, the quantity of new HD channels nearly doubled. As a result, participants were required to trade off an easy win requiring no effort, against yet greater benefits requiring an investment in new equipment.

Participants' likely courses of action were influenced by their perceptions of HD content, their interest in having the latest technology, and the likelihood of them being in the market for new TV equipment before 2018. Around half of the HD participants claimed that they would be likely to upgrade to the new service. These participants were more likely to enjoy watching content in HD and have an interest in new technology, with several intending to buy new TV equipment before 2018.

By contrast, the other half of the participants claimed that they would do nothing as a result of the FU2 changes. Those taking no action generally placed less value in HD services and were reluctant to spend to gain content. When faced with a potentially difficult choice, several of these participants opted to take no action in order to keep their options open. This circumspection reflected an inherent tendency to keep options open and avoid making an unwise decision.

The polarising nature of the scenario is highlighted by participant rankings. Nearly half of the HD participants ranked FU2 as their 1st preference, whilst around a third ranked the scenario 4th. These polarised rankings are despite the fact that FU2 offers the same channel gains as the previous scenario, BU2, should participants choose to do nothing – with the option of gaining even more HD channels with an investment in new equipment. For the participants ranking FU2 4th, their decision was influenced by the requirement to make a decision, the fear of making the wrong one and, in some cases, a lack of confidence in keeping abreast of new technologies.

"Because the first three don't cause me any hassle but the fourth one [FU2] is going to make me have to, well I suppose I could just leave it but generally to keep up with everybody else I would need to think about doing it." (Female, HD, Glasgow, 45+)

"It is the most amount of options so you still get the same amount of channels that you would at BU2 but there is actually additional extras that you can get if you pay more, but you don't have to." (Female, HD, Manchester, 18-44)

7 Tipping points

This chapter compares participants' responses to the Freeview technology change scenarios when thinking about their SD equipment, exploring acceptability rankings and likely courses of action. It draws upon the detailed evaluation of the scenarios provided in the previous chapter, and identifies tipping points where participants are likely to take action and where churn from Freeview to other TV services becomes more likely. The exploration of ratings, likely actions and tipping points includes comparisons between the responses of Freeview SD only and Freeview HD participants.

Throughout this chapter graphical diagrams are used to illustrate how acceptability ratings and likely courses of action vary across the technology change scenarios. The diagrams also allow tipping points to be identified and illustrate differences between the responses of SD and HD participants. However, it is important to note that the diagrams provide a graphical representation of qualitative findings and self-completion responses, and are not based in quantitative data.

Technology change scenario tipping points: total sample, SD equipment

This section discusses findings for the **total research sample** – including Freeview SD only and Freeview HD participants. The graph below (Figure 5) traces the average acceptability ratings for each scenario, ranging from 100% 'completely acceptable' to 0% 'completely unacceptable'. For the scenarios in an SD context, there is a clear inverse relationship between the level of content loss incurred and the acceptability rating. Indeed, the acceptability rating is highest at 5C1 where no content is lost, before descending to its lowest level at FU1 where all content is lost.

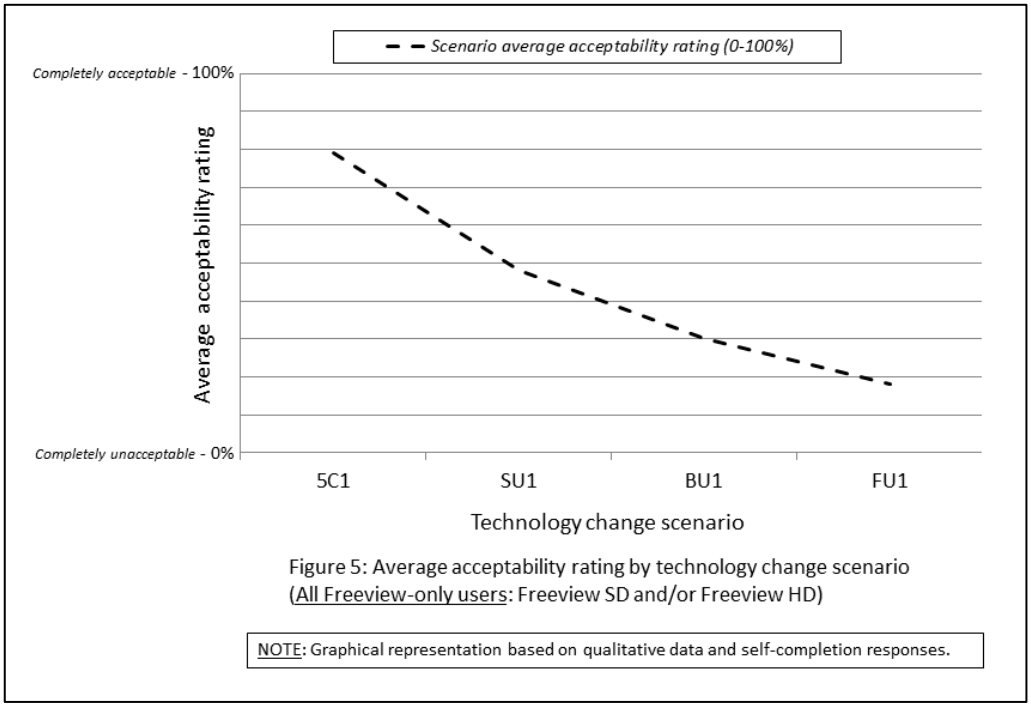

Figure 5: Average acceptability rating by technology change scenario
(All Freeview-only users: Freeview SD and/or Freeview HD)

NOTE: Graphical representation based on qualitative data and self-completion responses.

Figure 6 below charts participants' likely courses of action in response to each scenario, including: doing nothing, upgrading Freeview equipment, or switching to another TV service.

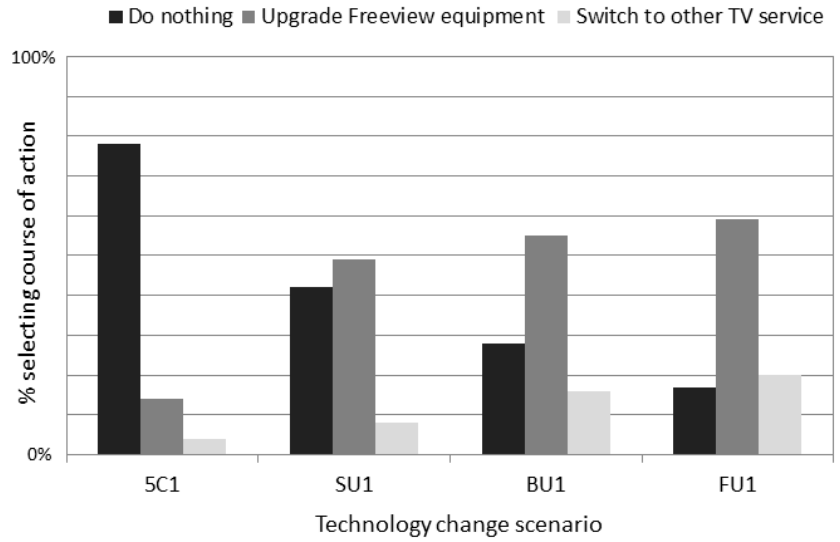

Figure 6: Likely course of action by technology change scenario
(All Freeview-only users: Freeview SD and/or Freeview HD)

NOTE: Graphical representation based on qualitative data and self-completion responses.

There is a direct relationship between the volume of channels lost and the likelihood to take action by upgrading Freeview equipment (the dark grey columns). At 5C1 a small proportion of participants claim that they would upgrade Freeview equipment with most favouring a cautious 'wait and see' approach. SU1 witnesses a greater loss of channels and, accordingly, a greater likelihood for participants to upgrade Freeview equipment in response. This is the major **tipping point** where the majority of those deciding to upgrade Freeview equipment make their decision. Subsequently, relatively smaller increases in likelihood to take action by upgrading Freeview equipment are observed across scenarios BU1 and FU1.

Scenario BU1 results in 40 SD channels being lost, with FU1 resulting in all channels being lost. These major channel losses prompted emotional responses and less considered decision making. The light grey columns trace the likelihood to switch to another TV service as a result of the potential changes. At BU1 and FU1 the rate of switching to other services markedly increases whilst the likelihood to upgrade Freeview equipment plateaus in comparison.

The three categories of response (as discussed in subsection 6.3) are in evidence at various points on the chart. The 'amber', circumspect response is discernible in 5C1, with no channel losses, negligible emotional response, and most participants taking no action and keeping their options open. The 'green' pragmatic response is apparent at scenario SU1 where a major tipping point occurs, with

participants choosing to upgrade their Freeview service in response to content losses. However, at this point, the majority of participants do not react with anger and impulsive decision making. By contrast, participants exhibit the 'red' emotional response state at BU1 and FU1, with a tipping point from considered to more emotional reactions and decision making. This more emotional response manifests in anger towards Freeview and an increased likelihood to switch service that fails to follow a considered cost-benefit analysis.

Figure 7 below combines the 2 previous graphs and illustrates the relationship between acceptability ratings and likely courses of action.

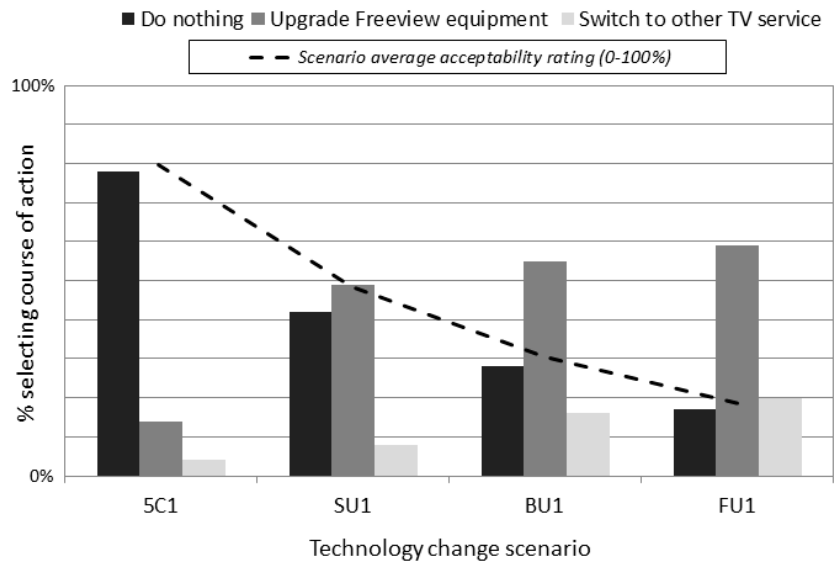

Figure 7: Likely course of action by technology change scenario, scenario average acceptability rating curve overlaid (All Freeview-only users: Freeview SD and/or Freeview HD)

NOTE: Graphical representation based on qualitative data and self-completion responses.

The graph illustrates that participants are more likely to do nothing when scenarios are given favourable acceptability ratings. By contrast, as acceptability scores decrease, the likelihood to take action increases. In particular, where scenarios are rated as 'unacceptable' (BU1 and FU1) emotions are stirred and participants increasingly claim that they would choose to switch TV service provider.

Technology change scenario tipping points: Freeview SD only users

The graph below (Figure 8) focuses on the **Freeview SD only users**, illustrating their average acceptability ratings and likely courses of action for each of the technology change scenarios.

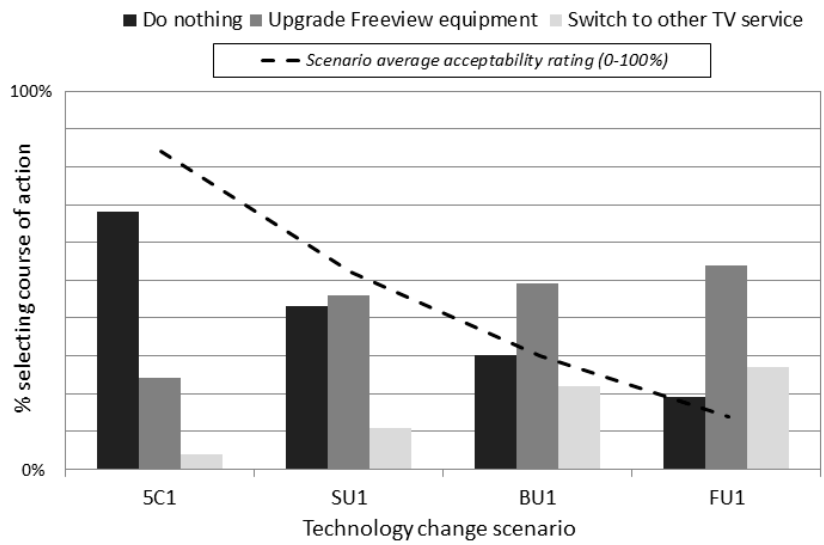

Figure 8: Likely course of action by technology change scenario, scenario average acceptability rating curve overlaid (Freeview SD only users)

NOTE: Graphical representation based on qualitative data and self-completion responses.

A familiar pattern emerges, with a marked inverse relationship between the increased volume of content losses and decreased acceptability ratings (the dashed line) across the scenarios. For the SD participants, there was a higher likelihood than HD participants to consider taking action at 5C1. As was discussed in the previous chapter, this owed more to existing desires to get new equipment or to upgrade to HD rather than the *extra* HD channels being offered.

For SD participants the major tipping point to upgrade Freeview equipment (charted in the dark grey columns) occurs at SU1 in response to the potential channel losses incurred. Following this point, for the BU1 and FU1 scenarios SD participants' likelihood to upgrade Freeview equipment markedly plateaus. The plateauing for SD participants fuels the overall sample trends and stems from heightened emotional responses (anger, annoyance) to scenarios BU1 and FU1. The Freeview SD participants were most exposed to the channel losses, most angered by the potential changes and, therefore, most likely to consider switching to other TV services.

The potential churn to other services is visible in the marked increase of those claiming they would switch to another TV provider between scenarios SU1 and BU1 and the corresponding plateauing of those likely to upgrade Freeview equipment. This likelihood to switch TV service peaks at scenario FU1, with around a quarter of SD participants claiming that they would switch service.

Technology change scenario tipping points: Freeview HD users, SD equipment

The figure below focuses on the **Freeview HD users**, illustrating their acceptability ratings and likely courses of action for each of the technology change scenarios in relation to their secondary SD set(s).

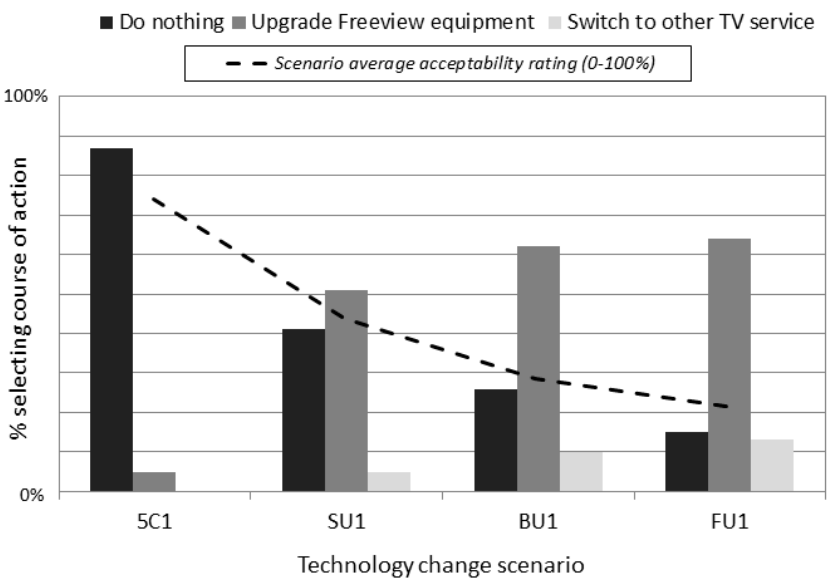

Figure 9: Likely course of action by technology change scenario, with scenario average acceptability rating curve overlaid (Freeview HD users)

NOTE: Graphical representation based on qualitative data and self-completion responses.

The overall pattern for HD participants is similar to the total sample and SD participants, with increased content losses inversely related to acceptability ratings. The HD participants evaluated the scenarios in relation to their secondary set(s) and this is reflected in a lower likelihood to take action at 5C1 where the content offer does not diminish.

For the HD participants, a familiar tipping point to upgrade Freeview equipment is triggered at scenario SU1. A higher proportion of the Freeview HD than SD participants indicated that they would take action by upgrading Freeview equipment on their secondary set(s) rather than switching provider. With the HD participants there was also not the same level of stated churn to other providers as major channel losses were incurred at BU1 and FU1. The HD participants had a Freeview HD service on at least their main set, which would not be negatively impacted by these scenarios. In addition, the Freeview HD participants had already been exposed to the benefits of the HD scenarios and their responses to the scenarios when evaluating them a second time in relation to their secondary SD equipment depended upon the use of and value placed in their secondary set(s).

To summarise, the differences between the likely courses of action of Freeview SD only and HD participants are compared in the graphs below (Figures 10 and 11). Figure 10 isolates those likely to switch TV service, comparing the responses of Freeview SD and HD participants across the scenarios.

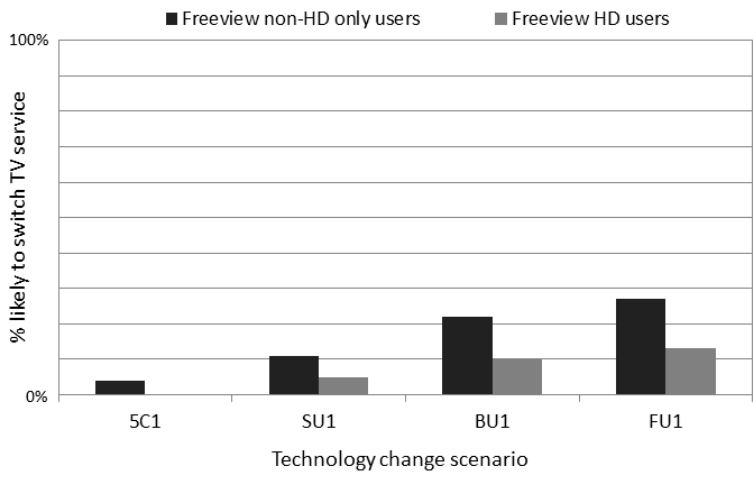

Figure 10: % likely to switch TV service provider by technology change scenario – Freeview HD versus Freeview SD only users (All Freeview-only users: Freeview SD and/or Freeview HD)

NOTE: Graphical representation based on qualitative data and self-completion responses.

As the level of channel losses increases across the scenarios, Freeview SD participants display a greater likelihood than HD participants to switch TV service. This stems from SD only participants being more dependent on their Freeview SD service. As has been discussed, this aversion to loss is reflected in increasingly emotional responses across the scenarios.

By contrast, the graph below (Figure 11) focuses on likelihood to upgrade Freeview equipment, and highlights that HD participants are more likely to stay with Freeview as the level of content losses increases. The gap is particularly evident at scenarios BU1 and FU1, which prompted more emotional responses from SD participants.

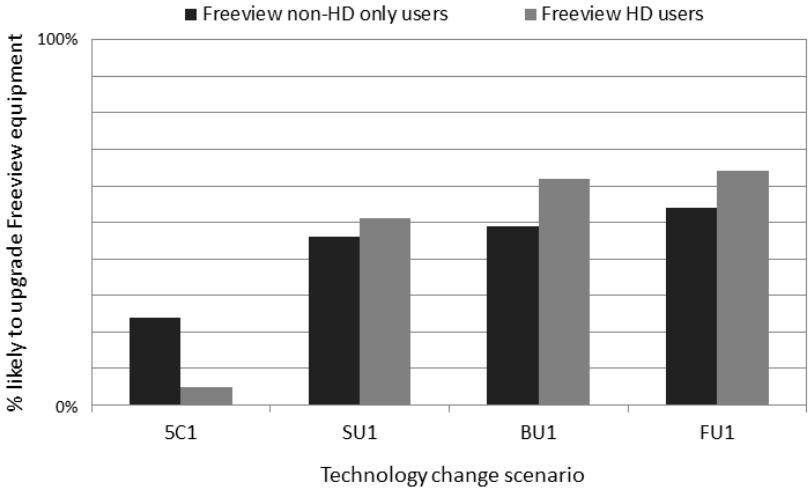

Figure 11: % likely to upgrade Freeview equipment by technology change scenario – Freeview HD versus Freeview SD only users (All Freeview-only users: Freeview SD and/or Freeview HD)

NOTE: Graphical representation based on qualitative data and self-completion responses.

8 Responses to aerial change scenario

Table 15: Scenario Aerial Change summary

Aerial Change Scenario
What happens in this scenario?
Changes to how Freeview is transmitted in the UK and the rest of Europe mean that you may need to change your rooftop aerial to keep up to date with how Freeview is changing. This will only be the case if you do not have a new/modern aerial which works with a wider part of the spectrum.
What happens if I do nothing?
You would keep about 20 Standard Definition channels in total: these would include the main BBC channels including BBC3, BBC4, CBBC, CBeebies and the national BBC variants, plus ITV, ITV2, ITV3, C4, E4, Film4 and Channel 5. You lose about 30 commercial channels including Sky News, 5*, 5USA, CITV, Dave, Really and others.

8.1 Freeview SD participants

Amongst the SD groups, there were recurrent questions over whose responsibility it would be to pay for a potential aerial upgrade[11]. This was particularly the case for non-home owners (e.g. those renting privately or through a housing association). For these participants, there was uncertainty over whether this would be their responsibility or the responsibility of their landlord. These participants stated that they would be sceptical about purchasing a new aerial because they may only reap the benefits of it temporarily – i.e. until they move home.

> *"I wouldn't be that happy about having to buy an aerial because I rent. So I don't know how long I'm going to be in there as well so I don't know how much use you'd get out of it."* (Male, SD, London, 25-54)

If purchasing a new aerial *is* a responsibility for the Freeview consumer, participants generally reacted negatively towards this scenario. For most participants, the negative reactions stemmed from the financial implications of a potential aerial upgrade being *in addition* to the potential tech change scenarios.

> *"You're spending a lot of money though… a Freeview compatible set, you've got to buy that plus this."* (Male, SD, London, 25-54)

[11] Previous quantitative research conducted by Kantar Media on behalf of Ofcom investigating consumer responses to aerial change can be found in Appendices K and L

It is important to note here that this scenario was presented *after* the tech scenarios (see discussion flow on pages 14-15) had been presented, which means there is a potential order effect. Indeed, for several participants, the prospect of replacing an aerial represented a tipping point having evaluated increasingly extensive technology change scenarios. Ultimately, most participants rated this scenario low in terms of its acceptability.

Scepticism towards this scenario was also attributed to the uncertainty over potential future changes beyond those currently being considered. Some participants would be hesitant to pay for an upgrade if they suspect that another, similar change will occur in the near future. This stemmed from the view that the DSO was relatively recent, and several participants questioned why these potential changes are happening so soon afterwards.

> *"I haven't very long changed, so now they are telling us in four to five years' time it's got to change again. So obviously there is going to be more equipment coming out, there are going to be more internet devices and goodness knows what and they're going to have to start changing again. So then you need to say in another five years you are probably going to have to go do it again. So it's just I don't like all these changes, I really don't."* (Female, SD, Cardiff, 55+)

For many participants the effect was that they began to calculate the cost of the aerial upgrade (estimated at £150) against moving to alternative providers. Freesat was favoured by the majority of participants here; this service fits with their motivations towards Freeview – a disregard towards subscription providers – but also potentially being more 'future proof' than Freeview (assuming that any of the proposed changes go ahead). Indeed, nearly half of the participants claimed that they would consider switching their provider in this scenario.

8.2 Freeview HD participants

The majority of Freeview HD participants had negative reactions towards this proposed change and most gave low ratings in terms of acceptability. For most HD participants, the key tenet of this scenario is that the consumer is left with no choice.

> *"There is no benefit for the aerial, apart from getting forced into doing it again, whereas if you moved to Freesat at least you would get a few more channels, you might have to pay a bit more, or whatever, but there is some kind of benefit to it."* (Female, HD, Manchester, 18-44)

The feeling of being forced into the upgrade in order to keep the channels that are currently received was in contrast to the three tech changes which had been presented to respondents earlier in the discussion, where there was the option of doing nothing and still having access to at least some channels.

Despite reacting negatively to this scenario, around half of HD participants would choose to upgrade their aerials. Freeview HD participants, typically, are more affluent with more TV sets in the household than SD participants and were less reluctant to pay for the required upgrade. However, most participants were reluctant to switch to another TV service.

> *"I'd be buying a new aerial then you would get maybe five year's peace then rather than having to pay to Sky or Virgin."* (Male, HD, Belfast, 45+)

> *"I would probably pay it reluctantly."* (Male, HD, Glasgow, 45+)

8.3 Summary and comparisons

The aerial change scenario garnered negative reactions from most participants. In general participants were negative towards the 'additional' cost of an aerial upgrade – potentially on top of the equipment upgrades in the tech scenarios.

For some participants their choices were impacted by questions over whether they would actually be responsible for this, particularly if they rent their homes. There was a minority of participants, across the HD and SD groups, who saw this as one step too far, a breaking point, and would therefore choose to do nothing.

Relative to the other scenarios, the potential aerial upgrade would encourage some to churn away from DTT. Participants calculated the cost of an upgrade against the cost of switching, and Freesat emerged as a favourable alternative. All HD participants recruited were multi-set households and therefore this was less prominent amongst these groups because they would potentially require a separate box for each of their television sets.

A greater proportion of HD respondents would also be more willing to purchase a new aerial than those in the SD groups, where both switching and doing nothing were favoured by a greater proportion of participants. In the SD groups, reactions were stronger with more participants choosing to churn or give up Freeview. However, in Manchester and Cardiff, several respondents had experienced aerial problems before, which caused a more emotional response (anger and irritation) and affected their likely courses of action. After discussion, responses tended to become

more considered and participants became more accepting (however begrudgingly) of the aerial upgrade option.

9 Responses to mobile interference scenario

Table 16: Scenario Mobile Interference Summary

Mobile Interference Scenario
What happens in this scenario?
There will be changes to enable the delivery of better mobile broadband services (i.e. on your smartphone/tablet). This will mean there is a greater risk of interference from mobiles into your TV receiver.
What happens if I do nothing?
You will experience occasional picture blocking or loss when a next generation mobile phone is used outside your house (perhaps for periods of 10-30 seconds about 5 times every night).

9.1 SD participants

The majority of SD participants displayed a more passive response to the mobile interference scenario. This was reflected in the acceptability scores which were higher than the aerial change scenario. Relative to 5C1 and SU1, however, the acceptability was still low for this group. The low scores stemmed from an uncertainty around why this change would be happening at all if the change is *in addition* to the technical changes discussed by participants earlier in the group discussions. Many SD participants questioned why the risk of interference could not be dealt with at the stage of upgrading television equipment in the earlier tech change scenarios.

There was a sense of familiarity from some participants who had used similar devices already, some which had been distributed in their local area. This familiarity meant participants were more accepting of this scenario.

Most SD participants were less deterred by the relatively low price of the upgrade than they were for the aerial change scenario, particularly as they recognise that the interference would occur as a result of technological progress.

> *"I'd actually go with option 2 for once and I would go along with it. I think it is relatively inexpensive and technology is changing and getting more advanced – I think that this is acceptable. It is going someway along the line to sort out the problems."* (Male, SD, Glasgow, 18-24)

However, many were unsure why they should have to be responsible for paying for this, particularly if they potentially have to pay for new television equipment in the SD technology change scenario(s). Some suggested that the cost should be either subsidised or the full responsibility of Freeview or mobile providers. The latter was suggested because mobile providers, in harnessing and benefitting

financially from the technology which interferes with DTT receptions, were seen as responsible for any issues.

> *"Surely, why should we have to pay for that when it's not our fault?"* (Female, SD, Cardiff, 55+)

One of the main drawbacks for many SD participants was that the mobile filter does not offer the user anything new or different beyond their current television service. Unlike the SD technology change scenarios, where new channels became available (regardless of whether they would want to watch these or not), purchasing the new filter only offers people the chance to maintain their *current* service.

> *"But this is just a preventative isn't it? It doesn't actually give you better [content]."* (Male, SD, London, 25-54)

9.2 HD participants

The majority of HD participants stressed how annoying they would find the interference so initially reactions to purchasing the mobile filter were measured and the vast majority said that they would indeed purchase the filter.

However, many raised concerns as they began to question whether a filter would be required for each individual television set in their household. It is important to remember here that all Freeview HD participants interviewed were people with more than one television at home. If a filter would be required for all of these television sets, rather than one single filter for the whole household, participants were more negative towards this scenario.

Many HD participants shared the view of some SD participants that the cost for the new filter should be passed on to mobile providers because it is developments in mobile phones, not television, that would cause interference to occur.

> *"If the mobile phone companies are going to be winning at this then surely they should be subsidising."* (Male, HD, Glasgow, 45+)

> *"I would like to know what the mobile phone companies are going to be investing seeing they are going to benefit really. I mean they should be putting in [investment] instead [of consumers]."* (Female, HD, Glasgow, 45+)

Some questioned why the mobile filter could not be implemented at the same time as either the technology changes or the aerial change stage. Because the filter would be *in addition* to those upgrades, participants were negative towards this being *another* cost in the process.

> *"If you're going to need a new aerial, why don't they have it built in [to TV equipment]? They know it's going on so why not."* (Male, HD, Cardiff, 45+)

> *"So all this is happening because of the, because of everything else that has happened, so you, a lot of people have either bought a set top box, a new TV, why couldn't this filter just be fitted to the back or the inside of every set-top box or TV? That would, it would annoy me if I had done all that and then they said 'oh, and another £15'."* (Male, HD, Manchester, 18-34)

Some HD participants expressed a concern over the potential difficulty of the installation of the filter. Whilst they might be willing to purchase the necessary filter they would be less confident about how to install it. For some, this was more of a societal concern; elderly people, for instance, who are potentially less tech savvy, may need assistance in ensuring that the mobile filter was correctly fitted.

9.3 Summary and comparisons

It is important to recognise that the mobile interference scenario was presented to participants after the technology and aerial changes had been discussed.

There was a moderate reaction across HD and SD participants to the mobile interference scenario. Participants were not deterred by the price of purchasing the filter required to prevent disruption, particularly when they compared it with the cost of the upgrades involved in the other scenarios which had been discussed. This was compounded by the annoyance participants would feel if the specified interference was experienced.

However, there was a general consensus that the cost is one that should not necessarily be passed on to consumers. Instead, this should be the responsibility of mobile phone providers since they were perceived to be gaining the most from this scenario, specifically through the products and services which they provide. Because these developments in mobile phone technology are what cause the disruption, many participants felt that it made no sense that viewers pick up the cost.

Further reluctance to purchasing the filter stemmed from the benefits that the consumer gains. If equipment was purchased in the scenarios that participants had discussed previously, new channels and/or services would be made available, irrespective of whether the participant would actually

watch and/or use these. For the mobile interference scenario, however, no improvement on the current television service would be offered if the equipment is bought – it would only allow them to retain the existing service free of interference from next generation mobile equipment. This sparked more negative reactions amongst some participants than those initially expressed.

These themes were evident across the SD groups and the HD groups. Indeed, the acceptability rating for this scenario was similar across HD and SD participants. However, the SD groups were less likely to say they would purchase the required filter. A greater proportion of the SD participants said that they would instead choose to go to a different television provider, or, do nothing and experience the mobile interference.

10 Vulnerable groups

There are certain groups which are likely to be more vulnerable to the potential transition scenarios, and therefore it was imperative that these groups were specifically included in the research. Groups which were considered particularly vulnerable included those for whom Freeview is their only service. Previous research suggests that these are more likely to be the older, retired generation who may be less tech-savvy and therefore less likely to understand potential changes and the reasons behind them. Consequently, it was important to examine these participants individually as the stimulus may require greater explanation.

Transition scenarios which involve spending money will potentially be worse for these groups than it would for more affluent participants and, therefore, coverage of these groups within this research was essential.

Across the ten in-depth interviews conducted, a number of key findings emerged. Most of the vulnerable participants had a strong dependence on TV – not just for entertainment but for companionship too. Since all of the participants were retired, there was a greater emphasis placed on television than conveyed in the group discussions.

> *"[TV is] very important. I'm classed as disabled and can't get out of the house too much so it is my main thing. I'm watching it more because of my health, I'm indoors a lot more now."* (Male, SD, London, 65, E)

Generally, participants used TV habitually, with entrenched routines formed around both favourite programmes and favourite channels. These participants were relatively dogmatic in these routines and would plan their day around their television viewing.

> *"I just watch what I flick through, and if I like it I'll watch it. But it's mainly the same every day."* (Male, SD, London, 65, E)

Most vulnerable participants have embraced Freeview. Their television viewing goes beyond the 'five main channels' and they had familiar channel brands, as demonstrated in the case study below. Some of the vulnerable Freeview viewers watched the +1 variants of channels and had built these into their viewing habits.

Case study: Deirdre (74, widowed, D)

Deirdre is 74, widowed, lives in sheltered housing and has a low income. She's always thought that TV 'doesn't rule her life', and was surprised at how much TV she actually watches. Deirdre depends on her Freeview service, and enjoys channels like ITV2, ITV3, Dave, Yesterday, Really, and QVC. She has no interest in HD channels, and paid subscription services are too expensive.

Deirdre understood the proposed changes, but was keen not to lose channels and was worried about the potential costs involved. She's very happy with the current service and gave scenario 5C1 a high rating. She was quite 'shocked' by scenario SU1 as she watches some of the channels that would be lost. Deirdre was likely to wait and see how she coped with the change, but felt she was likely to be 'forced' to pay £50 for a new set-top box.

Deirdre greeted BU1 with greater concern as more of her favourite channels were likely to be lost. FU1 caused the greatest anxiety and irritation for Deirdre, as doing nothing would result in losing all the channels. She felt there would be no choice but to pay £50, and it would be difficult to find the money.

She wasn't too concerned about aerial changes as these would be the responsibility of the housing association. It was likely she would pay £15 for a filter to avoid mobile interference, but she would rely upon her son to install it.

Regardless of the nature of the changes, Deirdre would stay with Freeview as the alternatives were too expensive. However, £50 for a new set-top box was a big outlay, and she worried about other pensioners and those on low incomes.

The majority of participants understood the technical changes being presented to them. They have witnessed great change over their lifetimes and so expect technology to progress. This familiarity and expectancy of change makes the potential changes more understandable and, to an extent, acceptable. However, most raised questions as to what benefit they would receive from the changes which were proposed – particularly since they had very limited mobile internet use and because they were very fixed in their television choices, not least in terms of their attitude towards HD.

> *"Technology has been changing, for me at a pace, since 1972… I've seen the change all the way through. It is not a surprise and we just have to be ready for the next [development]"* (Male, SD, Belfast, 78, D)

"*It's just the concept of modern technology. If it's got to happen it's got to happen. Modern technology is just so widely used I realise that they have to do something. If that's what it takes to allow television to come into your own home, that's fine, because so many people do rely on it for company."* (Female, SD, Manchester, 70, D)

Although most understood the changes which were proposed, some still aired concerns which were rooted in their lack of confidence in using new technology. Despite having a desire to keep up with technological changes, they felt that they would require assistance – such as practical help, advice and clear instructions – in order to be able to keep up.

"You wouldn't want to lose any channels; if you gained some that would be fine. I think you'd need some advice perhaps, practical hands on help." (Female, SD, Glasgow, 65+, E)

Another potential barrier for vulnerable participants, which was raised by most of the vulnerable participants interviewed, was budget. Financial constraints meant that it would be difficult to purchase the necessary equipment required to keep up with the potential changes. Paid subscription services would not be realistic alternatives.

HD content holds little appeal amongst vulnerable groups. The majority of participants interviewed did not notice the difference between HD and SD. However, new channels and recording features were viewed as potential benefits of upgrading equipment as a result of the proposed changes.

"*I think we chose this [SD] because it is simpler for our age. I don't even know what HD means. I've heard of it [HD] but never bothered with it. This one (SD) is all right"* (Female, Cardiff, 65+, D).

The tech change scenario 5C1 garnered fairly passive reactions amongst most vulnerable viewers, and meant that they were unlikely to do anything in that scenario.

When presented with SU1, most vulnerable viewers thought similarly to the 5C1 scenario. Most vulnerable viewers would wait and see what happens before responding to the potential changes.

Because BU1 leads to a loss of popular channels (e.g. +1 variants), vulnerable viewers were more likely to consider a Freeview equipment upgrade to be necessary.

There was a perception amongst most vulnerable viewers that FU1 completely removes choice and forces them into the Freeview upgrade, as demonstrated in the case study below. There was therefore a feeling of annoyance and anxiety around this scenario.

Case study: Maureen and George (both 65, retired, E)

Maureen and George are both 65, retired, and have grown-up children. George suffers from Parkinson's and increasingly struggles with his mobility. Maureen and George spend several hours a day watching TV and it's a major source of entertainment for them. They enjoy the range of channels available on Freeview, and aren't tempted by subscription alternatives. However, they are interested in buying a recorder box, following recommendations from family and friends.

Maureen and George think that it's important to keep up to date with technology, but are often short of confidence when using it. They understood the proposed changes, but felt that clear information and practical help would be needed for people like them. They were worried about losing channels, but recognised the potential for new channels.

Their satisfaction with Freeview was conveyed by a rating of 10 out of 10 for scenario 5C1. Whilst HD content wasn't a major draw, they would take the opportunity to upgrade to a Freeview+ service to get recording features. They were shocked by the loss of channels in SU1 and BU1 and felt they would definitely upgrade their equipment. Given that the changes were in 2018, they said that they would probably need a new TV by then anyway. Maureen and George were taken aback by the level of change in FU1 with the choice being removed entirely. They associated these concerns with a 'fear of the unknown' related to their age and technology.

They were less concerned with potential aerial changes and filters required to avoid interference from mobiles. They viewed this as part of technology's advance and would be prepared to purchase new equipment. Overall, Maureen and George were very likely to stay with Freeview, with any additional channels a bonus.

The aerial change scenario was not well received because of the cost attached. £150 was seen as a major cost outlay, even if the proposed change is several years away. Some of the vulnerable viewers interviewed lived in housing association or sheltered housing accommodation and therefore were unsure whether this would be their responsibility or not.

Most vulnerable viewers would purchase the filter required to prevent disruption in the mobile interference scenario. However, this was on the premise that the instructions would be clear. Some said that it would be something that they would rely on a family member for help.