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Final report

## **The BBC**

Advice to BBC Management on the  
potential market impact of the  
proposed new BBC HDTV channel

18 December 2006

*Redacted for publication*

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## 1 Executive summary

### 1.1 The BBC's HD plans

The BBC is currently running a 12-month trial HD (high definition) TV service, due to finish in June 2007, and is proposing to launch an HD TV channel when the trial finishes. The proposed service would include HD simulcasts of BBC One programming, and a selection of HD versions of programming shown on the BBC's other main channels. This proposed service would be available as a nine-hour channel (3pm to midnight) on cable and satellite, and potentially also via IPTV. On DTT, because of capacity constraints, the service would initially be launched as an overnight broadcast (2am to 6am), intended for time-shifted viewing by households with personal video recorders (PVRs); the full nine-hour BBC HD channel would be launched on DTT if new spectrum becomes available for this as part of digital switchover.

### 1.2 The role of this study

As a precondition of launching this HD service, a Public Value Test has to be undertaken by the new BBC Trust. In preparation for the PVT, BBC Management is required to submit an assessment of the likely public value generated by the HD channel, incorporating a high-level, preliminary, market impact assessment. Spectrum and Reckon were appointed to produce the preliminary market impact assessment for the proposed service; this is primarily intended to provide advice, to BBC Management, on the potential market impact of the proposed service, ahead of Management's application, to the BBC Trust, for approval to launch the service.

### 1.3 Approach to the preliminary market impact assessment

A market impact assessment cannot provide any guidance, on its own, as to whether the BBC should launch a proposed new service. Its role, within the Public Value Test, is to complement the assessment of the direct public value that would be generated by licence fee payers' usage of, and exposure to, the proposed service. For instance, a market impact assessment might identify how the proposed BBC service could potentially impede other market players' ability to provide value to consumers, in particular by holding back the development of competition in a particular area of the market; this effect might then be taken account of by the BBC Trust, alongside information on the direct public value of the service, in forming a judgement as to whether the BBC should launch the proposed service.

We have reviewed the methods applied in previous market impact assessments of BBC services, in particular Ofcom's approach to the market impact assessment of the BBC's digital-only TV and radio channels in 2004. These studies were not undertaken as part of the new Public Value Test, but do provide some guidance on the types of effects likely to be considered in future market impact assessments of BBC services. We have also taken account of the policy debate surrounding the BBC Charter Review, and of the outcomes to that review. We have also discussed with BBC Management the approach that Ofcom is expected to adopt when undertaking market impact assessments as an input to the Public Value Test. The study was undertaken, however, before Ofcom had produced a market impact assessment of a proposed new BBC service within the context of the Public Value Test.

In this preliminary market impact assessment of the proposed BBC HD channel, our focus has been on how the channel might affect the competitive process in different parts of the supply chain. This has involved consideration of both the markets directly affected by the proposed channel and markets that could be indirectly affected by its launch. We have also considered, in qualitative terms, how the proposed channel might affect consumer take-up of digital television and HD technologies.

In its market impact assessment, Ofcom is likely to conclude that the potential relevant markets identified for the purposes of the market impact assessment are not necessarily identical to relevant markets examined as part of a competition law investigation. Although we do not necessarily endorse this view, we have adopted the same approach in our preliminary market impact assessment, for the sake of consistency.

## 1.4 A degree of uncertainty surrounds the preliminary assessment

Below, we summarise the main findings of our study. In setting out our findings, it is essential to emphasise that a large degree of uncertainty surrounds the preliminary market impact assessment. At present, less than 1% of households are HD-enabled, and HD TV channels have only been available in the UK since mid-2006. Whilst the proportion of HD-enabled households is likely to increase substantially over the next five years (e.g. to over 30% by 2012), there remains considerable uncertainty as to when other broadcasters will launch HD channels, what form these will take, and how these will be distributed.

One factor that has a bearing on our analysis is the possibility that the BBC HD channel would be launched a number of years ahead of other major broadcasters, such as ITV and Channel 4, launching their own HD channels. We are not predicting that such a scenario is the most likely outcome, but we have ensured that the preliminary market impact assessment allows for this scenario, as a possible outcome. This approach is necessary because some of the potential effects of the BBC HD channel stem from it being available within a market environment in which other major broadcasters have not yet launched full-scale HD channels. As more content is made available in HD over time, the incremental effect of the BBC HD channel on the wider market would be diminished.

Against this background, and given the preliminary nature of this assessment, firm conclusions about the market impact of the proposed HD channel are not possible. Our focus, however, is on identification of potential market impacts, supported by a valid chain of reasoning and by the available evidence — without purporting to ascertain whether any of these effects will, in fact, materialise.

## 1.5 The HD channel would not pose a major threat to competition in audience markets

The most direct effect of the proposed BBC HD channel, on the wider market, could be audiences being attracted, to some degree, away from viewing the channels of commercial broadcasters and towards viewing the BBC HD channel. Since attracting viewers from rivals is a normal part of the competitive process in TV audience markets, the question is whether this could affect competition.

On the basis of our preliminary analysis, we have not identified any major threat to competition in audience markets as a consequence of this effect.

There is a potential for a limited and transitory effect. Within those genres of programming where HD significantly enhances viewer appreciation, the BBC HD channel could cause other SD (standard definition) channels to re-direct their investment in originated programming elsewhere, to avoid head-on competition with the BBC HD channel. Without detailed evidence on viewers' substitutability between different types of programming, we cannot identify whether this is likely to affect competition in some niches within audience markets — e.g. high-end originated documentaries — but, at this stage, an effect cannot be discounted.

It seems probable, however, that any such effect would be small and transitory: in the next couple of years, the small number of HD-enabled households (forecast at less than 5% of all households by 2008) means that other broadcasters' programming decisions are unlikely to be greatly disturbed by the BBC HD channel; over the longer term, as HD-penetration rises, other major broadcasters are more likely to have launched their own

HD channels, mitigating any incentive to avoid head-on competition in areas where HD content is most attractive relative to SD content.

### **1.6 The HD channel could support the PSB-backed proposed free satellite proposition**

The proposal to launch the BBC HD channel is relevant to the proposal to launch the PSB-backed free-to-air satellite platform. The opportunity for households to view a major HD channel, for free, from 2007, could be a factor in helping the proposed PSB-backed free-to-air satellite platform take off, in particular by helping to differentiate free-to-view satellite from Freeview.

By launching the full BBC HD channel on satellite in 2007, but only operating an overnight transmission on DTT, DTT households interested in HD programming would be given an additional incentive to take up free-to-air satellite. This is because the HD service available from the BBC on satellite would be richer in content than that available on DTT. It would also be more convenient for viewers, as it would not require viewers to set PVRs to record the BBC's HD programming. The proposed BBC HD channel could support the development of a competitive market for access to digital satellite channels on a free-to-air basis.

### **1.7 The HD channel would help drive HD take-up but have less effect on digital take-up**

The BBC HD channel would be expected to be a major (HD) channel for those households who choose to become HD-enabled. For instance, our indicative estimates suggest that, were it to launch now, the BBC HD channel could, very approximately, add more than █% to the amount of time that HD-enabled Sky subscribers spend watching HD rather than SD programming. The BBC's marketing of the HD channel would also improve consumer understanding and awareness of HD TV. We therefore expect that the BBC HD channel could make a significant positive contribution to the proportion of HD-enabled households. In addition, this effect on HD take-up could lead to other broadcasters launching HD channels earlier.

The BBC HD channel would be encrypted in MPEG-4 format on both satellite and terrestrial platforms, and take-up of HD would be expected to go hand-in-hand with households installing MPEG-4-compatible reception equipment. If launched on DTT, the proposed BBC HD channel could, therefore, help develop an installed base of MPEG-4-compatible reception equipment in DTT homes. Although it is likely that existing SD channels on DTT will continue to be encrypted in MPEG-2, this effect could bring forward a potential future switch for new services on the DTT platform to MPEG-4, allowing greater spectrum efficiency on DTT in the longer term.

The BBC HD channel could also contribute to digital take-up. As digital TV would be a pre-requisite for being able to watch the BBC HD channel, the BBC HD channel could become an additional reason for households to take up digital TV. This effect, however, is likely to be limited. We do not expect that the majority of those households who have not yet taken up digital TV would become HD-enabled, before 2012, as a result of the launch of the proposed BBC HD channel: these households might need to invest in an HD-ready TV and an HD-compatible STB, yet these are the same households who have, so far, chosen not to incur additional expenditure (e.g. a £40 Freeview STB) to enhance their TV viewing experience by switching to digital TV.

### **1.8 Significant effects on competition in upstream markets seem unlikely**

The editorial propositions for the HD channels do not envisage much of a change to the BBC's commissioning and programme policy. It is conceivable that the launch of the BBC HD channel might, in the period 2007 to 2012, affect somewhat the mix of programming that the BBC, as a whole, commissions and broadcasts, and the speed at which it moves towards HD production.

Compared to the counterfactual where the BBC has no HD channel, the BBC HD channel might mean that the BBC develops greater requirements for HD programming — e.g. when commissioning from the independent production sector. In the near-term, some parts of the independent production sector might lack HD capabilities and might, therefore, be unable to compete effectively to supply this programming to the BBC. However, the loss of some suppliers to the BBC would not generally lead to a risk to the competitive process in programme supply markets; moreover any such loss would tend to be transitory, given the expected development, over the next five years, of HD capabilities by the production sector.

Theoretically, the launch of the BBC HD channel could increase the BBC's overall willingness to pay for certain rights (e.g. sports rights) — as well as its willingness to commission those types of programming that are enhanced most by HD — compared to the hypothetical counterfactual where the BBC does not launch an HD channel. In practice this outcome is highly uncertain and, moreover, it seems unlikely that it would pose a risk to competition in upstream rights bidding markets.

### 1.9 The market impact would depend on how the BBC HD channel develops on DTT

The baseline scenario for the preliminary market impact assessment is that, in the period to 2012, the BBC HD channel would only be operated on DTT as an overnight transmission, intended for time-shifted viewing by households with PVRs. We have also considered how the market impact might be affected if, as the BBC hopes, the service on DTT could be upgraded to the full nine-hour channel as spectrum becomes available as part of digital switchover.

As identified above, the BBC HD channel could play a role — in conjunction with the launch of the proposed PSB-backed free-to-air satellite platform — in the development of the market for reception equipment allowing households to access free-to-air digital satellite services. In our baseline scenario, this contribution could arise because the BBC HD channel would be operated as a full channel on satellite but only as an overnight transmission on DTT: this distinction might, in particular, encourage some Freeview households to take up free-to-air digital satellite in preference to Freeview. The size of any such contribution would be somewhat smaller if, instead, the BBC HD channel were to be initially launched as the overnight service and then upgraded to the full service as digital switchover progresses. For certain regions, there might only be a short time window of one or two years in which the BBC HD service would be superior on satellite compared to DTT. However, satellite would retain an advantage over DTT for other regions: for example, switchover in London is not scheduled until the 2012, so the full BBC HD channel would not be launched on DTT in the capital for at least four years after its launch on satellite and cable.

There could also be a potential effect on TV audience markets arising from the use of scarce capacity on DTT to broadcast the full nine-hour BBC HD channel on DTT. In particular, if the BBC had to compete against other organisations to obtain spectrum to distribute the channel on DTT, this could have some effect in audience markets. For instance, an HD channel requires considerably more capacity than an SD channel, and it is possible that distribution of the BBC HD channel on DTT could take the place of up to 5 SD channels that would otherwise be available on DTT. Compared to the counterfactual in which only the overnight BBC HD service is operated on DTT in the period to 2012, the operation of the full BBC HD channel on DTT could hold back, to a limited degree, the further development of competition between different SD channels on the DTT platform. Technological developments and digital switchover mean that, in any event, the number of SD channels on DTT is likely to increase significantly in the next five years.

This potential effect on the availability of SD channels on DTT does not arise for the proposed overnight DTT service, which could make use of the BBC's existing capacity.

## 1.10 Structure of the report

The remainder of this report is structured as follows:

- Section 2 introduces the background to market impact assessments of BBC services, and summarises the approach adopted for this preliminary market impact assessment of the proposed BBC HD channel.
- Section 3 provides an overview of the market context in which the BBC HD channel would operate, focusing on the wider adoption of HD by consumers and broadcasters.
- Section 4 identifies the parts of the supply chain that could be affected by the BBC HD channel, and explains how markets within these parts might be considered for the purposes of competition analysis.
- Section 5 identifies initial hypotheses as to how the BBC HD channel might, through effects on other market participants, have an effect on competition in different areas of the supply chain. It then draws from available evidence to assess the plausibility of these hypotheses. This section also discusses in qualitative terms the potential impacts of the channel on HD and digital take-up.

Sections 2, 3 and 4 essentially provide the method and context for the study. Section 5 contains the analysis which supports the main findings set out in the summary above.

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## 2 Approach to the study

Section 2.1 provides background to market impact assessments, within the context of the new BBC governance arrangements. Section 2.2 describes the scope and focus of this preliminary market impact assessment for the proposed BBC HD channel. Section 2.3 describes the nature of the proposed service that is to be examined, and the scenarios and counterfactual considered in this study.

### 2.1 Background to the assessment

#### 2.1.1 *Market impact assessments are required under the next Royal Charter*

The Royal Charter for the continuation of the BBC was sealed on 19 September 2006. The new Charter will run from 1 January 2007 to 31 December 2016. The Framework Agreement between the Secretary of State and the BBC was approved on 10 July 2006.

Under the new Charter, the BBC Governors are to be replaced by a new body, the BBC Trust. One of the main roles of the BBC Trust is to set the strategy through which the BBC operates in the public interest and, in particular, in the interests of licence fee payers. The BBC Executive Board will be responsible for service delivery and the Trust will hold the Executive Board to account. In particular, each BBC service will have a Service Licence agreed by the Trust, which would specify matters such as the budget, remit and performance targets for the service.

Before launching a new service (or making significant changes to an existing service), the BBC Trust will be required to undertake a Public Value Test (PVT). This will involve an assessment of how a proposed BBC service would contribute to the delivery of public value (taking account of the costs of the service), and an assessment of the market impact of the proposed service.

Ofcom will have responsibility for providing the market impact assessment (MIA), reporting to a steering group representing both the Trust and Ofcom; this group will be responsible for agreeing the methodology and scope of the market impact assessment.

The BBC Trust will have final say as to whether (and how) to proceed with a new service, taking into account the output of the market impact assessment. The Framework Agreement states that, in deciding to launch a new service or change an existing service, the BBC Trust "must be satisfied that any likely adverse impact on the market is justified by the likely public value" of the change. Before the start of the new Charter, the BBC Governors have committed to subject any proposal from BBC management to a PVT if that proposal would qualify under the terms of the new Charter.

Against this background, this report provides a preliminary market impact assessment of the proposed BBC HD channel, in order to inform BBC Management of the key issues likely to be addressed in a full market impact assessment of that proposal under the PVT.

#### 2.1.2 *Previous market impact assessments have considered a variety of effects*

The first PVT concerns an application from BBC Management to launch four new on-demand services. This PVT was formally announced by BBC Governors at the end of August 2006. We understand that BBC Management commissioned a preliminary market impact assessment of the on-demand proposals, as part of its application to the Governors (this was not available for the purposes of this study).

In the last few years, there have been a number of reports on the market impact of BBC services, in particular in the context of government-sponsored reviews of newly-introduced BBC services. The key publicly available studies on the market impact of BBC services are as follows.

**Exhibit 1: Key previous studies on BBC market impact**

Context for study	Author, date	Title / services covered
DCMS approval process for Digital Curriculum	PwC for the BBC, May 2002	Market Assessment of the BBC's Digital Curriculum Proposition
Independent Review of BBC Online  (Graf review)	KPMG for the BBC, June 2003	Market Impact Assessment of BBC's Online Service
	Philip Graf for the DCMS, July 2004	Independent Review of BBC Online
Independent reviews of the BBC's digital-only television and radio services.  (Barwise and Gardam reviews)	Ofcom for the DCMS, October 2004	Assessment of the Market Impact of the BBC's New Digital TV and Radio Services
	Oliver & Ohlbaum Associates for the BBC, March 2004	An Assessment of The Market Impact of the BBC's Digital TV Services  An Assessment of The Market Impact of the BBC's Digital Radio Services"
Independent Review of the BBC (the Burns Committee)	Oliver & Ohlbaum Associates for the BBC, October 2004	The Contribution of the BBC's Core Radio Services 1 to the Overall UK Radio Market to 2014

The public reports on the market impact of BBC services have tended to examine three main types of impact:

- The commercial impact (e.g. £X m reduction in advertising revenue) on various sectors of the market and on specific market participants;
- The impact on competition in relevant markets directly and indirectly affected by the BBC service; and
- The impact, through market-wide effects, on specific government policy objectives such as digital take-up and promotion of the creative industries.

The studies by Oliver & Ohlbaum Associates (O&O) for the BBC on the impact of the BBC digital-only TV and radio channels placed emphasis on seeking to gauge the quantitative impact of the BBC services on aggregate advertising revenues in the commercial sector, and on likely effects on specific near-rival channels. However, the more recent O&O report on the BBC's analogue radio services made a move towards the analysis of competition effects,<sup>1</sup> in line with the approach taken in the Graf review, and subsequently by Ofcom.

A change of focus to effects on competition, rather than on commercial revenues, fits with the spirit of the Government's White Paper on the continuation of the BBC Royal Charter, which identifies that: "The market impact assessment will be critical in considering whether a particular proposal may limit choice for consumers by constraining innovation and development in the wider market" (paragraph 5.3.2).

<sup>1</sup> Oliver & Ohlbaum Associates (2004) *The Contribution of the BBC's Core Radio Services 1 to the Overall UK Radio Market to 2014*, page 1

### **2.1.3 Ofcom's methodology is expected to focus on impacts on the competitive process**

Ofcom has responsibility for providing market impact assessments under the full PVT process. We understand that Ofcom's approach is expected to be broadly similar to that which it adopted for the assessment of the market impact of the BBC's digital-only TV and radio services. That study examined the impacts of these services on digital take-up and on competition and choice in the market. We expect that, in undertaking market impact assessments, Ofcom will give particular attention to impacts on the competitive process, rather than simply the revenues and profits of commercial operators.

This understanding of Ofcom's approach fits with the input we have had from BBC Management.

## **2.2 The nature and scope of analysis in the preliminary MIA**

### **2.2.1 Market impact assessment requires a specific type of competition analysis**

We believe that competition analysis is central to the market impact assessment required under the PVT. However, the appropriate nature of competition analysis is different to that under more standard forms of competition investigation, such as those under EC State aid law and EC and UK competition law:

- An assessment under State aid law would start from the presumption that public funding adversely affects ("distorts") markets and therefore that this funding must be found to be necessary to enable the BBC to deliver on some specific public purpose that it is legitimate for the BBC to pursue. In contrast, market impact assessment under the PVT is the process of testing whether and how public funding affects the operation of different markets, without any objective definition of good and bad or necessary and unnecessary; the results feed into a subjective consideration by the BBC Trust as to whether the service should be launched, taking also into account information on costs (including direct expenditure) and benefits (including direct consumer benefits).
- Under an abuse of dominant position assessment (e.g. Chapter II of the Competition Act 1998), the analysis is tightly focused on consideration of whether an undertaking with a dominant position (e.g. a monopoly) on a relevant market has used its economic power in a manner that distorts competition or unfairly exploits consumers. Under a market impact assessment, the question is not whether the use of economic power would unfairly exclude other market participants, but whether competition in a relevant market might be harmed simply by the BBC providing a good service for free to consumers in that market, or in a related market.

Nonetheless, two themes from wider competition analysis are particularly useful for the market impact assessment of BBC services:

- Application of the analytical techniques used to identify markets and potential competitive constraints, as an approach to understand the nature and effectiveness of competition in different parts of a supply chain; and
- A distinction between harm to an individual competitor operating in a market (e.g. smaller market share or lower profit) and harm to the competitive process in that market, which might impede that market's ability to deliver the services that consumers in that market want (and will want in the future).

Analysis of potential harm to competition is necessarily more qualitative than an exercise focused on the estimation of the £X m diverted from commercial rivals as a result of audiences being attracted to the BBC service. Impacts on competition in a relevant market are changes in the nature and effectiveness of particular forms of competition and so the outputs from that analysis are descriptive rather than numeric. Even so, evidence on expected financial losses to other market participants can be relevant to understanding whether competitive impacts that have been suggested are plausible, thereby providing an intermediate step to analysis of competitive effects.

### **2.2.2 The focus of this MIA is on potential competitive effects**

In a full market impact assessment, examination of the potential impacts on competition of a BBC service will involve analysis of evidence about how a proposed BBC service is likely to affect the abilities of other market players to earn the commercial revenues needed to justify the supply of particular services, and evidence about whether changes to supplier behaviour could, in turn, lead to harm to particular forms of competition on the market, potentially to the detriment of consumers in those markets.

For the purposes of this preliminary assessment it was not possible to gather and analyse the data necessary to examine these potential effects in detail. Compared to a full market impact assessment, the analysis is limited in at least two main ways:

- For the preliminary market impact assessment, the analysis of effects on other market participants is more qualitative. For instance, in a full study, it might prove effective to use relevant analysis of the elasticity of demand in advertising markets to gauge the likely revenue impact of a BBC service on specific types of programming offered by the commercial sector; this is beyond the scope of the preliminary assessment. We have, therefore, used available evidence to understand the likely nature and directions of financial impacts on commercial operators, and where these might be most severe, without attempting to obtain robust quantitative estimates of financial impacts within the supply chain.
- For the preliminary market impact assessment, the analysis of how effects on other market participants may feed through into effects on competition is directed at identification of potential impacts, rather than the development of firm conclusions on what effects on competition would be experienced if the BBC service was taken forward. In part, this is because of the qualitative nature of the analysis of effects on other market participants. It is also because there is not time for any focused examination of consumer preferences and patterns of substitutability: reasonable propositions about the scope of relevant markets and the nature of competition can be identified but not tested in detail.

### **2.2.3 Impacts considered beyond competition**

We have also considered, in qualitative terms, the potential of the BBC HD channel on HD and digital take-up. These are indirect effects of the BBC HD channel that work through the wider market, and might be relevant to the BBC Trust's evaluation of the proposed service.

## **2.3 The proposed service, counterfactual and scenarios considered**

We set out below the nature of the service considered in the market impact assessment, the counterfactual we have assumed, and the different scenarios we have examined for how the service would be distributed to viewers.

### **2.3.1 The BBC HD channel would be based around a nine-hour schedule**

The proposed BBC HD channel would be a twenty-four-hour transmission with a nine-hour, core programme schedule, with some flexibility around live sport, music and national events. The remaining hours per day would contain a promotional loop. The channel would be a mixed genre service comprising high-end factual, drama, live sport, films, comedy and children's programming. It would showcase, in HD, content commissioned for existing BBC services: in particular, for BBC One and BBC Two; but it would also include some output from BBC Three, BBC Four, CBBC and CBeebies.

The nine hour core schedule would be broadcast between 3pm and midnight. The aim would be to simulcast a significant proportion of the peak time schedule with existing BBC SD services, primarily BBC One, which will make it easier for audiences to find the HD programmes. The aspiration is that:

- At least 50% of the schedule would be made up of programmes transmitting on BBC HD service for the first time. These would be complemented by narrative repeats and by around 30% of archive repeats.
- Less than 5% of originations will be acquired specifically for BBC HD.
- Less than 20% of originations (averaged over the year) will be sport and acquired film and, in these genres, only programmes commissioned for existing BBC channels would be shown. The exception would be during major sports tournaments or events — for example, the Olympics, World Cup or music festivals — when the proportion of specialist coverage would increase significantly in line with the BBC's public service responsibility.

At launch in 2007, the BBC HD channel would comprise a core of approximately three to five hours a day of mixed genre HD programming (primarily drama and factual), plus other genres such as comedy, live sport and acquired films. The remaining 19 to 21 hours would be mainly filled by the 'barker'. Between mid-2007 and 2008, the core schedule hours would increase from three to four per day to five or six per day. By late 2008, the aspiration is to reach eight or nine hours per day (these assumptions are based on a declining number of repeats and archive content, as more HD content become available). As it develops, the channel would also continue to widen its genre base — to include, for example, entertainment and leisure programmes — which would extend viewer choice and help reduce the level of repeats and the reliance on archive content.

### **2.3.2 An overnight four hour service would initially be offered on DTT**

Because of capacity constraints on DTT, the BBC proposes to operate the channel, at least initially, as a non-live service, which would be broadcast overnight and intended for viewing on a time-shifted basis. This arrangement would work broadly as follows, from a launch in late 2007.

- On DTT, the BBC would, between the hours of 2am to 6am, offer up to four hours of the best of BBC HD non live content. The content would mainly be drawn from BBC1 and BBC2, with more limited material from BBC3 and BBC4.
- The intention is that the programming would mostly be recorded by households with HD-capable PVRs, who could then watch it on a time-shifted basis, including, if desired, at the same time as the SD simulcast (e.g. the broadcasting of the same programme on BBC One). For instance, taking an example from current programming, the next episode of Robin Hood, scheduled for transmission on BBC1 at 7pm on Saturday, would be played out in HD at 2am on Saturday morning. For households who have recorded the HD transmission, it would be available for time-shifted viewing, and could be watched in HD at the same time as the BBC1 SD transmission that Saturday evening.

The BBC's preference — and ambition — is to subsequently launch the full nine-hour channel on DTT, on a region-by-region basis, if new spectrum becomes available as part of digital switchover.

### **2.3.3 We consider the potential impact for a constant service proposition**

The timeframe for the preliminary market impact assessment is 2007 to 2012.

As indicated above, the channel proposition is expected to develop over time, as a result of the increasing amount of BBC programming (especially BBC One programmes) produced in HD. At the start of the period, the core schedule would comprise three to five hours per day.

For the purposes of our analysis, we have made the simplifying assumption that the full nine hour channel, as envisaged for late 2008, would operate across the 2007 to 2012 timeframe (apart from on the DTT platform), and that the channel's content would remain constant over the five year period. This is consistent with the approach taken in Spectrum's forecasting of the reach and usage of the channel.

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We do not believe that this simplifying assumption would substantially affect the results of the market impact assessment.

### **2.3.4 *The counterfactual for the analysis is that there is no BBC HD channel***

The market impact assessment is undertaken by considering the impact of the launch of the BBC HD channel, compared to the counterfactual that the BBC launches no HD channel before 2012.

To enable the preliminary market impact assessment to be manageable, and to remain focused on the impact of a specific service proposition, rather than the more general impact of BBC activity in the market, we do not consider what alternative expenditure the BBC might incur, if it did not launch the HD channel. We therefore ignore any potential market impacts associated with alternative services that the BBC might spend money on instead of the proposed HD channel.

### **2.3.5 *We consider alternative scenarios for how the channel would be distributed on DTT***

There is uncertainty surrounding distribution on DTT. On satellite and cable (and potentially IPTV), the BBC would distribute the full nine-hour BBC HD channel. But, as noted above, the BBC HD channel would initially launch on DTT as an overnight transmission between 2am and 6am.

Our baseline scenario for DTT distribution is that the BBC operates only the overnight BBC HD service on DTT during our timeframe, i.e. 2007 to 2012.

However, the BBC's preference — and ambition — is to be able to launch the full nine-hour channel on DTT if new spectrum becomes available as part of digital switchover. We consider, as a sensitivity analysis in Section 5, the potential market impact of the BBC launching the full nine-hour HD channel on DTT, on a region-by-region basis, as digital switchover takes place between 2008 and 2012.

### 3 Market context

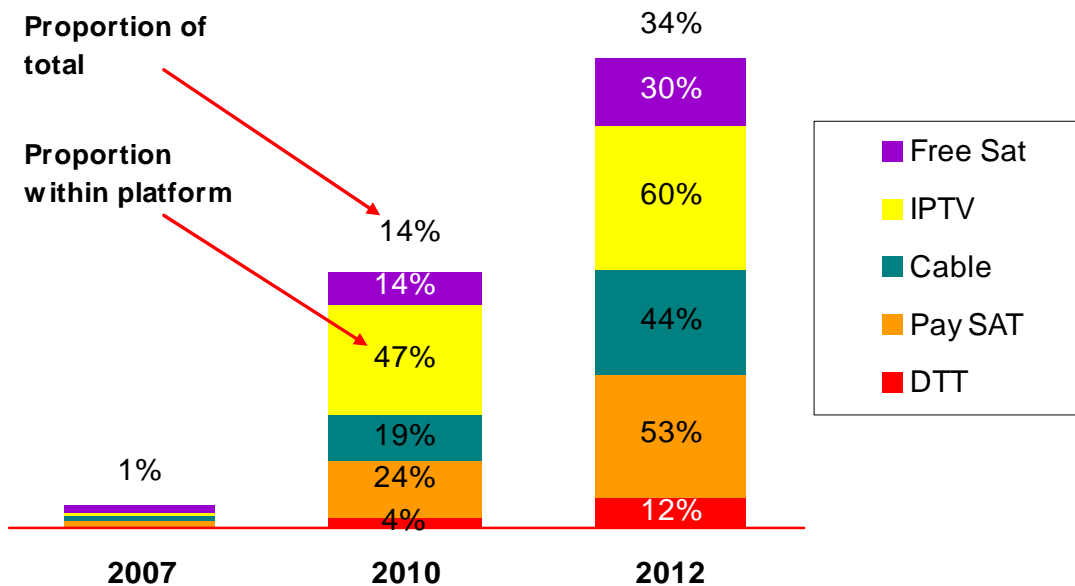
The key market trends relevant to the preliminary market impact assessment for the proposed BBC HD channel are the expected take-up of HD technology by households, and the potential launch of HD channels by broadcasters other than the BBC. This section provides some background on these points, but it should be recognised that both areas are subject to considerable uncertainty.

#### 3.1 The projected growth of HD-enabled households

Forecasting the take-up of HD technology by households has been part of the modelling undertaken by Spectrum for BBC Management, on the potential reach and usage of the BBC HD channel. For the purposes of the market impact assessment, we have drawn on that analysis. Headline forecasts are as follows — under the baseline scenario in which only the four-hour overnight BBC HD service would be operated on DTT up to 2012 — and are illustrated in Exhibit 2:

- By 2012, around 34% of TV households are forecast to be HD-enabled, up from 14% in 2010 and from 1% in 2007.
- Take-up rates are expected to be highest for pay platforms: by 2012, 60% of households on IPTV platforms are forecast to be HD-enabled, with 53% of pay satellite households HD-enabled and 44% of cable households HD-enabled.
- On the free platforms, the forecast is for 30% of households on the free-to-air satellite platforms to be HD-enabled, and 12% of DTT households to be HD-enabled.

Exhibit 2: Proportions of HD-enabled households and proportions on each platform



Source: Spectrum

## 3.2 The potential launch of HD channels by other broadcasters

### 3.2.1 2006 saw the launch of the first HD channels in the UK

ITV, Channel 4 and Five have joined the BBC in the HD trial, broadcasting a limited amount of HD content, but this is not expected to automatically lead to the launch of HD simulcasts or other HD versions of these broadcasters' main channels.

Sky launched its pay-TV HD package in mid-2006. This currently provides subscribers paying £10 per month (plus an initial fee for the STB and installation) with access to:

- Sky One HD, two Sky Sports HD channels, four movie channels (two pay-per-view, two standard);
- Discovery HD, National Geographic HD, Artsworld HD;
- the BBC's trial HD service; and
- the initial trial offerings from ITV, Channel 4 and Five.

HD programming is also available on cable, though NTL Telewest's TVDrive service, including the current BBC and ITV trials, as well as on-demand HD content such as movies. Sky's HD channels are not currently available though cable.

### 3.2.2 There is considerable uncertainty as to the HD plans of other broadcasters

Based on five- to seven-year equipment replacement cycles, and since a significant amount of production is already in HD, we expect HD to be the standard for the production industry by around 2012 to 2014. Nonetheless, it is not a direct implication of this that HD versions of all channels will exist by that time, because of the additional costs of HD distribution, especially on DTT. We expect a mixed SD and HD ecology to exist for some time beyond this.

It is highly uncertain when other major channels such as ITV and Channel 4 will launch HD channels. At this stage, these broadcasters have not made their plans public, although the participation in the BBC's HD trial shows some degree of interest.

There has been some speculation about further launches of thematic HD channels. There were reports in August 2006 that Eurosport plans to launch a pan-European HD sports channel, and is in discussion with platform operators in countries including the UK, France and Germany.<sup>2</sup> There were also reports at the end of 2005 that the History Channel would launch an HD version,<sup>3</sup> although no such channel was included with the launch of the Sky HD package.

In the absence of evidence on other broadcasters HD plans, we have undertaken some very high-level analysis. This suggests that commercial PSBs may not launch free-to-air HD channels whilst HD penetration is very low, and therefore that the BBC HD channel could be the only free-to-air HD channel in the near term.

### 3.2.3 It is possible that commercial PSBs may wait before launching HD channels

Of the commercial PSBs, ITV might be most willing to offer a full HD channel on an advertising-funded basis. At a simplistic level, for an advertising-funded HD channel to work, the costs must be justified by *additional* viewers that would be attracted to the broadcaster's channels (e.g. because of the greater appeal of HD than

<sup>2</sup> "Eurosport plans HD channel", *Broadband TV News*, 3 August 2006.

<sup>3</sup> "History Channel planning HD service", [www.digitalspy.co.uk](http://www.digitalspy.co.uk), 23 December 2005.

SD content). Because ITV1 has the highest share of viewing of commercial channels, ITV is probably in the strongest position to recover the incremental costs of distributing a HD version of its main channel through additional revenue from additional advertising impacts. We therefore consider, in very simple terms, how the business case for “ITV1 HD” could be HD-penetration, before drawing tentative implications for Channel 4 and Five.

The basis for our analysis is the somewhat simplified hypothesis that, to launch “ITV1 HD” on an advertising-funded basis, ITV would need to expect to generate sufficient extra advertising impacts amongst those households who are HD-enabled to recover the fixed costs of broadcasting “ITV1 HD”. We therefore combine data on ITV1’s current advertising revenue with estimates of these costs, and calculate the increase in advertising impacts that would be required in HD-enabled households under different assumptions about the proportion of HD-enabled households.

We have used a rough approximation of the annual cost of distributing a channel in HD on satellite and cable, based on BBC estimates.<sup>4</sup> We have excluded DTT from initial consideration because the immediate choices that broadcasters face is whether to launch on satellite and cable, with DTT likely to be an option in the longer term, given the DSO timetable. We have also excluded any costs of commissioning HD content, and assumed that, like the BBC, ITV will see some benefits in starting to produce HD content and that these can therefore be separated from the costs of broadcasting an HD channel. Since we do not know what ITV’s plans are for HD production, the analysis below might therefore ignore some costs that ITV might incur were it to launch an HD channel.

If “ITV1 HD” were to be launched, there could be some effect on the market price of advertising impacts. However, for small changes to the volume of impacts on one channel, this price effect would be small. We have omitted this from our high-level analysis: we assume that increases in the volume of impacts achieved by ITV, by launching an HD version of ITV1, would not reduce the average price of TV advertising impacts.<sup>5</sup>

Exhibit 3 (overleaf) sets out the calculations for different scenarios for penetration of HD-enabled homes.

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<sup>4</sup> This annual figure is approximately the annual average of the BBC estimate of the cumulative five-year costs for the proposed HD channel (under the following headings: Payout, Connectivity, Marketing, Repeats, Team and Distribution on satellite and cable). Due to very high nature of the analysis above we have not taken account of the time profile of costs (e.g. capex versus opex) or examined a hypothetical five-year business plan for “ITV1 HD” based on revenues growing over time.

<sup>5</sup> During the development of our analysis we also considered how relaxing this assumption — and using Ofcom estimates of the price elasticity of demand for traditional advertising airtime — would affect the results. In this case, slightly higher uplifts to viewing time are required to cover costs, as increased viewing is partially offset by falling prices. The price effects would be low, given that the additional impacts would be small in proportion to the total number of commercial advertising impacts. We found that this might lead to small changes, of between 2% and 11%, to the “required uplift” results presented in Exhibit 3. At the very high level of analysis undertaken on “ITV1 HD”, this difference is small, and developing the analysis in this direction could risk spurious accuracy. The inferences drawn from our analysis are nonetheless robust to consideration of such price effects.

**Exhibit 3: Estimate of required increase in ITV1 impacts to cover HD costs**

	Calculation / source	5% HHs HD-enabled	15% HHs HD-enabled	30%HHs HD-enabled
ITV1 Net advertising revenue, 2005	[1] (ITV accounts)	£1,462,000,000		
Annual costs of distributing HD channel on satellite and cable	[2] (BBC estimates)	£9,500,000		
Percentage increase in ITV1 revenues to meet HD costs	[3] = [2] / [1]	0.6498%		
Assumed proportion of HD-enabled households	[4]	5%	15%	30%
Percentage increase in ITV1 revenues in HD-enabled households required to meet HD costs	[5] = [3] / [4]	13.00%	4.33%	2.17%
Required increase to volume of ITV1 impacts in HD-enabled households to cover HD costs	[6] = [5]	<b>13.0%</b>	<b>4.3%</b>	<b>2.2%</b>

Source: Reckon/Spectrum

Although we have not identified directly relevant sources of external evidence to indicate what magnitude of up-lifts to viewing an HD version of ITV1 would bring to ITV, it seems far from clear that HD-enabled viewers would be expected to spend 13% more time each week watching ITV1 than they currently spend watching ITV1, just because ITV1 is simulcast in HD. This suggests that it is not clear that ITV would launch a HD channel before the number of HD-enabled households rises above 5%. Based on the forecasts of HD-enabled households in Exhibit 2, this suggests that, despite ITV's current involvement in the HD trial, ITV may delay the launch of a channel such as "ITV1 HD" beyond 2007.

Thinking further ahead, if 30% of households were HD-enabled, the high-level analysis above suggests that ITV would require an increase in viewing of only two or three percent to cover HD costs. This seems feasible. With forecasts of HD-penetration over 30% by 2012, (see Exhibit 2), there is a good argument that ITV will have launched an HD version of its main channel on a free-to-air basis by 2012.

Care is needed in interpreting these figures. A number of important assumptions have been made; in particular:

- The costs of producing HD content have been excluded;
- The analysis above is static, and we have not considered, for instance, a five-year business plan for "ITV1 HD" in which costs would be recovered more towards the end of the period;
- The revenue potential of "ITV1 HD" beyond net advertising revenue has been ignored (e.g. sponsorship), and no account has been taken of any brand-value that ITV may gain from early entry to HD; and
- We have assumed that "ITV1 HD" would capture similar demographics to ITV1, so that the average price of impacts on both channels would be the same, but early HD adopters may be worth more to advertisers.

It would therefore be wrong to draw any firm conclusions from the analysis above. Even so, it illustrates how the launch of advertising-funded HD channels is not simply dependent on the availability of HD content.

It is possible that ITV could justify an earlier launch of a channel showing HD programming if it were to include the channel as part of a HD subscription package offered on satellite or cable and earn revenue from pay-TV

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retailers as well as advertisers. However, it is beyond the scope of the high-level analysis above to try to assess the willingness of pay-TV package providers to pay ITV to offer such a channel.

Channel 4's advertising and sponsorship revenue was around £725 million, and Five's revenue was around £324 million, in 2005.<sup>6</sup> These channels would therefore need to achieve a significantly higher proportionate increase in their current advertising revenues in order to meet the same costs of HD distribution as ITV1. The arguable lack of a strong business case for ITV1 HD in the near term (e.g. with HD penetration below 5%) therefore extends, more strongly, to HD versions of Channel 4 and Five.

### **3.2.4 Implications of this uncertainty for the preliminary market impact assessment**

Because of the high-level nature of the analysis above, and uncertainty about how many extra viewers HD versions of the major SD channels would attract, we do not have enough evidence to form views on when other PSBs can be expected to launch HD versions of their main channels. For the purposes of the preliminary market impact assessment, it is not essential to obtain a firm position on these points: it is sufficient to recognise that there is a reasonable argument that the BBC could be several years ahead of the other PSBs in launching a dedicated HD channel on any platform (even if the others make some HD content available on an occasional basis, or on an on-demand basis through cable and IPTV).

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<sup>6</sup> Ofcom (2006) *The Communications Market 2006*, page 202.

## 4 Market definition and supply chain analysis

Section 4.1 introduces the role of market definition in market impact assessment. Section 4.2 identifies parts of the supply chain that could be affected by the proposed BBC HD channel. Section 4.3 overviews how markets within these parts of the supply chain might be considered for competition analysis.

### 4.1 The role of market definition analysis in the preliminary MIA

Market definition analysis, to identify “relevant markets”, is a tool developed in investigations under merger regulation and competition law. Case law in some areas (such as abuse of a dominant position) has developed to the stage where a market definition exercise is almost an essential legal requirement for the competition authority undertaking a competition assessment. There is no settled precedent on the precise role of market definition for the purposes of a BBC market impact assessment and such assessments are different in some important ways to a competition law investigation. Nonetheless, the terminology of market definition seems to have become established within the area of market impact assessment.

The introduction of competition law concepts to market impact assessment reflects a concern in market impact assessment about potential effects on the competitive process.

The recently approved Framework Agreement between the Secretary of State and the BBC specifies the process for the market impact assessment required under the Public Value Test.<sup>7</sup> Clause 29(5) requires the Joint Steering Group for the market impact assessment to agree the “potential relevant markets for the assessment”, after considering advice from Ofcom. The market impact assessment should then report on each potential market in the absence of agreement by the Group to do otherwise.

However, Ofcom has indicated that the identification of potential relevant markets required at the start of the market impact assessment process may be different to the definition of relevant markets under a competition law investigation. In relation to the market impact assessment for the proposed BBC HD channel, we expect that Ofcom will view the market definition stage as more of a scoping exercise, intended to specify what areas of the supply chain need to be considered for potential impacts of the proposed BBC service, and what areas can safely be excluded from the assessment. The areas to be considered, on the basis of Ofcom’s analysis, might include the part of the supply chain in which the BBC service would operate directly, as well as parts that may be affected more indirectly. Ofcom is likely to recognise that the supply chain needs to be examined from the perspective of competition analysis, and that it is helpful if the broad identification of markets can draw on the analytical techniques that are used for market definition analysis in competition law investigations. But Ofcom will probably conclude that the level of detail required of a scoping stage is different from that required in, for instance, an analysis of whether a firm has abused a dominant position.

We do not necessarily accept this view on the differences in market definitions. However, as we understand that Ofcom is likely to adopt this approach, we have also adopted it for the purpose of this preliminary market impact assessment, for the sake of consistency.

We therefore see “market definition” analysis as relevant this market impact assessment in two ways:

- An identification and high-level description of the broad types of market across the supply chain, in order to then allow consideration of the main areas of the supply chain that should be examined in more detail for the purposes of the market impact assessment.

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<sup>7</sup> DCMS (2006) *An Agreement Between Her Majesty’s Secretary of State for Culture, Media and Sport and the British Broadcasting Corporation*.

- An opportunity for market definition issues to be considered in more detail as part of the subsequent assessment of potential effects on competition in these particular areas of the supply chain.

The remainder of this section is focused on the first stage. The preliminary assessment of potential impact in Section 5 reflects analysis involving consideration under the second stage.

## 4.2 The relevant supply chain for the BBC HD channel

For competition analysis, the focus is on economic transactions between buyers and sellers. This requires a different type of supply chain to that which identifies activities and describes a production process in physical terms — e.g. from creation to consumption.

In order to represent the high-level broadcasting supply chain for competition analysis, it is helpful to abstract from certain realities of the market, in particular the mixed degree of vertical integration (e.g. the BBC as a broadcaster of content and a producer of content) by scoping the supply chain in terms of generic types of operator at different levels. The aim is to allow the different levels of the supply chain to come out clearly in terms of potential supply to a set of markets and potential purchases from a set of markets. At a later stage, when examining potential competitive effects in those broad markets, the realities of vertical integration and variations between suppliers can be taken into account.

Exhibit 4 (overleaf) represents an initial view of the high-level supply chain. The ovals are intended to represent broad types of markets: within each of these, there may be a number of separate relevant markets, each of these sharing a similar place in the supply chain in terms of the nature of supplier to that market and the nature of purchaser from that market. Suppliers, purchasers and consumers are represented as rectangles, and relate to very generic notions of actual market participants.

The market types presented in bold are those that feature more prominently in the discussion of potential effects on competition in Section 5.

## 4.3 The nature of relevant markets within the supply chain

The following sections introduce each of the broad types of market shown in Exhibit 4, and provide an initial discussion of market definition issues that might be relevant to a competition analysis within each of those broad markets. The categorisation used is neither comprehensive nor universal, but should provide a good starting point for subsequent analysis.

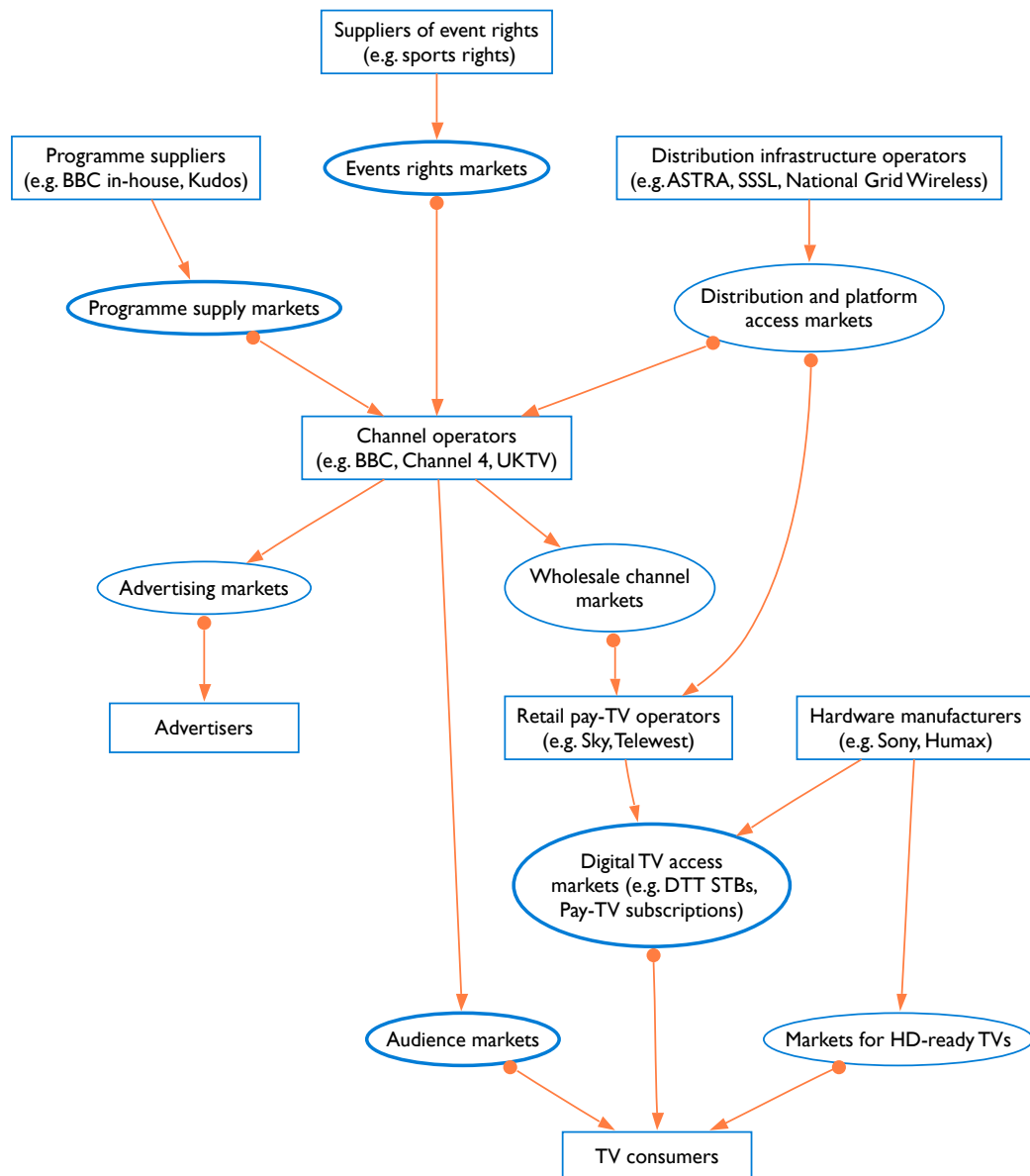
### 4.3.1 Audience markets

The markets most directly affected by the BBC HD channel are audience markets. Audience markets capture the competition that takes place between different suppliers of content to the final viewer. They are related to, but separate from, markets for the supply of access to digital TV services (e.g. pay-TV subscriptions, and Freeview STBs).

Except in the case of pay-per-view content, audience markets do not involve monetary exchange. They concern the economic exchange through which content is supplied to the viewer, for free, and the supplier benefits because of a desire to attract an audience's attention or eyeballs.

Despite the absence of payments in audience markets, competition takes place in these markets and they are, therefore, relevant for the purposes of competition analysis. Competitive constraints in this market type are determined principally by viewers' attitudes to different content, and in particular their propensity to substitute between alternative programming in response to small changes in the quality of that programming.

Exhibit 4: High-level supply chain within which the BBC HD channel would operate



Source: Reckon/Spectrum

Without detailed evidence on viewer behaviour, it is very difficult to develop a firm view on the scope of the audience markets that are relevant to a particular channel, or to particular types of programming. Nor is there directly relevant precedent in competition law. For the purposes of this preliminary market impact assessment, we have therefore taken an open-minded view of how competition in audience markets might be considered, recognising that audience markets could be quite narrowly or quite broadly defined:

- At one extreme, there is an argument that some content is offered to audiences in narrow markets. For instance, certain programming, such as a live top-tier football matches, may have no substitutes in viewers' eyes, such that if viewers do turn away from watching that programming they would be expected to turn away from watching TV rather than switching from this to a soap or documentary on another channel.

- At the other extreme, some content might be offered in broad markets, where consumption is driven simply by viewers' desire to watch television at a particular time of day, rather than to see a specific programme or type of programme.

Most content will fall between these extremes. For the purposes of the preliminary market impact assessment, there is some logic in considering markets defined by different genres of content as an initial approximation. This would capture the idea that there is more active viewer substitution and, hence, more intense competition between different factual programmes than between factual and other genres, such as sports.

### **4.3.2 Advertising markets**

Advertising markets describe the type of markets in which suppliers of content to viewers are then able to supply advertising impacts to firms wishing to advertise to those viewers. The supplier can be seen as offering access to the attention of an audience. Advertising markets might include advertising opportunities on different media (e.g. radio, billboard), although there is an argument that TV provides something different from other media, and so competition may be focused between different suppliers of TV impacts to similar demographics.

### **4.3.3 Digital TV access markets**

Digital TV access markets describes quite a diverse set of markets, in which TV consumers buy services that provide them with access to particular types of TV content in audience markets.

There are two main types of supplier within this part of the supply chain:

- Suppliers of pay-TV packages (e.g. subscriptions to Sky World)
- Suppliers of consumer hardware providing access to digital TV (e.g. a Freeview-branded STB)

At this level of the supply chain, the way that relevant markets would be defined is quite complex.

From the perspective of suppliers of hardware such as Freeview STBs, the availability of similar supply from a number of different hardware manufacturers is likely to mean that direct competitive constraints exist between different manufacturers of STBs. The availability of pay-TV subscriptions is unlikely to be of direct relevance to the competition between these suppliers (even if it affects the overall size of that market). The supply of STBs providing access to free satellite services may or may not feature in the same market.

From the perspective of suppliers of pay-TV subscriptions, it is possible that the availability of DTT or satellite reception equipment (on a non-subscription basis) provides a competitive constraint, especially for basic tier packages. Alternatively, some pay-TV subscriptions packages may not face competitive constraints from other services, or be supplied in narrow markets for pay-TV subscriptions that allow access to content for which there is very specific demand for (e.g. premium sports and movies).

### **4.3.4 Markets for HD-ready TVs**

The supply of HD-ready TVs also concerns the supply of consumer hardware for reception of TV broadcasts. This is distinguished from digital TV access markets because, in general, there is no real prospect of competitive constraints between the supply of TVs and the supply of STBs and pay-TV subscriptions. However, the supply of integrated digital TV sets is an exception: these sets provide access to digital TV services (e.g. Freeview) as an alternative to a standalone STB, and this means that they might be relevant to analysis of digital TV access markets.

#### **4.3.5 Wholesale channel markets**

Wholesale channel markets cover markets for the provision of TV channels to suppliers of retail pay-TV services, i.e., for inclusion in their pay-TV packages. Some channel operators face a choice between broadcasting on satellite on a free-to-air basis (and then buying platform access services such as EPG listing and transmission services themselves) and arranging a deal with Sky for the inclusion of their channel in an encrypted package, with Sky perhaps paying the channel operator a fee. Carriage negotiations between channel operators and cable companies also feature within the same types of markets.

#### **4.3.6 Distribution and platform access markets**

Distribution and platform access markets cover the supply of services by broadcasting infrastructure operators which enable content providers to reach effectively their target audiences. This includes markets for services such as the supply of conditional access, EPG listings, and DTT and satellite capacity. Relevant markets within this category may be quite narrowly defined, reflecting the potentially limited substitutability between different infrastructure services.

#### **4.3.7 Programme supply markets**

Programme supply markets capture markets for the supply of programming to channel providers, for inclusion on a channel's schedule. Relevant markets might be defined reasonably narrowly on the demand-side, because channel operators purchasing from these markets have quite specific programming demand in mind when commissioning content, and are unlikely to switch to different genres of content in response to small variations in the price of certain types of programming. Similarly, on the supply side, programme suppliers may specialise in particular areas or genres.

#### **4.3.8 Event rights markets**

Event rights markets cover markets for the supply of rights to events (e.g. football matches) that are needed to allow specific types of programming to be created and broadcast. In some cases, relevant markets within this category may be narrowly defined, reflecting focused competition between bidders for a specific set of rights. In other cases, purchasers may exhibit substitutability between different packages of rights and between rights to different genres of events.

#### **4.3.9 Other markets**

It would be possible to identify a range of other market types. For instance, services associated with playout of programming, and with hardware for programme supply are not covered above. There might also be interactions between the types of market introduced above and the supply of content from outside of the television supply chain (e.g. DVD sales, online content). However, for this preliminary assessment, we have not identified any hypotheses of competitive effects or other types of market impact that justify widening the frame of analysis beyond that provided above.

## 5 Potential market impacts in the supply chain

This section identifies initial hypotheses as to how the BBC HD channel might, through effects on other market participants, have an effect on competition in different areas of the supply chain. It then draws from available evidence to assess the plausibility of these hypotheses. The section also discusses, in qualitative terms, the potential impacts of the channel on HD and digital take-up. It includes, at the end, a sensitivity analysis for the alternative scenarios concerning the form the proposed BBC HD channel would take on the DTT platform.

### 5.1 Overview of the potential market impacts analysed

#### 5.1.1 Hypotheses of competitive effects considered in this section

This section sets out our hypotheses about the potential competitive effects selected for further examination as part of this study.

Increases in the BBC's market share, within an otherwise unchanged market, may well be an expression of competition within that market, rather than evidence of harm to the competitive process in that market. The identification of potential effects on competition is a matter of establishing whether it is plausible that the nature and effectiveness of competition is likely to be changed in different parts of the supply chain.

Hypotheses about the effects of BBC services on competition are usually associated with links between different markets. BBC services could have an impact through their effects on markets in which the BBC does not operate directly. For example, the launch of a new BBC channel could make it harder for commercial broadcasters to capture audiences in audience markets which could, in turn, reduce the attractiveness to commercial broadcasters of supplying particular types of content to viewers — because the necessary investments in programming would no longer justify the revenues expected in related advertising markets. This effect could impact on competition in audience markets, depending on the market conditions.

Exhibit 5 introduces the initial hypotheses that we examine, in turn, in Section 5. The “market type” shows the part of the supply chain that could be affected, and the table suggests different theories of how effects on other market participants may feed through to effects on competition in particular markets.

**Exhibit 5: Initial hypotheses of competitive effects examined in Section 5**

Market type	Potential effects on other market players	Initial hypothesis of potential competitive effect identified for further examination
Audience markets	<ul style="list-style-type: none"> <li>Loss of audience by other channels to BBC HD channel, especially in areas of content where HD is compelling for viewers</li> <li>Other channels' willingness to invest in these areas of content is reduced</li> </ul>	<ul style="list-style-type: none"> <li>Hypothesis that the BBC HD channel could reduce competition in supply of niche areas of SD content (e.g. wildlife, high-end drama)</li> </ul>
Digital TV access markets	<ul style="list-style-type: none"> <li>Availability of BBC HD channel on free-to-air satellite increases consumer demand for STBs providing access to free-to-air satellite</li> </ul>	<ul style="list-style-type: none"> <li>Hypotheses that the BBC HD channel could help competition in market for access to free-to-air satellite services to develop</li> </ul>
Programme supply markets	<ul style="list-style-type: none"> <li>The BBC requires more of its commissioned content to be in HD</li> <li>Some independent production</li> </ul>	<ul style="list-style-type: none"> <li>Hypothesis that the BBC HD channel could lead to a loss of competition in programme supply</li> </ul>

Market type	Potential effects on other market players	Initial hypothesis of potential competitive effect identified for further examination
	companies are precluded from supplying this to the BBC until their HD capabilities develop	markets
Events rights markets	<ul style="list-style-type: none"> <li>The BBC's demand for the rights to certain events (e.g. sports) increases in cases where HD makes a large difference to viewer appreciation</li> <li>Fewer rights are won by the commercial sector, e.g. other PSBs</li> </ul>	<ul style="list-style-type: none"> <li>Hypothesis that the BBC HD channel could lessen competition in bidding markets for certain events rights</li> </ul>
Audience markets (in scenario where full HD channel on DTT)	<ul style="list-style-type: none"> <li>BBC use of spectrum for HD channel reduces capacity for other SD channels on DTT</li> </ul>	<ul style="list-style-type: none"> <li>Hypothesis that the BBC HD channel could lead to lessening of competition between SD broadcasters on DTT</li> </ul>

### 5.1.2 Other potential market impacts considered

The focus of this preliminary market impact assessment is potential impacts on competition. In addition to the potential competition effects identified above, we have considered, in qualitative terms, how the BBC HD channel might contribute to the take-up of HD services and also digital television.

### 5.1.3 Potential effects in the supply chain not taken forward for further analysis

Some other potential impacts on players in the supply chain might arise from the launch of the proposed BBC HD channel, but have not been examined further in this preliminary market impact assessment.

As discussed in Section 5.3 below, it seems likely that the proposed BBC HD channel would increase the proportion of HD-enabled households. This might be argued to have some knock-on effects across the supply chain. In particular, a greater proportion of HD-enabled households could, all else equal, make it more attractive for other broadcasters to launch HD channels, because the potential viewer-base of these channels would be greater. We have not examined this in further detail for a number of reasons.

There is considerable uncertainty about the HD plans of other broadcasters and about the magnitude of any effects of the BBC channel on HD take-up. With uncertainty over what other HD channels might launch in the period 2007 to 2012, it is difficult to gauge how any effects of the BBC HD channel could affect the timing of other channels' entry and, then, how this timing effect could affect the competitive process. This is particularly so in light of the potential counter-argument that, with the BBC HD channel meeting some of viewers' demand for HD content, HD-enabled viewers' appetite for further launches of HD channels could be reduced; this could off-set the effect of the BBC HD channel paving the way for entry of other HD channels by increasing the number of HD-enabled households. Against this background, we do not examine below any market impacts from the BBC HD channel affecting the timing of launches of other HD channels or packages.

## 5.2 The potential for effects on competition in audience markets

It seems unlikely that the launch of the BBC HD channel would pose a major threat to the competitive process in audience markets in the television sector. However, some more subtle effects on investment and the nature of competition in this area of the supply chain are plausible, given the possibility that the BBC HD channel could be launched several years ahead of other major broadcasters, such as ITV and Channel 4, launching HD channels.

The proposed BBC HD channel could affect the programming decisions of rival SD broadcasters, in particular their willingness to commission new programming in areas where similar programming on the BBC HD channel has strong viewer appeal because it is in HD. Because viewers may have specific demands or appetites for programming in some of those areas (e.g. high-end wildlife), there could be a loss of focused competition in commission and then scheduling such content. But these effects should not be overstated: with relatively low levels of HD-penetration the decisions of SD broadcasters are unlikely to be greatly disturbed by the BBC HD channel.

Any impacts on competition of this nature also seem dependent on there being a significant lag between launch of the BBC HD channel and the entry of HD channels of the commercial PSBs. This is an area of considerable uncertainty. Once other PSBs have launched HD channels, these subtle effects would largely be neutralised.

The basis for these preliminary findings is explained in more detail below.

### **5.2.1 *The BBC HD channel can be expected to draw some audience from other channels***

A central assumption for this element of the market impact assessment is that the launch, in 2007, of the BBC HD channel could mean that the BBC would be making significant amounts of HD programming available several years before other major broadcasters, such as ITV and Channel 4. This may not happen, in which case the effects of the BBC HD service in audience markets would be considerably dampened. But, as discussed in Section 3, such a scenario seems sufficiently possible to justify consideration.

The proposed BBC HD channel would gain market share, in the main, by cannibalising audiences from other BBC channels. This potential source of audiences has formed the basis of Spectrum's forecasts of the usage of the HD channel, which contributes to BBC Management's assessment of the potential public value of the channel; these forecasts are shown in Exhibit 6.

#### **Exhibit 6: Indicative forecasts of BBC HD channel share of audience 2007-2012**

**[Chart redacted]**

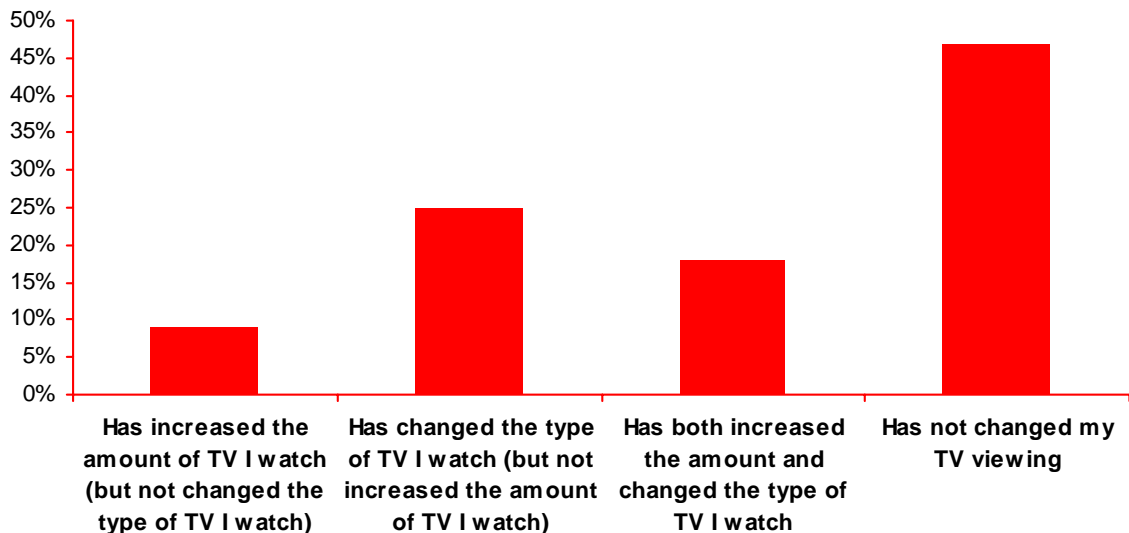
Source: Spectrum

It is also probable that the BBC HD channel will attract some viewing from other channels and, perhaps, increase the total viewing hours across all channels. These effects are more difficult to quantify. In order to

produce evidence-based forecasts of the usage of the channel, and to err on the side of caution in estimating the consumer value of the proposed BBC HD channel, Spectrum’s forecasts of usage have not sought to quantify any potential increases to BBC audiences due to viewers being attracted from non-BBC channels. But from a market impact perspective, we focus, in qualitative terms, on the particular element of usage that could come from viewer substitution from rival channels to the BBC HD channel (whilst recognising that this could only be a small proportion of the BBC HD channel’s total audience).

The early results from the PSB HD trial indicate that a HD channel could both change viewing patterns and affect the total amount of TV that people watch (although these effects might be exaggerated in the survey, due to the novelty value of HD and the limited number of trialists being early adopters of HD technology).

**Exhibit 7: Impact of HD on Trialists’ TV Viewing Behaviour**



Source: PSB Broadcasters HD DTT trial Wave 2 headline results, 18 August 2006

Viewer substitution could happen for two main reasons, which may act cumulatively:

- Improved viewer experience from HD.** Viewing patterns for different programmes reflect viewers’ choices made for a variety of reasons, including picture and sound quality and the identity and nature of the programming. Making a particular BBC programme available in HD, as well as SD, can be expected to cause some viewers, able to access HD content, to watch the BBC programme in HD rather than programming on another channel. This substitution might take place within the same time slot (e.g. if viewer demand is primarily driven by desire to watch TV at a particular point in time, with channel choices coming secondary) or between content shown at different points in time (e.g. where viewers have demand for specific types of programming and arrange their viewing time to some extent around this).
- Time-shifting.** In addition to the substitution by viewers switching to BBC HD programming because of superior experiences from HD, substitution may occur because the BBC HD channel would provide viewers with extra opportunities to watch programming broadcast on other BBC channels at different times. The large number of time-shifted channels on the Sky’s satellite platform (e.g. E4+1) indicates that time-shifting programming increases a broadcaster’s share rather than simply re-distributing a broadcaster’s share over time. In the case of the BBC HD channel, this effect could be particularly strong because the time-shifted content would be intended to be something of a “best of” selection from other BBC channels.

How any potential audience effects will be distributed across rival channels is highly uncertain. One possibility is that any loss of audience by rival channels would be more or less evenly spread across a large number of channels, according to each channel's relative share of viewing. Alternatively, particular channels could experience proportionately greater losses, for the following reasons:

- The effect could be greater on SD channels that emphasise the genres of programming shown on BBC HD and for which HD broadcasting has significant viewer appeal (although this would be mitigated as broadcasters launch HD versions of these channels, such as the launch of Discovery HD).
- The effect could be greater on channels whose current audiences more closely resemble the demographics expected to adopt HD.
- The effect could be greater on those channels that are currently exposed to the most direct competition from the BBC, with this effect coming from both the HD aspect and the time-shift aspect.

### 5.2.2 *The effects of the BBC HD channel are more likely to be at the programming level*

The wide scope for variety in broadcasting content, combined with significant heterogeneity in viewer preferences, means that entry of new channels rarely translates into the exit of existing channels. The proposed BBC HD channel would draw on a mix of content from BBC1 and the other main BBC channels; we have not identified any existing commercial channels that are very close matches in terms of programme mix and likely audience base. Factoring in the relatively low number of HD-enabled households (e.g. the forecast of 14% of all households for 2010), this suggests that exit of existing commercial channels is unlikely to occur.

Any effects of the BBC HD channel on competition in audience markets, as a result of audiences watching commercial channels less, are likely to be relatively small in scale and to take place at the programming level, as existing channels (and prospective entrants) react through decisions on their programming investments and scheduling decisions. A similar finding was reached by Ofcom in its market impact assessment of the BBC's digital-only channels in 2004 (paragraphs 6.15 to 6.17):

*"[T]he competitive effect of the BBC digital services [BBC3, BBC4, CBBC, CBeebies] is likely to be more subtle than direct impacts on the commercial viability of established channels. In planning their future activity, commercial broadcasters can be expected to take account of the influences of the BBC digital services on the audience available to the commercial sector in small niches, and on how hard — e.g. in terms of programming and promotional expenditure — it will be for commercial providers to win audience through the provision of particular types of programming.*

*"It is possible that the BBC digital services will affect the types of new channels that enter digital TV and radio markets, the programming and scheduling mix adopted by established channels and the extent to which they are prepared to experiment with new content or services. Commercial operators may be keen to avoid head-on competition against BBC services, especially because competition from the BBC services is likely to be especially "tough" compared to competition in a non-BBC counterfactual (e.g. due to the higher budgets available for BBC programming).*

*"The BBC services may chill competition and innovation around the areas of content on which they are focused. [...]"*

The time-shifting element of BBC HD can be expected to lead to some loss of audience by other channels. However, from the high-level perspective taken by this preliminary market impact assessment, it is not possible to identify how this would affect the programming decisions of other channels. The most readily-identifiable change in behaviour by other broadcasters is the prospect of those lacking an HD channel moving

marginally away from the areas of programming shown on the BBC HD channel for which HD significantly increases viewer appreciation.

### 5.2.3 *Rivals might be less willing to invest in genres for which HD is a big pull for viewers*

The key genres where HD seems most likely to significantly increase viewer appreciation include sports, movies and high-end factual/documentary programming:

- In the Human Capital Deliberative Research for the BBC (2005), HD TV was thought to be most relevant to sport, films and wildlife and less relevant to comedy, news, soaps, children's and current affairs. Similarly, Blinc qualitative research for the BBC (2005) identifies sports, movies, events and big nature documentaries as areas where "HD will add excitement and an extra dimension to the viewing experience", whereas for entertainment, news and comedy, participants could not "quite see the benefit; especially if HD will be rationed".
- Screen Digest (2006) identifies national and international sports events as "the killer application of HD in the US", reporting that "Nearly 50 percent of [US] HDTV owners cited HD sports programming as the primary force behind their HDTV purchase".<sup>8</sup> This is consistent with the emergence of HD in the UK: initial marketing took place around the 2006 World Cup, and sports features prominently in Sky's HD subscription package. It also fits with the evidence from the Wave 2 research on the PSB Broadcasters HD trial, where 83% of respondents agreed that BBC World Cup coverage "works much better in HD than in normal broadcasts", and 71% thought the same about Wimbledon coverage (compared to 50% for *Desperate Housewives*).
- Major documentary content is also very important for HD in the US. Screen Digest (2006) reports that Discovery HD Theater is the most widely distributed basic cable HD network in the US; that channel's content includes a large amount of science/wildlife/travel documentaries. In the Wave 2 research, 84% of respondents considered that *Planet Earth* "works much better in HD than in normal broadcasts".

It seems possible, therefore, that the launch of the BBC HD channel could mean that other broadcasters, who lack an HD channel themselves, could be less willing to invest in those areas of content where they would face competition from a strong BBC HD offering. However, whether this could lead to any effects on competition depends on a number of factors, in particular a distinction between acquisitions and new commissions, as discussed below.

### 5.2.4 *The market price of acquired programming will absorb some of these effects*

It is difficult to see how the proposed BBC HD channel could have a significant negative effect on other broadcasters' usage of acquired programming in the particular genres in which those broadcasters could potentially lose audience to the BBC HD channel.

For instance, in theory it is possible that the proposed BBC HD channel could marginally reduce Five's willingness to pay for a particular wildlife documentary import from the US, on the basis that slightly fewer viewers will be interested in that programme in the face of attractive wildlife programming from the BBC in HD. But, even if this is the case, it seems more likely that the price of the import will fall, to match Five's reduced willingness to pay, than that Five will withdraw from broadcasting acquired wildlife content. If the market price for such imports is driven by competition between commercial broadcasters, there is a strong argument that any effect of the BBC's HD content on the attractiveness of acquired programming will be reflected market-wide, with a compensating reduction in the costs to commercial broadcasters of acquiring that programming.

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<sup>8</sup> Screen Digest (2006) *High Definition Television: Global uptake and assessment to 2010*.

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The owner of secondary rights might lose out slightly. But we would not expect commercial broadcasters to be deterred from making use of acquired programming in their schedules.

### **5.2.5 There are possible competition effects in niche areas of originated programming**

To the extent that acquired programming is capable of exerting effective competition on the broadcasting of new commissions (e.g. first-run originations) in a particular genre, this market price effect would be likely to mitigate any potential competition concerns about reductions in the supply of originations by broadcasters of SD channels.

However, we cannot rule out the possibility that, for some niche areas of programming, there is focused competition between different suppliers of new commissions in that particular area, with acquisitions not capable of providing a direct source of competition. Were all the main commercial broadcasters of new commissions to be deterred from investing in that area of content, this might feed through to an effect on competition in that area.

Without detailed analysis, it is not possible to identify and examine all the niche areas in which competition could be affected — and to what degree — amongst those areas of programming for which HD significantly increases viewer appreciation. Nonetheless, we consider potential effects on two niche areas: high-end factual and sports.

One area where a small-scale effect on the nature of competition seems possible is high-end factual programming (e.g. *Planet Earth*). This is an area of programming for which a BBC HD channel could reduce the ability of other channels to obtain audiences by broadcasting SD programming. It is also an area of programming for which small reductions in supply by other broadcasters could potentially lessen competition.

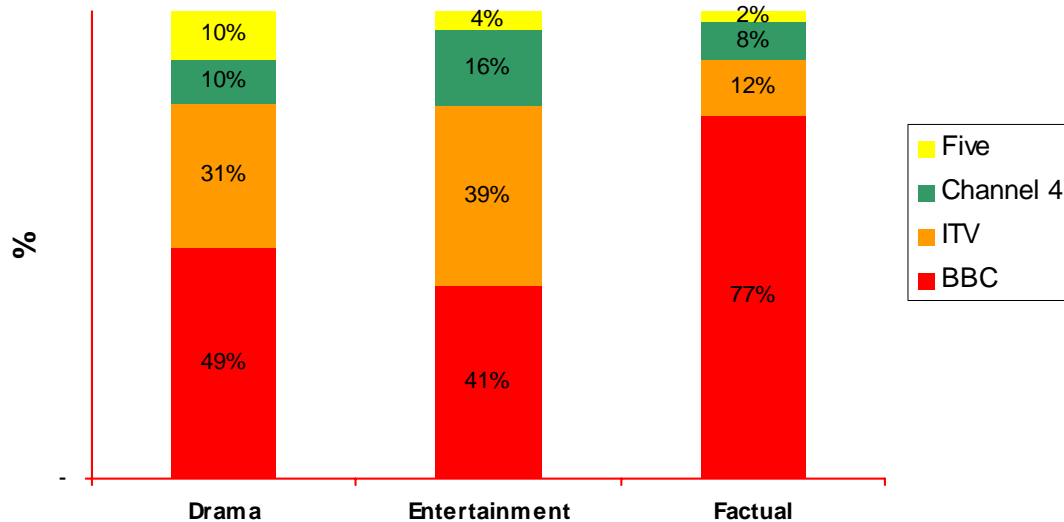
Exhibit 8 provides broad estimates of each PSB's share of viewing of originated programming in three different genres. The estimates in Exhibit 8 are constructed by combining BARB data on each channel's viewing by genre, with assumptions on the proportions of viewing of originated versus acquired programming for each channel (in 2005). These assumptions are taken from Ofcom data on the proportions of output hours that was acquired versus originated for the different channels (the data are channel averages rather than at the genre level). The omission of channels other than the PSBs is due to data limitations, but the effect of this on the estimates is likely to be limited (e.g. Ofcom reports that only 16% of total multi-channel hours was first-run originations, and only 5% of these were in the factual genre<sup>9</sup>).

Within the broad genres considered, there is a wide range of programming that may not compete head-on (e.g. factual may cover high-end wildlife and docu-soaps). This means it is difficult to draw firm conclusions from these estimates. Nonetheless, the high share of the BBC in factual originations suggests that competition between broadcasters in the commissioning and broadcasting of high-end factual programming might be limited in some areas; small reductions in other broadcasters' willingness to invest in those areas could, therefore, cause a subtle lessening of competition in some niche areas of audience markets.

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<sup>9</sup> Ofcom (2006) *The Communications Market 2006*, page 216.

Exhibit 8: Broad estimates of originated supply by PSB in key genres for HD



Source: Reckon/Spectrum based on BARB data & Ofcom (2006) The Communications Market 2006 page 220

Two important points, in particular, should be borne in mind in thinking about the scale of potential impact:

- The volume of impacts lost by other channels could be insufficient to affect the choices other broadcasters make on programming investment. While HD-enabled households remain a minority, the direct effect of commercial broadcasters losing share to BBC HD will be very low at the overall channel level. Spectrum's forecasts are that, in 2007, the viewing share of the HD channel would be around █% in HD-enabled households, which translates into a share of just █% across all households. Furthermore, HD content will be available from other broadcasters (e.g. Discovery HD) and so the incremental effects of BBC HD on SD channels could be low in areas where HD is very compelling.
- Viewers might easily substitute between UK-originated content and other content. The existence of competition from the broadcasting of other programming (e.g. imported content, or content from other genres) could therefore prevent any marginal reduction in supply of new commissions from other PSBs from leading to any effect on competition.

Effects on competition in the supply of sports programming seem even less likely. Sport is identified above as an area where HD might be particularly important for enhancing viewer appreciation. However, in general, we would not expect the BBC HD channel to have a significant negative effect on the audiences watching sports coverage on commercial SD channels. For instance, especially for "appointment to view" sports programming (e.g. in football, live England World Cup qualifier matches), many sports viewers (e.g. fans of particular teams) are likely to have a demand to watch a specific event, such that sports coverage by the BBC, in HD rather than SD, would not significantly reduce the audience that other broadcasters would obtain from showing sport themselves.

In summary, we find that it is possible — but by no means clear — that the launch of the proposed BBC HD channel could lead to a small-scale and subtle form of competition impact in audience markets: some loss of competition around some of the areas of programming in which HD significantly adds to viewer appreciation. For instance, competition between the PSBs to commission and broadcast high end factual programming might be diluted, to a degree, as PSBs lacking an HD channel chose to avoid head-on competition with the BBC in areas where it is difficult to match the BBC's HD content.

### 5.2.6 *Any effects of this nature would be transitory*

At very low levels of HD penetration, as expected for the start of our 2007 to 2012 timeframe, the overall effects of a BBC HD channel on other broadcasters' audiences will be very low, making effects on these broadcasters' programme investment decisions particularly unlikely. The potential competition effects identified above stem from a possible period of time in which there a significant number of households are HD-enabled, but before other major originators of SD content (such as ITV and Channel 4) have launched their own HD channels. As HD-penetration increases further, these broadcasters are more likely to launch HD versions of their own channels, largely mitigating these effects. This means that any possible competition effects of the nature identified above would be expected to be transitory.

### 5.3 The potential for effects in markets for access to digital TV platforms

The BBC HD channel could have a variety of impacts at the level of digital TV platforms:

- The BBC HD channel is likely to make a positive contribution to the take-up of HD technology by consumers, especially if the BBC HD channel is prioritised in the BBC's promotional activity.
- The proposal to launch the BBC HD channel is relevant to the proposal to launch the PSB-backed free-to-air satellite platform. The opportunity for households to view a major HD channel, for free, from 2007, could be a factor in helping the proposed PSB-backed free-to-air satellite platform take off, in particular by helping to differentiate free-to-view satellite from Freeview.
- The BBC HD channel could contribute to digital take-up, but this effect is likely to be limited.

The basis for these preliminary findings is explained in more detail below.<sup>10</sup> Over time, as more HD channels become available on satellite (on a free-to-air) basis, the incremental effect of the BBC HD channel could fall, lessening each of these impacts. Even so, because of the potential absence of other major broadcasters, such as ITV, offering a HD channel in the near-term, some impacts due to the proposed BBC HD channel seem likely.

#### 5.3.1 *The BBC HD channel will increase demand for platforms with HD capabilities*

The forecasting of the usage and reach of the BBC HD channel, as part of Spectrum's modelling for BBC Management, indicates that the BBC HD channel might achieve a share broadly around █% in HD-enabled households in 2007-2012 (see Exhibit 6). The channel could, therefore, become an important channel for HD-enabled households, increasing the proportion of time that those household's spend viewing HD content.

The importance of the BBC HD channel can be put in some context by considering the viewing shares achieved, in 2005, by SD comparators to the HD channels in the Sky HD package. This is the aim of Exhibit 9. The shares for some of the comparator channels, in Exhibit 9, cover viewing of multiple channels (e.g. all ten Sky Movies channels), whilst the number of corresponding HD channels is less (e.g. two Sky Movies HD channels). Similarly, no time-shifts are yet offered for the HD channels. This means that viewing shares for the SD channels in the comparators above relates to viewing of a greater choice of channels than the HD channels available. Conversely, the corresponding HD channels could gain higher shares than their SD comparators because of the higher picture and sound quality. Bearing these caveats in mind, Exhibit 9 suggests that the inclusion of a BBC HD channel, which has been forecast to gain something around █% of

<sup>10</sup> Note that Spectrum's forecasts, prepared for BBC Management, of the potential reach and usage of the proposed BBC HD channel are based on Spectrum's forecasts of digital platform take-up and of HD-penetration on different platforms. However, the potential effects on those forecasts of launching the BBC HD channel, compared to a counterfactual in which there is no BBC HD service between 2007 and 2012, have not been assessed in quantitative terms.

viewing in HD-enabled households in 2007 (see Exhibit 6 and surrounding discussion), would provide a significant additional benefit to a household currently on Sky pay-TV package which is considering upgrading to a HD package. For instance, based on the comparator viewing share data below, without further adjustment, the inclusion of the BBC HD channel could, very approximately, increase the proportion of a HD-enabled household's viewing time that is spent viewing HD content, from around █% to over █%. If the BBC also strongly promoted the channel, it is quite plausible that the launch of the BBC HD channel could have a substantial positive effect on the take-up of HD.

**Exhibit 9: Shares of SD comparators to the channels in the Sky HD package**

HD channel	SD comparator channel	Share of viewing of SD comparator channel in digital satellite households (2005)
Sky Sports HD <sup>(1)</sup>	Sky Sports total <sup>(1)</sup>	5.2%
Sky Movies HD <sup>(2)</sup>	Sky Movies total <sup>(2)</sup>	4.1%
Artsworld HD	Artsworld (SD)	N/A (<0.1%)
Sky One HD	Sky One (SD)	2.3%
National Geographic HD	National Geographic <sup>(3)</sup>	0.3%
Discovery HD	Discovery <sup>(3)</sup>	0.8%
Sky Box Office HD	N/A	-

(1) There are currently two HD Sky Sports channels; "Sky Sports total" covers five sports channels

(2) There are currently two HD Sky Movies channels; "Sky Movies total" covers ten movies channels

(3) The data for these comparator channels are for "Totals" and therefore include the "+1" time-shifts

Source: [www.sky.com](http://www.sky.com), BARB

The importance of BBC HD to take-up of HD should not, however, be overstated. Screen Digest (2006, page 187) identifies sports content is the "killer application" for HD amongst US consumers. The BBC HD channel would offer some sports programming, especially at weekends, but would not be a focused sports channel and would lack the premium content that Sky Sports HD already offers (e.g. live FAPL football in HD, live test cricket in HD); nor would it be focused on movies.

In addition to encouraging more pay-TV subscribers to upgrade to a HD package on cable or satellite, the launch of the BBC HD channel could make a more indirect contribution to the consumer take-up of HD. This would be through its impact on the proposed PSB-backed free-to-air satellite platform which, if successful, could also encourage additional HD adoption. This is discussed below.

### 5.3.2 The BBC HD channel could contribute to success of the free-to-air satellite platform

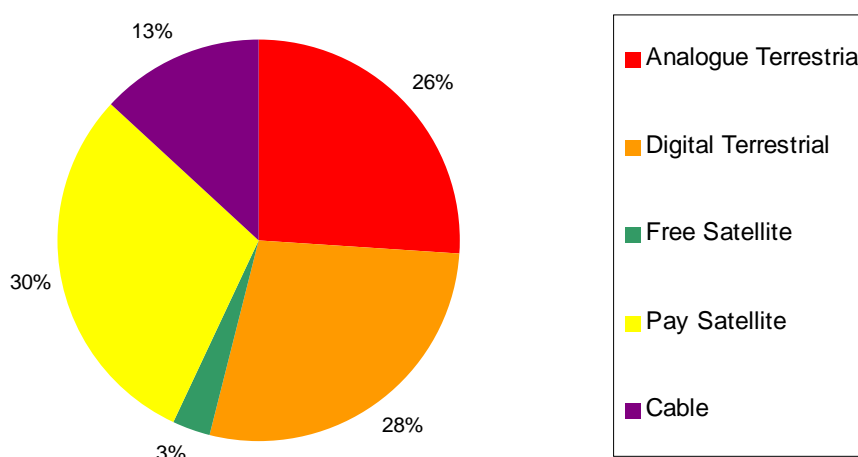
The BBC and other PSBs are currently reviewing plans to promote a free-to-air digital satellite platform, in a similar way to the successful creation of the Freeview platform. In this section, we consider the interactions between that proposal and the proposed BBC HD channel.

Our understanding is that, if the free-to-air satellite platform proposal were to be taken forward, the BBC and other PSBs would be involved in the specification and marketing of the platform, and consumers would buy the necessary hardware and installation services from third parties (possibly as a combined package).

At the moment, free satellite access is a minor means of accessing television. This is shown in Exhibit 10, where only 3% of households use this method for their main set. The "free satellite" method covers a range of options. Some of those households will have previously had Sky pay-TV subscriptions, which have expired,

leaving the household with access only to free-to-air satellite channels. Some will have purchased the “Freesat from Sky” service (e.g. by paying £150 for a package of equipment and installation), which enables reception of free-to-air satellite channels and a limited number of channels that are encrypted (e.g. Sky Three). Others will have bought digital satellite reception equipment from independent retailers.

**Exhibit 10: Methods for receiving television - main set (2005)**



Source: Ofcom (2006) *The Communications Market 2006*

Although a market exists for the supply of reception equipment providing access to free satellite channels, this is currently very much a niche area; these products are not heavily marketed. Sky’s marketing of Freesat from Sky is limited. This should be contrasted with the heavy promotion of Freeview. Exhibit 11 is helpful in trying to understand the reasons — besides marketing and Freesat from Sky being a relatively newer service — for the low penetration of free satellite compared to Freeview.

**Exhibit 11: Simple comparison of Freesat from Sky and Freeview**

	Freeview	Freesat from Sky
<b>Number of TV channels</b>	30+	200+
<b>Key channels<sup>(1)</sup> not available under alternative option (e.g. for Freeview, channels on Freeview but not Freesat from Sky)</b>	Sky Sports News; E4; More; UKTV History TMF; ABC1; FTN UKTV Bright Ideas	True Movies Performance Channel
<b>Share of viewing that those key channels attract in all digital satellite households (2005)</b>	2.1% <sup>(2)</sup>	0.5%
<b>Cost for product</b>	£40 <sup>(3)</sup>	£150
<b>Coverage</b>	73% of the UK	98% of the UK

(1) Based on analysis of channels that fall within the top 80 channels by viewing share in digital satellite homes

(2) Excludes Sky Sports News; (3) Lower-end product; significant additional cost of aerial upgrade might be needed

Sources: [www.freesatfromsky.co.uk](http://www.freesatfromsky.co.uk), BARB, [www.digitalspy.co.uk](http://www.digitalspy.co.uk), [www.freeview.co.uk](http://www.freeview.co.uk)

Exhibit 11 indicates that although Freesat from Sky offers far more channels than Freeview, these are generally minor channels, and Freeview may be much cheaper than Freesat from Sky.

If launched, the PSB-backed free-to-air satellite platform is expected to offer more channels than currently available through Freesat from Sky. For instance, most of the channels currently available on Freeview, but not on Freesat from Sky, are expected to become available on free-to-air satellite (e.g. [REDACTED]). A successful launch could induce other channels, currently carried in a Sky basic tier, to switch to broadcasting free-to-air.

The relevance of the BBC HD channel needs to be assessed against the background of free-to-air satellite currently being a minor means of accessing digital TV. Under the baseline scenario we have considered, the BBC HD channel would be launched on free-to-air satellite in 2007 as a full nine-hour linear channel, but only available on DTT as an overnight service intended for time-shifted viewing. The proposed HD service available from the BBC on satellite would therefore be richer in content than that available on DTT. It would also be more convenient for viewers because it would not require viewers to set PVRs to record the HD content. Particularly for households unwilling to take out pay-TV subscriptions, this could provide a reason to invest in reception equipment for free-to-air satellite services.

Exhibit 12 provides cost estimates for different options that consumers would be expected to face when choosing whether and how to take advantage of the PSB-backed free-to-air satellite proposition. [REDACTED]

**Exhibit 12: Projected costs of different methods of receiving free-to-air satellite**

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]			[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]			[REDACTED]

Source: BBC estimates

As discussed in Section 3, there is a real possibility that other major channels will not launch free-to-air HD channels in the near term, although HD content could be offered on a more limited basis for specific events or programmes. Therefore, whether the BBC HD channel is launched may determine whether a free-to-air satellite platform would carry any full HD channels, at least in the near term.

The role of the BBC HD channel also needs to be seen in the context of Sky's potential strategic response to a PSB-backed free-to-air satellite platform. Although Sky has not marketed Freesat from Sky extensively to date, if a rival option is launched, Sky may have the ability to compete aggressively. For instance, it is possible that Sky might be able to offer households access to Freesat from Sky at a lower price than households would need to pay if purchasing STBs, dishes and installation services for the PSB-backed free-to-air satellite platform (e.g. through economies of scale in Sky's installation network). And Sky may have a strong commercial motive for trying to get households to choose its own free satellite service rather than the platform marketed by the PSBs: each household that takes a Freesat from Sky package, rather than buying a

PSB-branded STB, is a household that Sky can then try to upgrade to a pay-TV package and, therefore, potentially from which it could earn additional revenue in the future. These factors suggest that the viability of the proposed PSB-backed free-to-air satellite platform would not be guaranteed. Any positive contribution that the BBC HD channel could make to its take-up could play a role in determining the platform's success.

In summary, by helping to differentiate free-to-air satellite from Freeview, the BBC HD channel seems capable of reducing the risk that the PSB-backed free-to-air satellite venture would not succeed. The BBC HD channel may, therefore, in combination with the launch of the PSB-backed free-to-air platform, support the development of a competitive market for the supply of packages and equipment that provide access to free-to-air satellite services.

### **5.3.3 *The overnight HD service on DTT should not deter innovation at the platform level***

Currently, there is no service available on DTT that is similar to the overnight BBC HD proposition. But it is quite possible that innovations on the DTT platform will make better use of overnight capacity, and share common features with the overnight BBC HD proposition. The launch of the BBC HD channel on DTT, as an overnight service intended for time-shifted viewing, seems unlikely to deter such innovation.

In particular, Top Up TV is set to launch a new service, Top Up TV Anytime,<sup>11</sup> which would also make use of overnight capacity on DTT to distribute programming to subscribers, who would then watch that programming on a time-shifted basis. Top Up TV currently operates a niche subscription service on DTT, offering access to several channels that are not available on Freeview. Under the new Top Up TV Anytime service, customers would purchase a special STB from Top Up TV and pay a monthly subscription. The STB includes a PVR with a 160GB hard drive, two DTT tuners and a conditional access system. In addition to providing access to Top Up TV's linear TV channels, the subscription would provide the user with up to 100 hours of programming per week that would be automatically "downloaded" to the PVR overnight.

At this stage, it is not clear whether the Top Up TV Anytime service, or other potential innovations of this nature, will prove successful business models for DTT. But, despite its use of overnight DTT capacity to distribute programming for time-shifted viewing, it seems unlikely that the launch of a BBC HD service would have a negative effect on the demand for services of this nature. For example, the HD content that would be made available from the BBC HD channel does not seem a particularly close substitute for the more extensive and diverse range of SD content that would be available to subscribers of the Top Up TV Anytime service; there seems little reason to expect the availability of overnight HD content from the BBC to make consumers any less willing to invest in Top Up TV Anytime equipment and subscriptions.

Indeed the operation of a BBC HD overnight service could help the development of services such as Top Up TV Anytime, by providing an additional reason for Freeview households to invest in new and more advanced reception and PVR equipment.

Although the first generation of Top Up TV Anytime STBs would not be capable of receiving the BBC HD channel, Top Up TV would presumably be in a position — were the BBC HD overnight service to be taken forward — to develop a STB that provided users with access to both its own pay-TV programming and also the free-to-air BBC HD programming distributed overnight on DTT. An HD-compatible PVR/STB might be slightly more expensive than an SD-only PVR/STB, but these costs could be more than offset by the extra functionality that the box would offer users: i.e. access to free BBC HD content as well as to the subscription-

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<sup>11</sup> As of mid-November 2006, this service has not been launched. Information on the proposed service has been taken from Top UP TV's website ([www.topup.tv/](http://www.topup.tv/)) and from Digital Spy (<http://www.digitalspy.co.uk/>).

based SD programming. It seems possible, therefore, that the overnight BBC HD service on DTT could help drive demand for services such as Top Up TV Anytime from households who might otherwise stick with the basic Freeview STB or move to another digital platform.

There might be another effect from launching the BBC HD service on the population of STBs in DTT households. The BBC HD channel would be encrypted in MPEG-4 format on both satellite and terrestrial platforms, and take-up of HD would be expected to go hand-in-hand with households installing MPEG-4-compatible reception equipment. If launched on DTT, the proposed BBC HD channel could, therefore, help develop an installed base of MPEG-4-compatible reception equipment in DTT homes. Although it is likely that existing SD channels on DTT will continue to be encrypted in MPEG-2, this effect could bring forward a potential future switch for new services on the DTT platform to MPEG-4, allowing greater spectrum efficiency on DTT in the longer term.

#### **5.3.4 The BBC HD channel could make a limited contribution to digital take-up**

As discussed at the start of Section 5.3, the BBC HD channel could make a significant incremental addition to the attractiveness of converting to HD. Since access to digital television is a pre-requisite to a household watching HD TV, the BBC HD's channel could, by contributing to HD take-up, also have a positive knock-on effect on digital take-up. However, this effect seems likely to be limited.

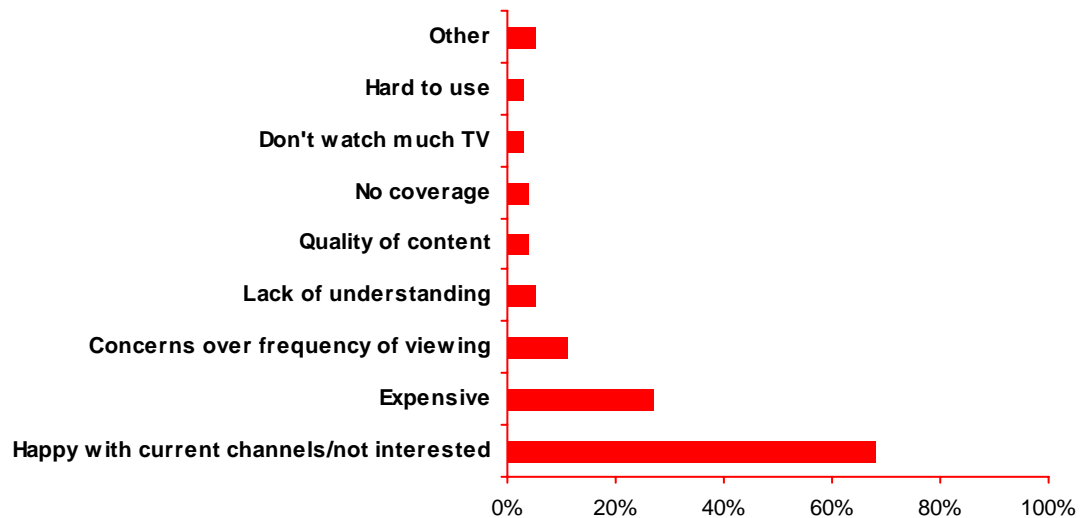
Much of the take-up of HD TV is expected to come from those households who already have access to digital TV. We expect that the vast majority of take-up of HD TV (i.e. HD-ready TV plus HD-compatible STB) in the period 2007 to 2012 will come from those households who had already adopted digital TV by 2007. We do not expect that the majority of those households who have not yet taken up digital TV would become HD-enabled, before 2012, as a result of the launch of the proposed BBC HD channel: these households would need to invest in an HD-ready TV and an HD-compatible STB, yet these are the same households who have, so far, chosen not to incur additional expenditure (e.g. a £40 Freeview STB) to enhance their TV viewing experience by switching to digital TV.

A more indirect effect on digital take-up, however, seems possible. If, as suggested above, the availability and marketing of a BBC HD channel contributes to the development of a free-to-air satellite platform, the BBC HD channel could increase the rate of digital take-up; this might come, in particular, from households who lack DTT coverage and do not wish to pay for pay-TV subscriptions.

Nonetheless, Ofcom consumer research suggests that a free-to-air satellite platform is unlikely to fully address the impediments to digital take-up amongst those still without digital TV in 2006: those without digital television were asked for their reasons for not wanting it (with multiple responses permitted) and the responses are reproduced in Exhibit 13 (overleaf). Free satellite provides access to many more channels than Freeview, without requiring a subscription, but many respondents to the consumer research appeared happy with their four or five analogue terrestrial channels. And, since free satellite would be more expensive than Freeview, the cost deterrent indicated above is not something that free-to-air satellite can address.

Overall, therefore, preliminary analysis suggests that the BBC HD channel could — through, direct effects on the availability of HD channels and in combination with the proposed free-to-air satellite platform — make some positive contribution to digital take-up; but this effect is likely to be limited in the context of the households currently without digital TV.

Exhibit 13: Reasons given by those without digital TV for not wanting digital TV



Source: Ofcom (2006) *The Communications Market 2006*, page 254.

#### 5.4 The potential for effects on competition in programme supply markets

Compared to the counterfactual where the BBC has no HD channel, the BBC HD channel may lead the BBC to develop greater requirements for HD programming, when commissioning from the independent production sector. In the near-term, some parts of the independent production sector might lack HD capabilities, and therefore be unable to compete effectively to supply this programming to the BBC. However, the loss of some suppliers to the BBC would be unlikely to lead to risks to the competitive process in programme supply markets; and any loss would tend to be a transitory effect, given a general trend of production companies developing, or gaining access to, HD capabilities. This is explained below.

##### 5.4.1 *The BBC HD channel could affect the mix of content the BBC commissions*

The editorial propositions for the HD channel do not envisage a significant change to the BBC's commissioning and policy. It is conceivable, however, that the launch of the BBC HD channel might, in the period 2007 to 2012, affect the mix of programming that the BBC, as a whole, commissions and broadcasts, and the speed at which it moves towards HD production.

The proposed BBC HD channel might result in the BBC progressing faster in its shift from commissioning in HD rather than in SD, because the channel provides a means for the BBC to exploit HD content sooner. It is possible that this would feed through into greater requirements for — or at least preferences for — HD content, when the BBC commissions from the independent production sector.

##### 5.4.2 *Some independent production companies may lack HD capabilities*

The independent production sector is characterised by a wide variety of suppliers. Some independent production companies already produce in HD. Other companies will develop HD capabilities at different rates depending, in particular, on their current capabilities, their ability to spread the additional costs of HD equipment and training over a range of HD productions, and their ability to finance capital investments. In part, HD capabilities might simply be a matter of timing: companies that are coming close to replacing

equipment, as HD content takes off, would be well-placed, whereas those which have only recently invested in SD equipment may move more slowly to HD.

However, it does seem possible that certain categories of independent producer, such as the smaller companies, may lack the HD capabilities to supply the BBC in the near term. Even in cases where independent producers can hire HD equipment, switching to HD production might be delayed while skills are developed. But over the period 2007 to 2012, due to replacement cycles for hardware, falling price differences between HD and SD production, and increased demand for HD content from broadcasters (including the BBC), independent productions companies will increasingly develop their HD capabilities.

#### **5.4.3 *There seems scope for only a limited and transitory effect on competition***

There is a potential for a slight loss of variety in programme supply to the BBC, in the near term. This could be seen to have some effects on market access and on the competitive process, since variety amongst suppliers is an ingredient to competition, but this would only be a transitory effect as more and more production companies develop — or gain access to — capabilities to produce in HD. With only a subset of production companies potentially affected, there does not appear to be any likelihood of a significant adverse impact on competition in the programme supply sector.

### **5.5 The potential for effects on competition in events rights markets**

The launch of the BBC HD channel could, in theory, increase the BBC's overall willingness to pay for certain events rights — as well as its willingness to commission the other types of programming that are most enhanced by HD — compared to the hypothetical counterfactual where the BBC does not launch an HD channel before 2012. Even if this were to occur, the changes would not be expected to be large and there does not seem to be a means through which this would lead to a risk to competition in bidding markets.

#### **5.5.1 *The BBC's programming policy could be affected by whether it has an HD channel***

We cannot discount the possibility that, compared to the counterfactual where the BBC does not have an HD channel, the launch of the proposed HD channel could affect the mix of programming that the BBC, as a whole, offers during the 2007 to 2012 timeframe — particularly with respect to areas where HD adds substantial consumer value, such as high-end documentaries and sports. A BBC HD channel would provide the BBC with the opportunity to bring HD sports programming to viewers for free, perhaps sooner than other free-to-air broadcasters.

For instance, if coverage of a particular sport is greatly enhanced in HD, but the BBC is the only PSB with a free-to-air HD channel, the BBC might identify greater benefits to licence fee payers from bidding for that sport's TV rights than if it had no HD channel. The BBC might then be prepared to bid more for these rights (than it would do if it did not have an HD channel) to enable viewers the chance to watch the sport in HD.

In theory, this could potentially lead to other broadcasters, who do not broadcast in HD, winning slightly fewer rights and paying slightly more for the rights they do acquire.

The scale and likelihood of the potential effects on these types of rights should not be overstated. In the near term, fixed budgets and programming strategies mean that it is unlikely that the BBC's acquisition of, say, sports rights will be significantly affected by whether the proposed HD channel is launched. This is particularly so given the low proportion of HD-enabled homes forecast for the next few years, which would mean that only a minority of viewers could benefit from HD content. In addition, the rights to many sports (and non-sports) events may already be tied up for the short to medium term. In the longer term, as more commercial broadcasters launch HD channels, the effect of the BBC having an HD channel would be diluted further.

### 5.5.2 *There does not appear to be a risk to competition in bidding markets*

As discussed above, there does not seem to be a reason to expect major changes in the BBC's willingness to pay for sports and other event rights. It also seems doubtful that any small increases to the BBC's willingness to pay for certain sets of rights could lead to a loss of competition in upstream bidding markets for event rights.

So long as there is rivalry between potential purchasers of rights, any changes to the mix of rights won by the BBC and the commercial sector would be an expression of competition in competitive bidding markets, rather than a sign of loss to competition within these bidding markets. This rivalry seems unlikely to be disturbed, especially given the low costs to rights-holders or organising bidding processes and the low costs to broadcasters of participating in bidding process (compared to the value of the rights). Therefore, even though we cannot discount the argument that the BBC HD channel might lead to the BBC having a slightly higher probability of winning certain categories of events rights, compared to the counterfactual that the BBC has no HD channel, this effect does not seem likely to pose a risk to competition in bidding markets.

## 5.6 Sensitivity analysis for the launch of the full BBC HD channel on DTT

As set out in Section 2, the BBC might be in a position to use new spectrum — released as part of digital switchover — to upgrade its DTT service from the overnight service to the full nine-hour BBC HD channel. This section considers how the market impact of the proposed BBC HD channel might vary if the BBC is able to launch the full nine-hour channel on DTT, on a region-by-region basis, as switchover progresses between 2008 and 2012. The main findings are as follows:

- The potential for the BBC HD channel to play a role in the development of the market for access to free-to-air digital satellite services would be somewhat smaller if the full nine-hour channel were to be rolled out on DTT between 2008 and 2012. This is because the relative advantages of a free-to-air satellite platform, over DTT, would be gradually removed, as the full BBC HD service is launched on DTT. But the launch of the BBC HD channel would still support the PSB-backed free-to-satellite proposition, because of its earlier availability as a peak-time channel on satellite and cable.
- If the BBC had to compete (against other organisations) to obtain spectrum to distribute the full nine-hour channel on DTT, this could have some effect in television audience markets. Because of the uncertainty as to what will happen to the spectrum released during digital switchover, it is difficult to predict the types of the other services that the BBC HD channel could take the place of. It seems possible, however, that the BBC HD channel could affect the availability of SD channels on DTT, by 2012. An HD channel requires considerable more capacity than an SD channel, and the distribution of the BBC HD channel on DTT could take the place of up to 5 SD channels that could otherwise be available on DTT. Compared to the counterfactual where the BBC HD channel remains an overnight service on DTT (which would use the BBC's existing DTT capacity), this could hold back, to a limited degree, the further development of competition between different SD channels the DTT platform. Technological developments and digital switchover, however, mean that, in any event, the number of SD channels on DTT is likely to increase in the next five years.

This section explains the basis for these findings.

Other parts of the market impact assessment do not seem to be significantly affected by the form the proposed BBC HD service would take on DTT between 2008 and 2012. In Section 5.2 we identified that the launch of the proposed BBC HD channel could affect the programming decisions of rival SD broadcasters, in particular their willingness to commission new programming in areas where similar programming on the BBC HD channel has strong viewer appeal because it is in HD. Whilst this factor could be affected by the total audience the BBC HD channel would attain, it does not seem likely that the launch of the full nine-hour channel on DTT between 2008 and 2012 would significantly affect this (e.g. Spectrum's forecasts are that the share of the channel in 2012 would be ■% rather than ■%, if the full channel were launched on DTT

between 2008 and 2012). Similarly, whether or not the overnight HD service is upgraded to the full nine-hour channel on DTT does not affect the findings, set out above, in respect of programme supply and bidding markets.

### **5.6.1 *Upgrading the DTT service to the full HD channel would affect free satellite take-up***

Section 5.3 has identified the scope for the proposed BBC HD channel to play a role — in conjunction with the launch of the proposed PSB-backed free-to-air satellite platform — in the development of the market for access to free-to-air digital satellite services. The main way in which the BBC HD channel could contribute to the success of free-to-air digital satellite platform would be by increasing the relative attractiveness of free-to-air satellite *compared to free-to-air DTT* (i.e. Freeview). The strength of this effect would, therefore, be tied to the form that the BBC HD service takes on DTT compared to satellite:

- A differentiation in favour of satellite would arise if the BBC HD channel was launched on satellite in 2007, and launched on DTT, shortly afterwards, as an overnight service intended for time-shifted viewing. In this case, the HD service available from the BBC on satellite would be richer in content than that available on DTT. It would also be more convenient for viewers, as it would not require viewers to set PVRs to record the BBC's HD programming.
- This effect, in favour of satellite over DTT, might be somewhat smaller if the BBC HD channel were to be initially launched as an overnight service but, subsequently, upgraded to the full service, as digital switchover progresses. In this case, for certain regions, there might only be a short time window of one or two years in which DTT would lag other platforms, in terms of the extent and convenience of the service. However, satellite would retain a significant advantage over DTT in other regions: for example, switchover in London is not scheduled until 2012, so the full BBC HD channel would not be launched on DTT in London for at least four years after its launch on satellite and cable.

Expectations, amongst consumers and the wider market, would shape these effects. Because households are making investment decisions, when choosing to buy new TV reception equipment, or when taking out contracts with pay-TV providers, these effects would be influenced by consumer expectations of the BBC's medium and long-term plan for the HD channel on DTT, compared to other platforms. And, if hardware manufacturers are to invest in the supply of reception equipment for free-to-air satellite services, they must have confidence that consumer demand will justify that investment. The potential effect on the take-up of free-to-air satellite would, therefore, be influenced by how the BBC communicates to consumers its plans for the HD service on DTT.

### **5.6.2 *The BBC's use of new spectrum could take the place of other services***

In the BBC's plans, the launch of the full nine-hour BBC HD channel on DTT would be dependent on the BBC obtaining additional spectrum, as part of digital switchover. At this stage, it is not clear what new spectrum will be made available for TV services following digital switchover. The potential availability (and pricing) of such spectrum will be determined by Ofcom's Digital Dividend Review,<sup>12</sup> which is expected to be completed in 2007.

A wide variety of services could, potentially, make use of new spectrum. These include both SD and HD television channels, as well as other services such as mobile TV and WiMax. Without any firm view about which services could be competing for the new spectrum, we focus below on the potential impact of the proposed BBC HD channel if it were to require spectrum that would otherwise be used by commercial TV channels — who are likely to be important contenders for the new spectrum made available following

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<sup>12</sup> The DDR is examining potential alternative uses for the spectrum, such as additional TV channels (SD and / or HD), mobile TV and WiMax.

switchover. By analogy, there could also be some potential effects on other potential users of new spectrum, but these are beyond the reach of this preliminary market impact assessment.

**5.6.3 There could be an effect on the further development of competition amongst SD channels**

One possibility is that any new spectrum, obtained by the BBC, for its HD channel, would otherwise be used by another broadcaster to launch a commercial HD channel on DTT. Under this scenario, we have not identified a potential competition impact. There seems no reason, at this stage, to think that the proposed BBC HD channel would contribute any less (or any more) to competition than such a potential commercial HD channel.

However, one HD channel will take the same capacity as several SD channels. This raises the possibility that, if the BBC obtains new spectrum for the proposed BBC HD channel at the expense of several potential SD channels, there could be a relatively limited effect on the further development of competition amongst SD broadcasters on the DTT platform. Despite the uncertainty surrounding Ofcom’s Digital Dividend Review, we have tried to put this effect into perspective, by examining the relative capacity requirements of SD and HD channels and by considering, at an approximate level, how the number of SD channels could develop on DTT by 2012.

Exhibit 14 provides estimates of the space required for SD and HD channels on DTT. Each DTT multiplex can be 16 or 64 QAM; this determines the maximum data throughput (in Mbps) of the multiplex (18 Mbps for 16 QAM, 24 Mbps for 64 QAM). In addition, the number of HD and SD channels that can be carried on a multiplex is affected by whether the data is encoded in MPEG-2 or MPEG-4.

**Exhibit 14: Space requirements for SD and HD channels on DTT**

	Mpeg 2 Data rate	Max number per multiplex		Mpeg 4 Data rate	Max number per multiplex	
		16 QAM	64 QAM		16 QAM	64 QAM
SD Channel	2-6Mbps	6	9	0.8-2Mbps	10	15
HD Channel	>30Mbps	0	0	12-18Mbps	1	2
Audio service	128Kbps			As Mpeg2		
Interactive	30-200Kbps			As Mpeg2		

**Note:** Quality considerations may mean that a multiplex may carry fewer channels in practice.

**Source:** Reckon/Spectrum

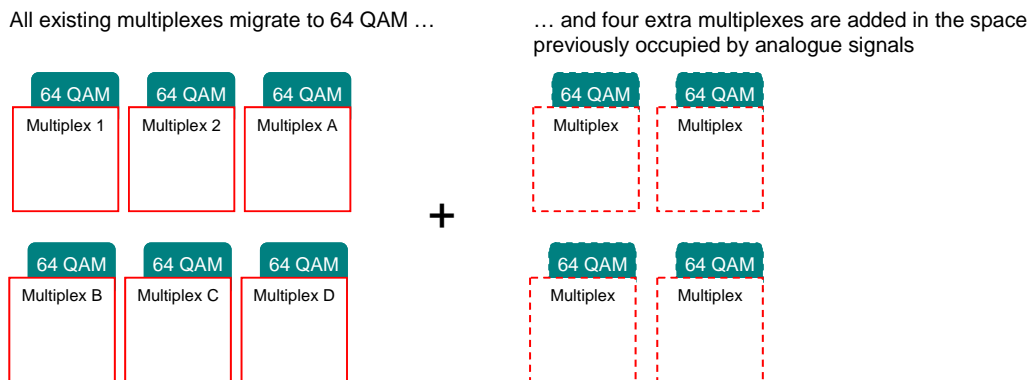
HD would need to be encoded in MPEG-4, whilst SD is currently encoded in MPEG-2. The existence of an installed base of Freeview boxes, with only MPEG-2 capabilities, means that there is a barrier, at least in the short term, to SD channels on DTT being encrypted in MPEG-4, even if new STBs become compatible with both MPEG-2 and MPEG-4. For this reason, we have assumed that, in the period up to 2012, SD channels use MPEG-2. At the moment, SD is broadcast in a mixture of 16 and 64 QAM, but, by 2012, it is likely that 64 QAM is fully adopted. We therefore expect that, around 2012, one DTT multiplex would have capacity for two HD channels or nine SD channels. It is possible to combine SD and HD on the same multiplex; this means that one HD channel could use the same capacity as up to 5 SD channels.

In order to put the potential loss of up to 5 SD channels into perspective, we need to gauge how many SD channels might exist in 2012.

Currently, at any one time, there are around 30 channels available on Freeview (more channels are listed on the EPG, as some share slots by time of day). This number is expected to increase over time, due to technological development (e.g. moves from 16 QAM to 64 QAM) but, more importantly, as spectrum is made available as part of digital switchover. In view of the high levels of uncertainty about how freed spectrum will be allocated, we consider upper and lower case scenarios for DTT in 2012. We have assumed that a maximum of an additional four multiplexes are made available, as shown in Exhibit 15.

The four extra multiplexes represent a likely maximum number of additional digital multiplexes, following digital switchover; these would not be capable of providing 100% coverage of the UK. If universal coverage were required from the new multiplexes, we understand that the number of additional multiplexes is more likely to be around two. International issues in spectrum policy may also prevent more than two additional multiplexes being available for TV. In addition, the additional multiplexes could be used for a variety of services other than SD and HD TV. The scenario where four additional multiplexes carry mostly SD TV is, therefore, very much an upper bound for the expected capacity available for DTT in 2012. At the other extreme, we understand that it is unlikely that the number of multiplexes available for SD and HD TV will fall below the current six.

**Exhibit 15: Potential 2012 DTT multiplex line up**



All multiplexes can be used for any combination of SD and HD video streams, audio streams, mobile TV streams and data services (such as interactive applications)

Source: Reckon/Spectrum

To take account of these uncertainties about future spectrum usage, we consider two cases at the extremes of the likely market developments:

- Upper case: all of the capacity on four additional multiplexes is taken up by HD or SD channels.
- Lower case: all of the capacity on additional multiplexes is taken up by other services (e.g. mobile TV) and only the current six multiplexes are available for SD or HD channels.

On this basis, Exhibit 16 indicates a potential range for the number of SD channels that could be on DTT by 2012, depending on how many multiplexes are available. In each case, we have assumed that there are two multiplexes carrying BBC services, which will only have capacity for a maximum of six SD channels each (because of quality considerations and the capacity needed for other services, such as radio). The other multiplexes are assumed to carry up to nine SD channels.

**Exhibit 16: Number of SD channels available on DTT under alternative scenarios for 2012**

<b>Scenario</b>	<b>Multiplexes available for SD and HD TV</b>	<b>Maximum number of SD channels on DTT</b>
Lower case	6	48
Upper case	10	84

Source: Reckon/Spectrum/BBC

Under the two scenarios, the availability of HD channels on DTT, from the BBC and/or other broadcasters, would reduce the maximum number of SD channels possible.

As noted above, the lower case is probably more likely than the upper case. Within this context, the potential loss of up to five SD channels by 2012 — by launching the full BBC HD channel on DTT — could hold back the further development of competition between different SD broadcasters on the DTT platform, to a limited degree, compared to the counterfactual under which the BBC would only operate the overnight HD service on DTT in the period up to 2012.

We have not examined how significant, from the consumer perspective, such an effect would be. But it is important to recognise that the potential effect of the proposed BBC HD channel, on the availability of SD channels on DTT, would be concentrated on those channels with relatively low shares of viewing — we would not expect any of the most popular commercial SD channels on DTT to be displaced. This is because competition between commercial broadcasters, for scarce capacity on the DTT platform, will tend to mean that any new entry of HD or SD channels on the DTT platform would only be at the expense of the (commercially) weakest channels on that platform.

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