Report for the BBC

Forecast of the viewing impact of proposed changes to BBC iPlayer

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COMMUNICATIONS CHAMBERS

Disclaimer

This is an independent report funded by the BBC. The opinions offered herein are purely those of the authors They do not necessarily represent the views of the BBC, nor the views of all Communications Chambers members.

Contents

1 Introduction

1.1 Context

The BBC proposes to make a number of changes to iPlayer, its video-on-demand service. In particular, it plans to:

- Extend the availability of certain new programming to 12 months or more (from 30 days)
- Offer 'box sets' on iPlayer– that is, offer prior series of shows alongside the availability of the current series
- Offer archive content, making available certain programmes previously broadcast by the BBC (but unrelated to current broadcast material).

These changes are subject to a Public Interest Test by Ofcom, considering both the public value and the market impact they may generate.

Fundamental to both public value and market impact is the increased consumption the changes will generate. All else being equal, we would expect a larger increase in BBC consumption to result in greater value and impact.

Communications Chambers has been commissioned by the BBC to develop a forecast model of impact of the proposed changes. This paper sets out our methodology, our assumptions and our results.

1.2 Caveats

Any model includes simplifications and assumptions, some of which may be best-estimates. This model is no exception. The results we provide should therefore be seen as 'mid-range' figures, rather than specific predictions. We provide sensitivities to explore the range of outcomes if input assumptions are varied.[1]

A particular challenge with this model is that there is limited consistent data on consumption. There is no single source that reliably measures BVOD and SVOD consumption in the way in which BARB measures linear viewing, for instance.[2] Therefore to build a picture of *current* BVOD and SVOD we have needed to triangulate from various sources.

[1] See page 23

[2] BARB's project Dovetail has recently started reporting BVOD usage on mobile devices, but does not distinguish between BVOD and DVR use on the TV set, and does not treat SVOD at all

In addressing uncertainties such as this, we have taken a conservative approach with regard to market impact. That is, if there was uncertainty regarding an assumption or approach, we have generally erred on the side of the choices that would lead to *higher* consumption. (However, the consequence is that the approach may be regarded as somewhat aggressive as regards value).

1.3 Sources

Wherever possible, the model makes use of public domain sources. However, BBC data on the results of its trial of extended windows is a critical input. Regarding BARB, to avoid licensing issues that would likely lead to substantial redactions, we have used public domain sources of BARB data (Ofcom, BARB's website and so on), rather than drawing directly on its proprietary viewing figures. In a small number of cases this means we are not using the latest available data, but these are not material to our results.

1.4 Outline

The model structure is set out overleaf. In the remainder of this paper we describe its workings and results in more detail. We first set out our counterfactual - our view on how the market (and the BBC's services) would develop absent the changes. We then provide our methodology and assumptions for predicting the impact of the service changes. Finally we provide forecasts for the impacts both on the BBC and other market participants, alongside sensitivities for these results.

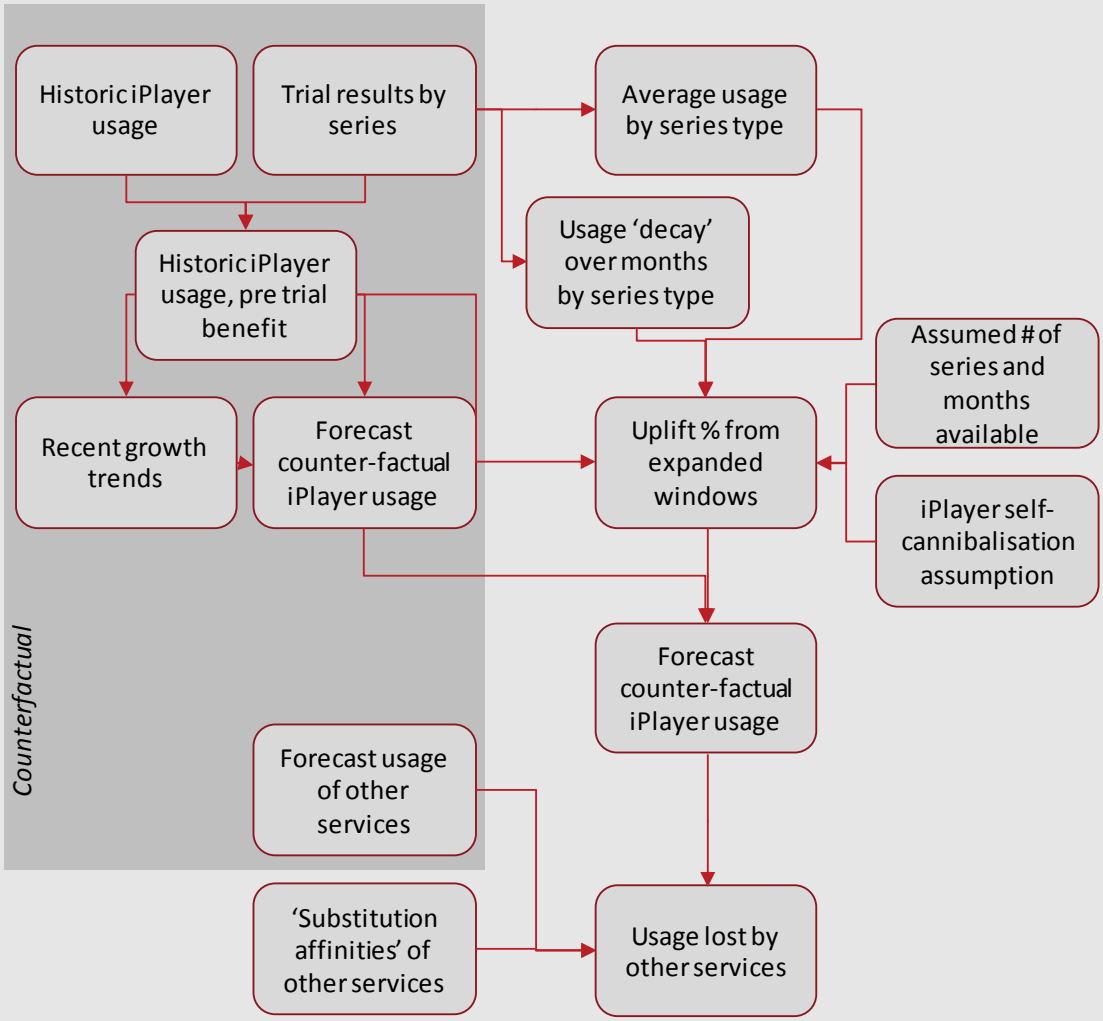
The focus of the model is on-demand consumption. Changes to live consumption via iPlayer are out of scope, but this consumption is unlikely to be materially affected by the proposed changes.

1.5 Findings

We find that the extended windows are likely to result in a net increase in iPlayer usage of 7.3 minutes per user per day in 2024. This is equivalent to an increase of 1.9 minutes of BBC iPlayer usage per person per day or 1.7 minutes of BBC usage per person per day.

This increase is at the expense of a variety of other services. We forecast a 3.4% reduction in 2024 usage of other BVOD services, and a 1% reduction in SVOD usage.

Figure 1 Simplified model structure



2 Approach to the counterfactual

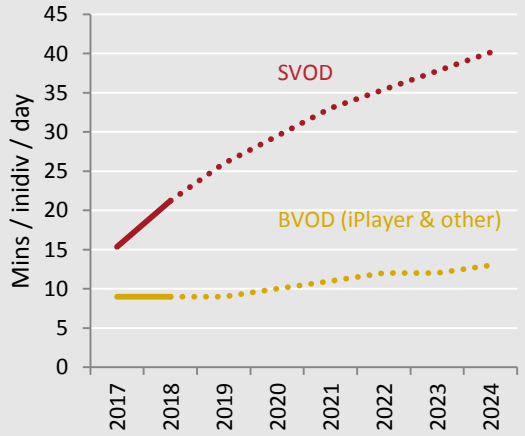
To develop our counterfactual forecast, we have considered BVOD, SVOD, broadcast TV and time online (on mobiles and PCs). For reasons we discuss in detail below (section 4.1) we believe that increased time spent with iPlayer may substitute for usage of all these other services, to a greater or lesser extent. Therefore we need to have baseline forecasts for each.

In addition to these wider market forecasts we also consider the counterfactual usage of iPlayer.

2.1 BVOD & SVOD

For BVOD, we have started from Ofcom's estimate of 9 minutes per day per person in 2017. We are unaware of direct forecasts of BVOD over time. We have therefore worked from Enders' forecast of growing broadcaster time-shifted viewing (including both BVOD and DVR-based viewing).[4] Given that DVRs are a mature technology, we assume that growth in minutes of time-shifted viewing is due to BVOD. We apply these additional minutes to the initial Ofcom figure of 9 minutes per person, to generate our forecast of BVOD.

Figure 2 VOD viewing per person[3]



For SVOD, we have used Enders forecasts,[5] the only third-party forecasts we had available. However, we have adjusted these to add in Now TV (which Enders includes in BVOD). The adjusted figures suggest that minutes per individual per day will grow from 21 in 2018 to 40 in 2024. Enders' historic figures are lower than those estimated by Ofcom.[6] We have used the Enders figures both because they provide a forecast, and because they are more conservative. (A given absolute loss of viewing will be more significant if SVOD's counterfactual consumption is lower).

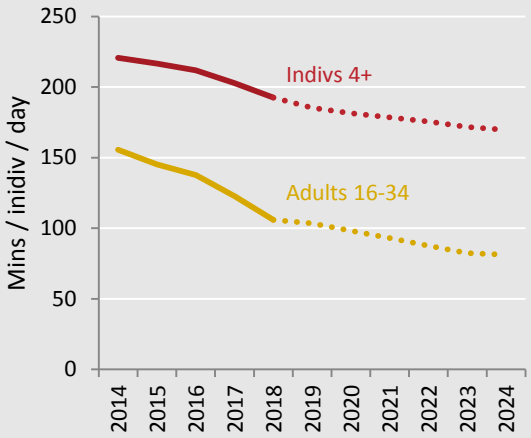
[3] Enders, Ofcom, Communications Chambers analysis
[4] Enders, *The future of video viewing: forecasts to 2028* ,Mar 2019 [Fig 1, 6]
[5] Enders, ibid. We have made a small adjustment to account for Now TV, which Enders includes in BVOD, but which we include in SVOD (to be consistent with the Ofcom BVOD figures, which do *not* include Now)
[6] Ofcom, *Media Nations 2018*, 18 July 2018 [p22]

2.2 Broadcast viewing

For linear viewing,[8] we again use Enders forecasts, of broadcaster content viewing.[9] We have adjusted these downwards slightly to allow for the fact that Enders' forecast includes consumption of broadcaster content not on TV sets. (We treat this online consumption separately).

The model also accounts for other usage of the TV set (besides linear and VOD). This category includes DVDs, some DTO, console gaming and so on.

Figure 3 Broadcast TV viewing per person[7]



2.3 Time online

For time online (of all types), we have used as our base the figures reported in Ofcom's *Communications Market Reports*. Over the last two years, time per individual has been growing at 1.2 hours per year, and we assume this continues. We set aside time spent online at place of work/education, on the basis that iPlayer use at work is likely minimal in these locations.

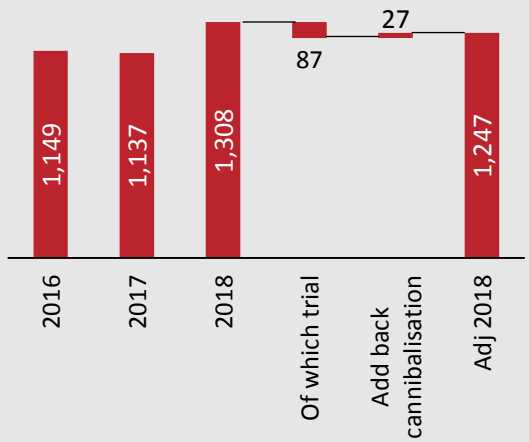
2.4 iPlayer

Our starting point for iPlayer consumption is the BBC's own data on iPlayer streamed hours.[10] On a consistent basis, this is available back to mid-2016. From 2016 to 2017, streamed hours were roughly flat. There was growth in 2018, but at least some of this was driven by the trial. This benefit needs to be excluded from the counterfactual (since extended windows would not be allowed in this scenario).

[7] Enders, Communications Chambers analysis
[8] Note that linear viewing, as reported by BARB, will include time-shifted viewing via players (i.e. BVOD) on the TV set. Conversely it excludes viewing on non-TV devices. The model accounts for these issues
[9] Enders, ibid
[10] This includes both live streams and download playbacks.

Streams of trial programmes (excluding the first month after transmission for new & returning series)[12] totalled 87m hours in 2018. However, we assume 30% of general usage (and 50% of children's content usage) was cannibalisation of iPlayer usage which would have happened even without the trial.[13] This implies a net benefit of 60m hours from the trial. Without this, iPlayer streams would have been 1,247m hours, representing a 4% CAGR vs 2016.

Figure 4 Historic iPlayer streamed hours (m)[11]



In the counterfactual we assume iPlayer streams continue to grow at a similar rate in the years ahead. Note that because iPlayer has had a range of improvements to its user interface (UI) over time, this effectively embeds an assumption that the UI will *continue* to improve. For this reason, we do not overlay an adjustment to iPlayer usage to take account of the planned UI enhancements – this would represent a double-count.

Hours of iPlayer streams are not the same as hours of iPlayer viewing, since one stream might have multiple viewers, particularly on TV sets. In line with the assumptions used by BARB in its Project Dovetail (analysing cross-platform viewing), we have assumed that there are 1.8 viewers for each stream on TV, and 1.07 on other devices (mobiles, tablets and PCs).

2.5 TV Set vs Mobile/Computer usage

The final element of the counterfactual is to split usage of on-demand services between consumption on the TV set and consumption on mobile devices & computers.

For the BBC, the share of viewing on the TV has risen to 64% with the rise of smart TVs and peripherals that enable online viewing. We forecast this percentage will continue to rise, reaching 76% by 2024.

We further assume that commercially-funded BVOD ('Other BVOD') and SVOD providers have a similar split.

[11] BBC, Communications Chambers analysis (2016 annualised)
[12] We exclude these since the first month of availability for these series is 'business as usual', and would be allowed even without approval for the extended windows
[13] See more detailed discussion at page 13

3 Forecasting increased iPlayer usage

Our analysis of the likely increase in iPlayer usage due to extended windows depends at heart on the results of the trial of extended windows which the BBC ran in the latter part of 2018 and early 2019.

The trial for general (i.e. non-children's) content included almost 250 series, across the categories of 'new & latest', 'returning' and 'archive'. These groups were further split between scripted and other programming. There was also a smaller trial of children's content. We analysed these seven categories separately.

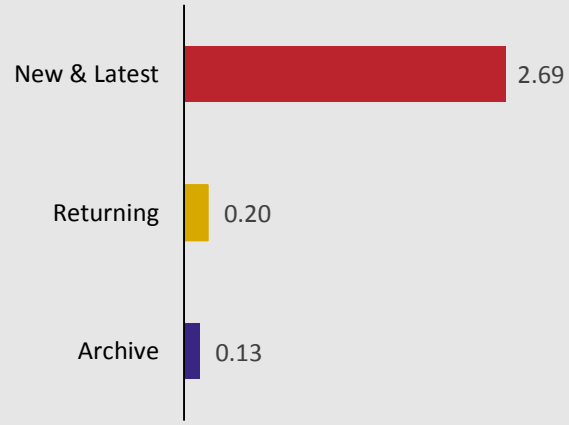
3.1 Decay and average viewing

The general content trial provides two key assumptions for the model: the average Month 1 (M1) viewing of each type, and how that viewing 'decays' over time.

Month 1 viewing

Average Month 1 streamed hours per series is shown in Figure 5.[14] (For simplicity, we have combined scripted and other in each category). New & Latest series are considerably stronger performers, not least because they are new. They also benefit from linear transmission, which promotes the series and creates a body of the audience that are interested in using catch-up if they have missed an episode. Such series may also benefit from media coverage and/or word-of-mouth.

Figure 5 Average M1 streams, m hours



Note that these averages cover wide variation, due to the quality of the content, the number of episodes in a series, the length of those episodes and so on.

[14] Note that M1 usage here means usage in the first 30 days of availability for each episode in the series, not usage in the first 30 days after TX for the first episode

Decay – General content

However, all types of series experience a substantial and sustained drop-off in viewing per month. This decay is caused by many factors, including:

- Programmes later in their window are less likely to receive promotion on iPlayer, meaning a consumer is less likely to discover it within iPlayer
- Over time, more and more of the people potentially interested in the programme will already have seen it, leaving a diminishing pool of likely viewers
- For New & Returning programmes, after Month 1 they lose the benefit of linear promotion, and any initial 'buzz' is likely to fade

To understand this decay, we looked at the monthly viewing of episodes of the 154 series available for 2 months or more. Given the length of the trial, a small number of series were available for 6 months, but most were available for much shorter.

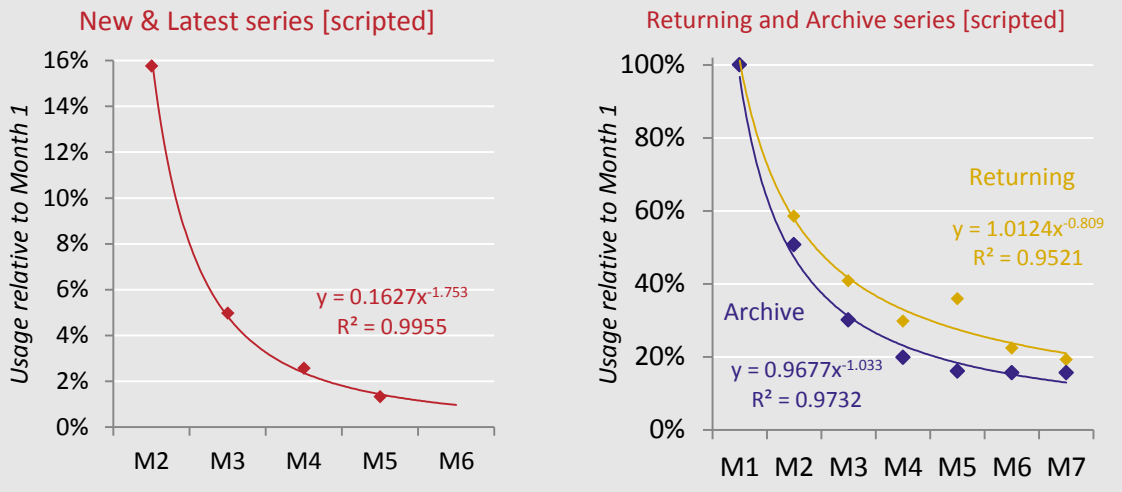
To get a long term perspective while still making use of the richer data available over shorter periods, we created a 'chained index'. To understand decay from M1 to M2, we calculated the ratio of M2 usage to M1 usage for all series available for two months; to understand decay from M2 to M3, we used the smaller set of series available for three months; and so on. By multiplying these ratios together, we calculated the 'chained index' of the rate of decay over six months.

For the six[15] general content categories (with one partial exception) generally resulted in smooth curves, that fit a power regression well (R^2 of 0.95 or more for four, with R^2 of 0.86 and 0.79 for the others).

The exception is M1 to M2 of New & Latest series. As we have noted, such series benefit from a boost due to linear transmission in the initial month. Once this is past, usage falls off rapidly – for example, for New & Latest scripted, M2 usage was around 16% of M1 for New & Latest series, while for Returning and Archive scripted it was around 55%. However, after this initial drop-off, from months 2-6, new & returning series saw a smooth decay, and we therefore conducted our regressions on these months.

[15] 'new & latest', 'returning' and 'archive', each split 'scripted' and 'other'

Figure 6 'Decay curves' for sample categories of series



Given the good fit of these curves to the actual data, we believe they can be used with confidence to predict how usage would continue to decline over a greater number of months – for instance, a 12 month availability, as anticipated in the proposed changes. For example, for a New Scripted series, viewing over 12 months is expected to be 1.28x Month 1 viewing. (However, only 0.28x of this represents incremental viewing from the service changes, since series can be made available on iPlayer for one month regardless). For Returning and Archive, which see less steep drop offs after M1, the ratios are higher. For Scripted Returning and Archive 12 month viewing is expected to be 3.84 and 2.94x Month 1 respectively, for example.

Decay – Children's content

We have taken a broadly similar but simplified approach for children's content. The much smaller trial of children's did not allow the same level of disaggregation, so we have grouped all archive and returning children's content together. There was no trial of an extended window for new children's content, so for this we have projected the decay curve based on the daily viewing within the first month of availability for a sample of approximately 100 new releases[16].

[16] The analysis was at an episode level. Episodes were randomly selected from children's programmes that were broadcast in 2018/19.

3.2 Projecting incremental usage

Our next step is to forecast incremental usage from extended windows, based on the above analysis of the trial data. To do this we have considered:

- The number of series the BBC proposes to provide with extended windows
- 'Diminishing returns' if the BBC has to dig deeper into less popular programming to increase the number of series available
- Usage on Sky and Virgin VOD platforms
- Cannibalisation of other iPlayer consumption
- Critical mass
- Timing effects
- Exclusivity

Number of series

The BBC has provided the following indicative numbers for the changes to general content availability over the next three years. For modelling purposes, we assume that volume of series also applies beyond the next three years:

- There will be a new standard availability of 12 months for new and latest commissions. Within this, a selection of programmes will be extended for longer: 25 scripted series and 100 series in other genres will be available for a further 12 months (i.e. 24 months overall)
- Selected returning titles will be available as full box sets, with the past series available to accompany the latest series. Each year there will be 100 such past series of scripted returning titles and another 100 past series in other genres, all with 12 month availability
- A selection of titles will be brought back from the archive each year, made up of: 150 scripted series, and 50 series in other genres, all with 12 month availability

For children's content:

- There will be a new standard availability of 60 months for new and latest series
- 120 past series of returning titles, available for 12 months

150 archive series each year, available for 12 months Subject to the adjustments below, we estimate usage resulting from the extended window by multiplying the number of series by the respective

average M1 viewing and the incremental usage based on the decay curves (the 2.94x for New & Latest, for example).

We take a slightly different approach for the default 12 month window for new commissions of general content (and the 60 months for children's), since this does not constitute a specific number of series. In this case, we analyse the portion of 2018 iPlayer usage that would benefit from these increased windows, setting aside iPlayer usage associated with, for example, repeats, news, sports and films. We estimate 38% of total usage is general content that would benefit from the increased windows,, and a further 2% is children's that would benefit. We then apply our incremental viewing ratios to this usage to calculate the extra viewing resulting from the default 12 and 60 month windows respectively.

Diminishing returns

For the series-based calculations a further adjustment is required. The average per-series viewing calculated from the trial could be reduced if the BBC made substantially more series available each year than were made available in the trial.[17] There is obviously enormous variation in viewing for different series. The most popular series from H2 2018 were heavily represented in the trial (though there were certainly plenty of 'long tail' series too, with lower viewing). As the number of series the BBC makes available increases, it will have to draw more and more heavily on series from the long tail. While these additional series will grow overall viewing, there will be diminishing returns. Put another way, these series are likely to pull down the average viewing per series.

To address this we applied a 'diminishing returns exponent', to reduce the benefit of increasing the number of series. Our assumption was 0.8, which we used as follows. A doubling of the number of series relative to the number in the trial is assumed not to provide a doubling of usage, but rather an increase of $2^{0.8}$ = 1.74x. Similarly, a tripling of series would give a usage increase of $3^{0.8}$ = 2.41x.

Usage on Sky and Virgin programmes

Our data from the BBC trial on streamed volumes does not include usage on the Sky and Virgin VOD platforms. The BBC estimates that these platforms provide a small uplift, and so we have grossed up the trial viewing by this amount.

[17] Strictly, more than the annualised rate of series made available in the trial. Since the trial only ran for 7 months, it was unable to include some of the most popular series that were on-air January to April

Cannibalisation of other iPlayer viewing

The trial data tells us the viewing of the series in question. However, not all this usage is, from an overall BBC perspective, incremental. Some of it will be cannibalisation of other iPlayer consumption – that is, had the trial series not been available, the consumer would have instead watched something else on iPlayer, so that there would not be net increase in her iPlayer viewing as a result of the series being available.

Our assumption is that 30% of the viewing in the trial (and of future viewing resulting from extended windows) is cannibalisation of other iPlayer viewing. This figure is based on based on BBC user surveys following the 2017 and 2018 'extra Christmas content' programmes on iPlayer. In these surveys 28% and 27% of respondents respectively said they "watched these programmes instead of programmes already on BBC iPlayer".[18]

Critical mass

One potential benefit of the extended windows is that iPlayer will come to be seen by more users as a destination, rather than as a catch-up service. The trial did not provide evidence of such a shift, but it is possible that extended windows for more content, on a permanent basis, would result in a change of perception and hence incremental usage.

MTM research regarding the proposed changes found that an incremental 14 percentage points of respondents said that after the changes they would use iPlayer to 'browse for new content'. We take this as a proxy for the number who would start using iPlayer as a destination. We lack empirical data on what uplift in usage might result from this change for these users, but have assumed a figure of 25% (resulting in a 3.5% overall uplift).

Timing effects

The extended windows will take time to have their full impact. For example, the five year window for new children's content will have only moderate impact in year one, but by the end of year five, all new children's series from the previous 60 months will be available on iPlayer.

For simplicity, we forecast as if the extended windows started in January 2019.

[18] BBC internal analysis of BBC iPlayer online self-selecting survey data

Exclusivity

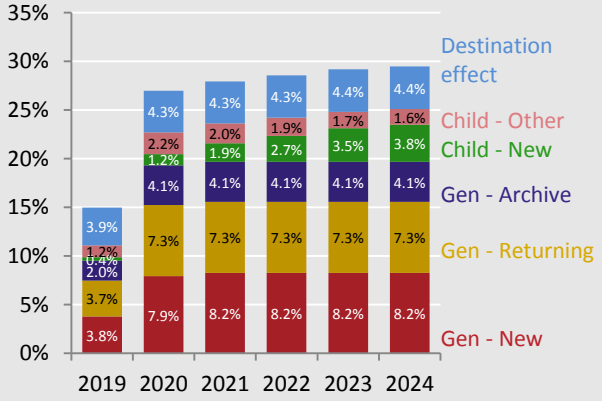
Since our projections of incremental use are based on the trial, when virtually all of the content in question was exclusively available from the BBC, those projections effectively 'bake in' exclusivity for the duration of the extended windows.

In practice, some series may also be available on other services, particularly towards the latter months of the extended windows. We have no evidence of the impact of this. However, since consumption of a series is low towards the end of an extended window, the absolute impact of loss of exclusivity is also likely to be low. We have therefore not factored this issue into our modelling.

Aggregate impact

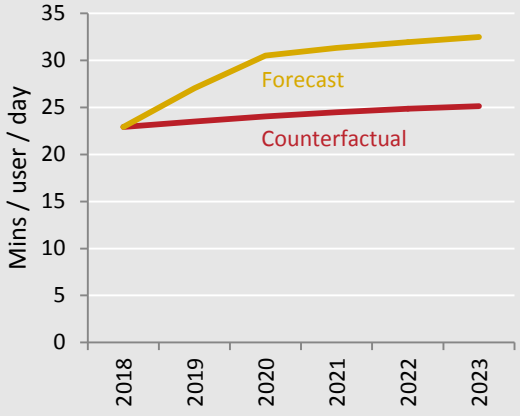
By combining the various adjustments to the trial results, we are able to develop an estimate of the uplift in iPlayer viewing resulting from the extended windows. Once the extensions are 'mature' they result in a 30% net uplift in iPlayer viewing (Figure 7). A little over half of this derives from the extended windows for new general content, and the associated box sets (returning series).

Figure 7 Uplift in iPlayer usage due to extended windows[19]



The absolute impact of this percentage uplift is shown in Figure 8. It provides an extra 7.34 minutes of usage per iPlayer user per day. This is equivalent to an increase of 1.87 minutes per individual. However, some of this increase is at the expense of BBC linear content, so the net benefit to the BBC is 1.69 minutes per individual per day.

Figure 8 Counterfactual and forecast iPlayer consumption[20]



[19] Communications Chambers model
[20] Communications Chambers model

4 Forecasting Substitution

We now turn to the source of the viewing gained by iPlayer as a result of the proposed changes. This is an important issue, since it determines which other market participants will lose consumption, and (potentially) suffer an adverse impact.

The initial materiality assessment by the BBC took the highly conservative approach that all consumption would be gained from BVOD services (including cannibalisation from iPlayer itself). By drawing the scope so narrowly, this allowed an assessment of the 'worst case'. Were the consumption capture to be so tightly concentrated, it would have the greatest potential for an adverse impact on the players in question. Ofcom, in making its own judgement on materiality, also focussed primarily on BVOD.

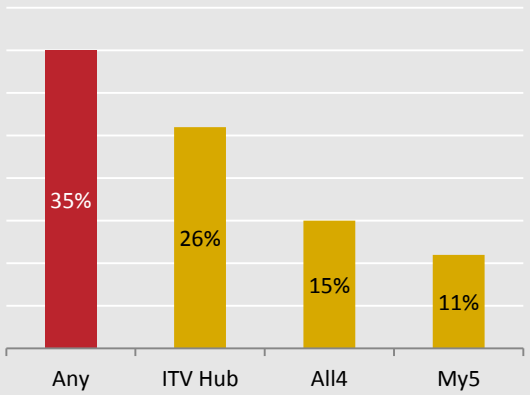
While we understand the logic of this highly conservative approach, we do not believe the assumption that all (or even most) viewing capture would come from BVOD players is sustainable. We set out below the evidence.

4.1 Scope of substitution

A majority of iPlayer users do not use other BVOD services

A first critical point is that according to Ofcom's Technology Tracker survey, only 35% of iPlayer users *use any other BVOD service.*[22] While a high proportion of (say) ITV Hub users use iPlayer, the reverse is not true. For the other 65% of iPlayer users, any increase in iPlayer usage *cannot* come at the expense of other BVOD services, since their usage of those services is already zero.

Figure 9 Portion of iPlayer users using other BVOD services, 2018[21]



For this group increased iPlayer usage must be at the expense of SVOD, linear TV, or other activities entirely. Indeed, 27% of iPlayer users use neither SVOD nor non-BBC BVOD, suggesting there must be some impact on linear TV or other activities.

Of course, there may be some increase in the overlaps of iPlayer and other VOD services over time, but nonetheless there are likely to be significant numbers who are iPlayer or iPlayer+SVOD only.

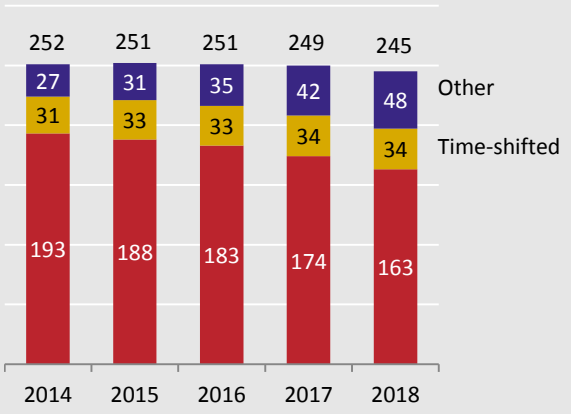
[21] Communications Chambers analysis of respondent level data from Ofcom Technology Tracker H1 2018. We have used Ofcom as a mid-range source – MTM research found higher penetration of VOD services, and CMM lower

[22] Ibid

Total TV time is relatively steady

Since 2014 (the earliest available data), total time spent with the TV per person appears to be essentially flat (albeit with a 2% dip in 2018), notwithstanding the rise of SVOD and many other changes (Figure 10).

Figure 10 TV Screen time, minutes per individual 4+ per day[23]



This suggests that time with the TV is a relatively deep-seated habit that changes slowly, even as the modes of TV use changes. Further, it suggests that an increase in one type of use of the set is likely to be at the expense of other types of use of the set, rather than growing overall time. For example, the increase in 'other' time (including SVOD, BVOD box sets, gaming and so on) appears to have been at the expense of live viewing.[24]

The implication is there is substitution across modes of use, not just within modes. Thus greater iPlayer usage won't simply take share from other BVOD, but will also take share from other modes.

BVOD is a small fraction of total media time

The idea that other BVOD services are the sole 'victims' of increased iPlayer usage stems from the hypothesis that they are the closest substitute for iPlayer (as we will discuss, this isn't necessarily the case). However, even if we allow that BVOD consumption is more likely to be substituted by iPlayer, it doesn't follow that BVOD will lose most to iPlayer. This is because BVOD is such a small percentage of consumer's media time. Thus even if a minute of BVOD is far more likely to be substituted by iPlayer than is a minute of live TV (say), live TV may end up contributing far more minutes simply because it starts with so many more. (To take an analogy, even if Brazil is far more likely to win the World Cup, in most years someone else will win simply because there are many other teams).

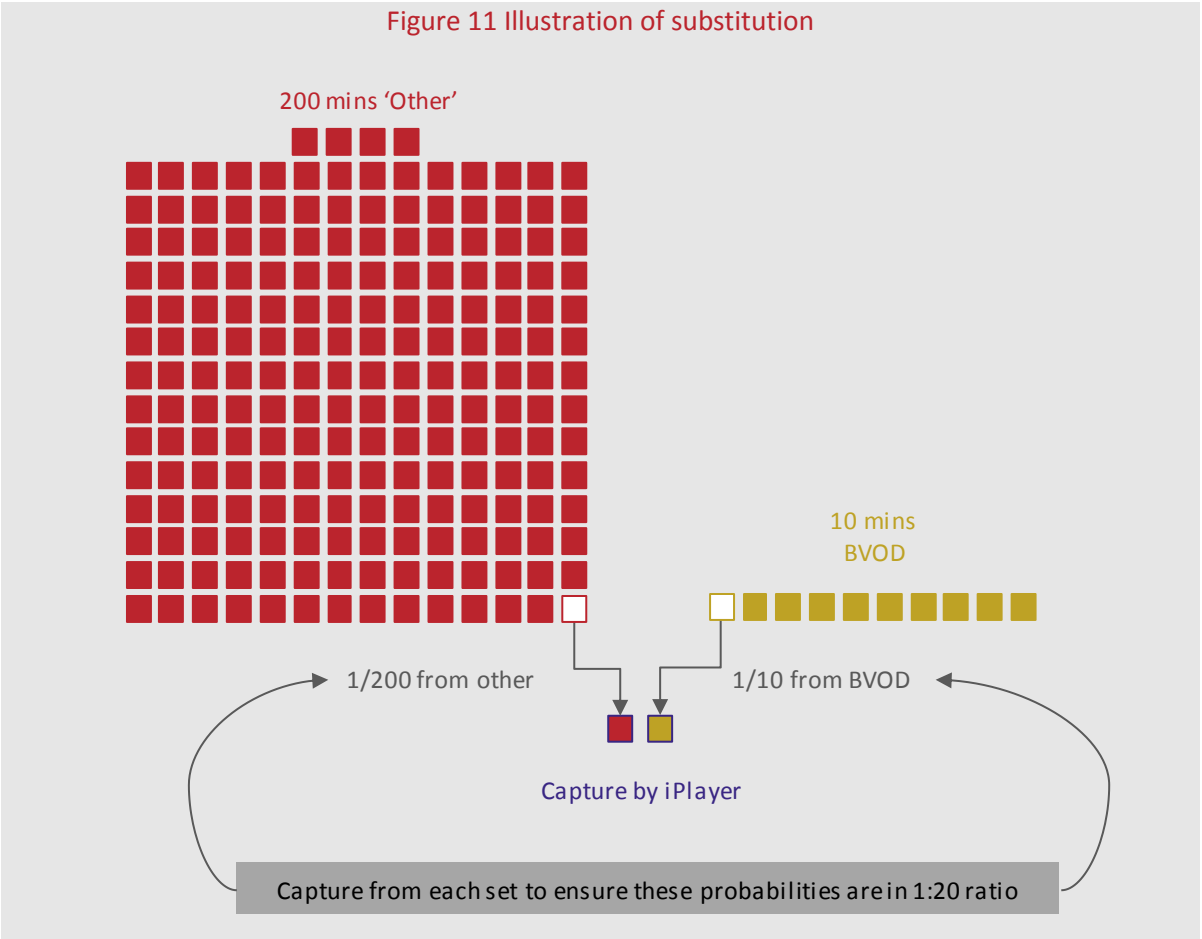
To take an illustrative example (Figure 11), imagine there are 10 mins per day per individual of BVOD, and 200 of live TV. Further, imagine BVOD is *20x* more likely to be substituted than live TV. (As we will see, we estimate the ratio is far less than this – but we use this high figure for the sake of illustration). If iPlayer gains 2 minutes

[23] Ofcom, *Media Nations 2018*, 18 July 2018 [p22]; Enders, *TV set viewing trends: linear audiences tumble in 2018*, 7 Feb 2019 [p16]

[24] It likely also put downward pressure on catch-up too, but since catch-up was likely experiencing underlying growth, the net result was that catch-up time (including via BVOD) stayed flat

of viewing, then just 1 minute will come from BVOD and 1 from live TV, notwithstanding BVOD's much greater substitutability.[25]

Figure 11 Illustration of substitution



The above minutes are (very roughly) representative of the base viewing situation on TV.[26] For usage on computers and mobile devices – where roughly a third of iPlayer usage takes place - the situation is even more stark. BVOD represents just 3 minutes per day of mobile device usage, out of total usage of 169 minutes. Moreover, total time with mobile devices is growing briskly, meaning that increased usage of any one mobile app need not reduce usage of any other.

It is for such reasons that Netflix has said:

> "We earn consumer screen time, both mobile and television, away from a very broad set of competitors. We compete with (and lose to) Fortnite more than HBO. When YouTube went down globally for a few minutes in October, our viewing and signups spiked for that time. … There are

[25] Live TV loses 2 out of 200 minutes, or 1% - BVOD loses 1 out of 10 minutes, or 10%, giving a 10x 'substitutability ratio'
[26] BVOD and live had 9 and 174 minutes of viewing in 2017. See Ofcom, Media Nations 2018, 18 July 2018

> thousands of competitors in this highly-fragmented market vying to entertain consumers and low barriers to entry for those with great experiences. Our growth is based on how good our experience is, compared to all the other screen time experiences from which consumers choose. Our focus is not on Disney+, Amazon or others, but on how we can improve our experience for our members."[27]

Similar logic clearly applies to iPlayer too.

Other BVOD services are not necessarily the closest substitute for iPlayer

While the other broadcasters are the most similar *providers* to the BBC, it does not follow that their VOD services are the closest *products* to iPlayer. For example, 8% of UK consumption on Netflix is actually of BBC content.[28] Clearly this content at least will have very similar characteristics to that on iPlayer – much more so than the content on My5, say.

Another perspective on this issue is what kind of users the content appeals to. According to the Ofcom technology tracker, 70% of weekly iPlayer users are ABC1. This compares to 71% for weekly Amazon Prime users, 63% for Netflix and 57% for My5. Thus on this metric, iPlayer is more closely demographically matched to both Amazon and Netflix than it is to My5. (ITV Hub and All 4's ABC1 shares are 62% and 61% respectively).

More generally, Ofcom has noted that SVOD on the TV set "competes directly with broadcaster-derived content, as it is primarily television series and films".[29] While this doesn't say that SVOD is closer to iPlayer than are other BVOD services, it does suggest that substitution between iPlayer and SVOD is likely.

Consumers report that their substitution would be wide

The above theoretical arguments are strongly supported by survey data. We have two pieces of consumer research in which consumers reported how iPlayer usage substitutes for usage of other services. (We term this mix 'diversion percentages').

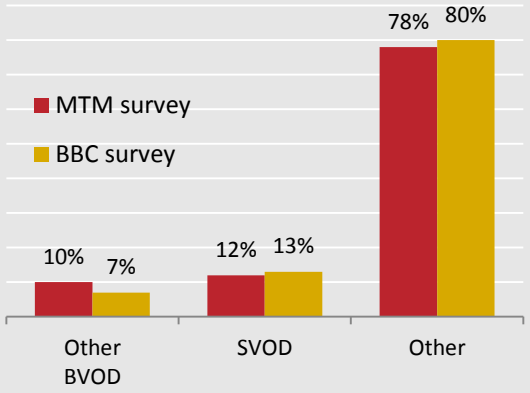
[27] Netflix, *Q4 18 Shareholder letter*, 17 January 2019
[28] GfK, *SVOD Content Consumption Tracker: UK. Quarter 2 2018 Combined Report*
[29] Ofcom, *Media Nations 2018*, 18 July 2018

The first was a 2018 BBC survey of individuals who had just consumed iPlayer content. They were asked what they would have done had that content not been available.

The second was a 2019 MTM survey regarding the proposed changes to iPlayer. Respondents who said the changes would cause them to increase their usage were asked which would be the main other service for which they would reduce their usage.

While the methodology and details of the questions were different for the two surveys, they both found that BVOD would only be a small source of substitution. Both found that SVOD would be more important, but also that a great majority of substitution would come from other services entirely.

Figure 12 Sources of increased iPlayer usage, ('diversion percentages') per surveys[30]



Conclusion

While undoubtedly a material portion of increased iPlayer usage would be at the expense of other BVOD services, we believe that it is inappropriate to assume that all substitution would be from BVOD. We therefore estimate substitution from across other BVOD, SVOD and other time spend with the TV set (including linear) and mobile devices, using the methodology set out below.

4.2 User groups and affinities

In theory we could simply use the diversion percentages found in the consumer research to estimate sources of increased iPlayer usage. However, these percentages will vary over time. For example, as more people start using other BVOD services, then there will be more people who have the option to source their increased iPlayer usage from BVOD. (As noted, a non-other-BVOD user can not substitute iPlayer from BVOD). Further, as per-person usage of BVOD and SVOD increases, they are more likely to be sources of substitution.

User groups

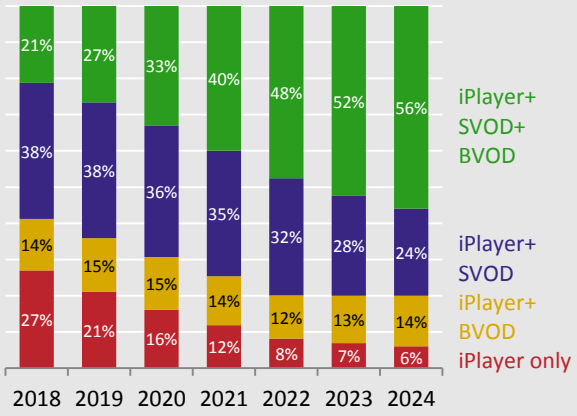
Thus it is necessary to forecast diversion percentages. To do so, we first break out iPlayer users into four groups, based on whether or

[30] MTM survey and BBC online self-selecting survey conducted in December 2018. See body text to left of chart for different framing of the question in the two surveys. Range of alternatives included in 'other' category different for the two surveys. Note that the MTM survey reported higher reach for BVOD services than found by a number of other surveys, and so may overstate the likelihood of substitution of BVOD

not they also use SVOD, and whether or not they use other BVOD. The substitution dynamics will clearly be different for these four groups, since (for example) increased iPlayer usage can not be at the expense of other BVOD if the user in question uses no other BVOD services.

We start from the current mix of these four groups, based on the Ofcom Technology Tracker. However, we assume that overlap groups (eg iPlayer+BVOD, iPlayer+BVOD+ SVOD) will grow as penetration of the respective services grow. However, we assume that even in 2024 there will be 30% of iPlayer users who do not use other BVOD, and 20% that do not use SVOD. These assumptions result in 56% of 2024 iPlayer users also using both BVOD and SVOD.

Figure 13 iPlayer-user usage of other services[31]



For each of these four groups, we then set out their mix of time spent with different services, one each of TV sets and mobile devices/computers. For each group this gives us the mix of 'substitutable minutes' by service.

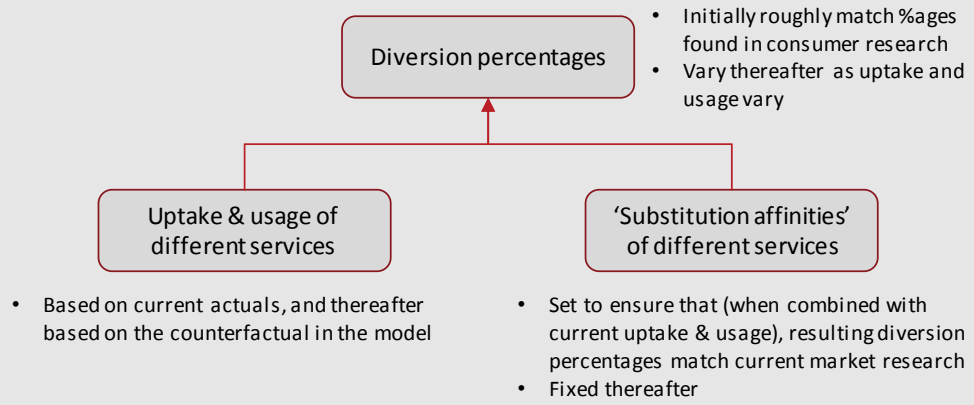
Affinities

To forecast how incremental iPlayer minutes are drawn from these substitutable minutes, we use 'substitution affinities'. These are assumptions for the *relative* probability of substitution for different services. We give Other BVOD an affinity of 1.00, SVOD 0.50 and Other (other TV and mobile use) an affinity of 0.50. This means that a minute of Other BVOD is twice as likely as a minute of SVOD or Other.

We have chosen these affinities so that they result in 2019 diversion percentages that align with the survey data findings on current diversion percentages discussed at page 18. Put another way, while the affinities are not directly taken from the surveys, they are set to be consistent with the survey diversion percentages, taking into account the initial mix of usage.

[31] Communications Chambers model

Figure 14 Diversion percentages, usage and substitution affinities



The substitution affinities implicitly reflect a wide range of factors, including:

- The similarity in content and offer
- The similarity in the mode of consumption (consumers in an 'on demand mode' may be more likely to switch between On-Demand services than linear)
- The attractiveness of different offers to audiences (for instance, paid content is presumably less vulnerable to substitution, since if audiences felt iPlayer was very similar, they might be less likely to spend on paid content in the first place)
- The hierarchy and sequencing of consumption choices (for instance, if consumers generally access iPlayer after first exploring Netflix, iPlayer may be less likely to substitute for Netflix)
- The 'tactical promotion' of services (those actively promoting content, for instance by email alerts, may be less vulnerable to substitution than those depending on consumers actively visiting the site to find content)

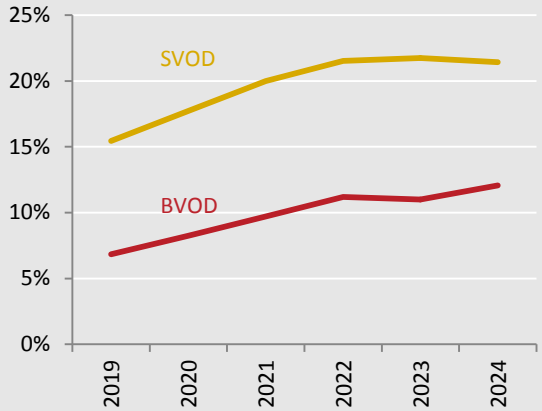
We use these substitution affinities to determine how much substitution is at the expense of the various services used by the user group in question – the diversion percentages - in the manner set out in Figure 11 above.

Finally we aggregate the various user groups to determine overall diversion percentages over time. As noted, in 2019 these roughly match the survey results, but over time the percentages for BVOD and SVOD increase, as more people use these services more heavily.

4.3 Substitution results

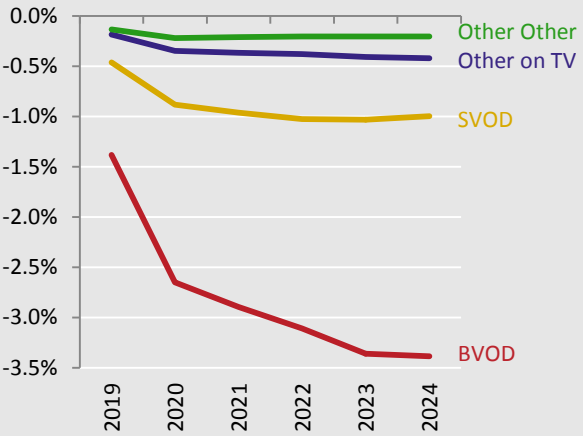
Figure 15 shows the results. The portion of incremental iPlayer usage captured from BVOD and SVOD is initially 7% and 15% respectively. This rises as usage and adoption of both grows, meaning there are more minutes of each exposed to capture by iPlayer. While the substitution affinity is higher for BVOD, nonetheless more usage is captured from SVOD – this is because SVOD usage is roughly six times greater than that of BVOD in 2024. (Over the period, 'other', both on TV and other devices, provides over 70% of the substitution, consistent with the consumer survey results discussed above).

Figure 15 Portion of incremental iPlayer usage captured from BVOD, SVOD[32]



Another perspective on substitution is to consider it relative to the base consumption of the services in question. Thus while initially 7% of the growth in iPlayer is at the expense of other BVOD, this represents a loss of just 1.4% of the counterfactual consumption of other BVOD.

Figure 16 Usage lost to iPlayer by service[33]



Other BVOD experiences a more significant proportionate impact than SVOD both because of its higher substitution affinity, and because more of its users are also iPlayer users. Conversely, SVOD has many users who are not iPlayer users, and by definition these users are not vulnerable to substitution by increased overall iPlayer usage.

[32] Communications Chambers model
[33] Communications Chambers model

5 Sensitivities

Any model is sensitive to input assumptions. Further (as we have noted) this model addresses some areas where definitive data is lacking. Thus is important to understand how the model's base-case[34] outputs might change if input assumptions were varied.

We have therefore run a range of sensitivities, adjusting assumptions up and down to determine the impact on key output variables – in particular BBC usage and reduction in 'Other BVOD' usage.

We have focused primarily on those assumptions that (i) were more judgemental and (ii) did not have trivial impact.

5.1 Impact on BBC usage

In the base case, the benefit of the extended windows is a 2024 increase of 1.69 minutes per day of BBC usage (linear and VOD). Figure 17 shows how this varies for different input assumptions. For example, the base assumption for iPlayer growth is 4%. However, if this is increased to 6%, then the effect of the extended windows is increased by 0.20 minutes per day (to 1.89 minutes per day). If iPlayer usage is heavier (for instance, because more people are using it), then we would expect the extended windows to have a proportionately greater impact.

Figure 17 BBC Usage Sensitivities

Assumption	Base	Low	Change in BBC mins/indiv, 2024 (base: 1.69)	High
iPlayer growth	4%	2%	-0.19 / 0.20	6%
iPlayer cannibalisation rate (general)	30%	40%	-0.16 / 0.16	20%
Uplift from shift to 'destination' usage	25%	10%	-0.15 / 0.15	40%
iPlayer cannibalisation rate (children)	50%	70%	-0.13 / 0.13	30%
Diminishing returns exponent	0.80	0.70	-0.06 / 0.07	0.90
Default window for New & Latest (m)	12		0.02	24

[34] By base case, we mean the default set of assumptions that drive both the counterfactual and the forecast

5.2 Impact on Other BVOD usage

In our base case, we expect the extended availability proposals will reduce usage of other BVOD services by 3.39%. Broadly speaking, the assumptions that are most important to this result are similar to those which drive BBC usage -greater iPlayer usage results in less other BVOD usage.

However, the substitution affinities are an important driver specific to BVOD. If the affinity for BVOD is higher, then it will take more of the impact of higher iPlayer usage, resulting in a greater loss of Other BVOD viewing.

The BVOD growth rate has only moderate impact. If Other BVOD usage is higher, then it will be a source of more minutes lost to iPlayer. However, the *proportionate* impact on Other BVOD is largely unchanged.

Figure 18 Other BVOD Usage Sensitivities

Assumption	Base	Low	Change in other BVOD viewing loss, 2024 (base: 3.39%)	High
Other BVOD substitution affinity	1.00	0.75	-0.72% 0.66%	1.25
iPlayer growth	4%	2%	-0.42% 0.49%	6%
iPlayer cannibalisation rate (general)	30%	40%	-0.32% 0.32%	20%
Uplift from shift to 'destination' usage	25%	10%	-0.30% 0.30%	40%
iPlayer cannibalisation rate (children)	50%	70%	-0.26% 0.26%	30%
TV set share of iPlayer streams, 2024	0%	1%	-0.16% 0.18%	-1%
Diminishing returns exponent	0.80	0.70	-0.12% 0.14%	0.90
BVOD growth rate	6%	9%	-0.10% 0.11%	3%
Default window for New & Latest (m)	12		0.04%	24

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