

The costs and risks of switching to internet distribution for all broadcast TV

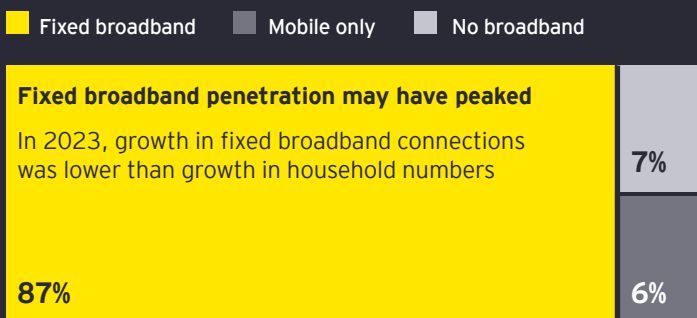
October 2024



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The current hybrid model of free-to-air broadcast television alongside a choice of pay-TV and internet streaming services is working well

Consumers have freedom of choice in the services they take, with 6% of premises relying solely on a mobile internet connection and a further 7% choosing to not take fixed broadband – either because they aren't interested in this service or because they can't afford it:



Our consumer survey finds that many consumers are happy with the TV and internet services they already have:

69%

of consumers agree that they are happy with their broadband speed and **don't think they need a faster connection.**

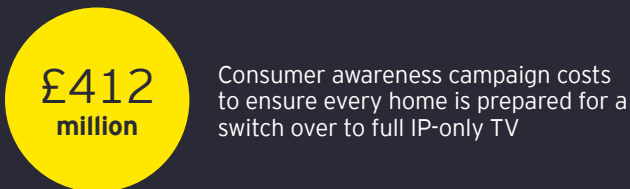
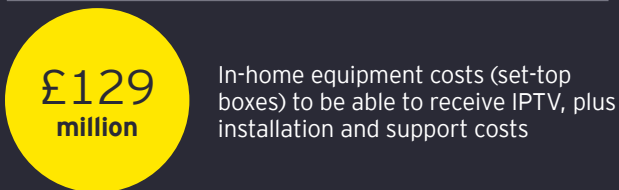
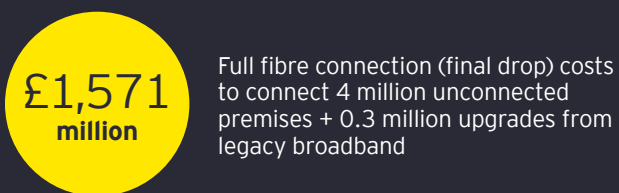
75%

of consumers are happy with how they are currently receiving TV and **don't think it needs to change.**

A full switch over to using only the internet for TV distribution would incur significant one-off and ongoing costs. We estimate (in current prices):

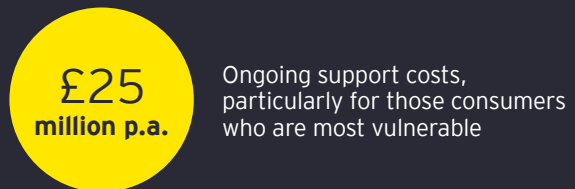
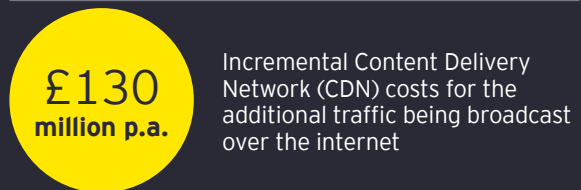
£2.1 billion

of **one-off costs** (in addition to planned network upgrades)

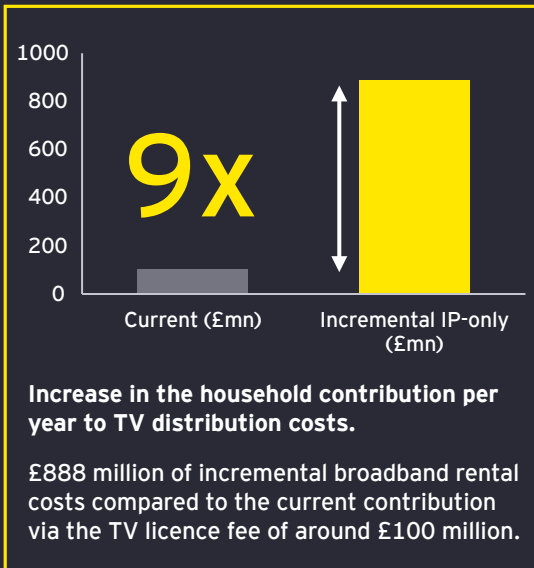


£1 billion

of **ongoing costs** per year



Using only the internet for TV distribution could shift the burden of broadcasting costs onto households, many of whom are unwilling or unable to pay more



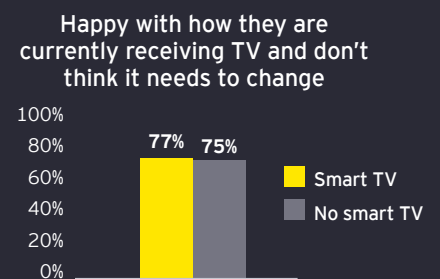
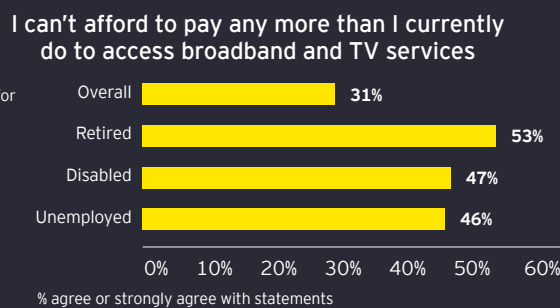
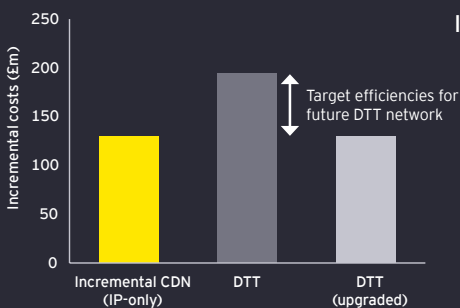
31% of consumers say they can't afford to pay more than they currently do to access broadband and TV services.



37% of consumers say they don't want to pay more for their broadband connection to access TV services.

The benefits of switching to IP-only TV distribution are uncertain:

Switching to IP-only TV risks			Losing DTT puts at risk	
Limited savings for broadcasters as DTT costs are substituted for Content Delivery Network costs	Unequal distribution of benefits with negligible gains for some negatively affected consumers	Funding challenge to ensure all premises have high-speed fixed broadband – who pays?	A universal service across all of the UK that already works well for consumers	99.9% service availability of DTT that broadband networks would need to match



Maintaining a cost-effective hybrid model that offers choice and resilience will not hold back Broadband Britain, and is the option with the least risk of negatively impacting vulnerable consumer groups.

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Key terminology of TV distribution

- ▶ **Linear TV:** refers to traditional TV programming that follows a set schedule, where viewers tune in at specific times to watch shows as they are broadcast. It's the conventional way of watching TV, with channels like BBC One, ITV, and Channel 4 in the UK. Linear TV can comprise either live content (e.g., news) or pre-recorded content (e.g., films).
- ▶ **Live TV:** is the real-time broadcasting of events as they happen, without delay. It includes news, sports, and special events and it can be delivered via any of the delivery mechanisms below.
- ▶ **Digital Terrestrial Television (DTT):** TV services, such as those provided by public sector broadcasters (PSBs), including the BBC and ITV, which are broadcast via DTT equipment on towers owned by Arqiva – the broadcast infrastructure provider – and received by consumers via their rooftop TV aerials.
- ▶ **Free-to-air TV:** refers to TV services which are free at the point of consumption. Free-to-air TV in the UK is provided by the DTT network and via the Freesat satellite TV service.
- ▶ **Internet Protocol Television (IPTV):** is a digital TV service delivered over the internet instead of traditional DTT, satellite, or cable formats. It allows users to stream live TV and on-demand content through a broadband connection. In the UK, EE TV and TalkTalk TV are examples of IPTV providers.
- ▶ **Over-the-top (OTT):** refers to media services offered directly to viewers via the internet, bypassing cable, broadcast, and satellite television platforms. Examples in the UK include Netflix, Amazon Prime Video, and BBC iPlayer.
- ▶ **IP-only TV:** throughout this report, we talk about a full switch over to IP-only TV. This refers to one of Ofcom's potential options for the future of TV broadcasting in the UK whereby TV would no longer be provided by the DTT network and instead be fully delivered over the internet (by IPTV or OTT services).

A young man and woman are sitting together, smiling and looking at a smartphone held by the man. The man is wearing a light blue denim jacket over a white t-shirt, and the woman is wearing a dark blue sweater. The background is a warm, orange-toned wall.

Executive summary

The hybrid model of free-to-air and IP-based streaming TV services works well for consumers

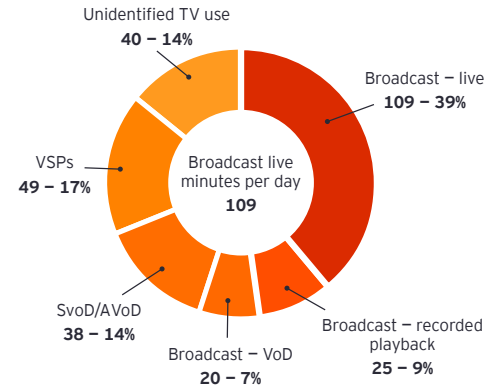
Live broadcast is still the most popular method of TV viewership in the UK

Ofcom's 2024 report on the Future of TV Distribution also shows that over 80% of households (21.8 million) watch the traditional TV channels (via DTT, satellite or cable) in 2023 – either in combination with an IPTV or an OTT service (17.9 million), or as the sole way to receive TV (3.9 million).

It also highlights that the share of live broadcast TV remains nearly 40% of total viewing across all devices, despite the recent increase in streaming.

Importantly, DTT remains the platform of choice for key live content, such as news and major live sporting or cultural events. According to Ofcom's 2024 Media Nations report, between 82% (BBC) and 95% (Channel 5) of all PSB viewing is still via broadcast services, rather than their OTT services.

Average daily minutes of all in-home video viewing across all devices, all individuals, 2023



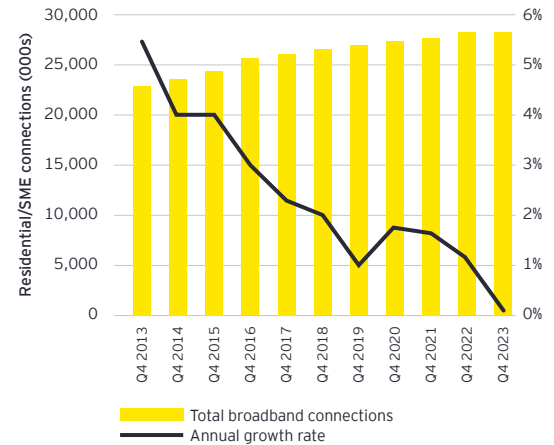
Source: Barb as-viewed. Individuals (age 4+), across TV and other devices in the home where they are connected to the Wi-Fi. Of the 20 minutes of viewing to broadcaster VoD, less than one minute is watched live, at the time the programme is being broadcast on the linear channel.

Peak fixed broadband penetration may already be reached

Today, around 87% of premises choose to take fixed broadband (of which 72% have a high-speed connection), with a further 6% choosing to access the internet solely via mobile.

Of the 7% not taking broadband at all, for some there is an issue of affordability, but for others this reflects a lack of interest in online services.

This is consistent with Ofcom data, which suggests that the UK may have reached 'peak fixed broadband', given that the growth in fixed broadband connections in 2023 (+0.1%) was lower than the number of new households (+0.6%).



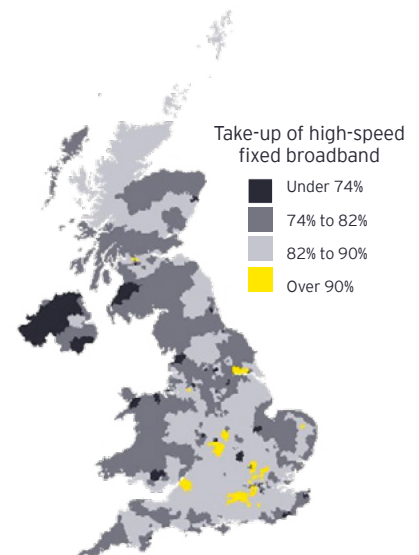
A hybrid model would continue to provide a choice to an estimated 5.5mn premises without high-speed broadband in 2040

Consumers currently have the freedom to choose how they combine their broadband with a range of options for TV, including pay TV, streaming services and free-to-air broadcast TV via the Digital Terrestrial Television (DTT) network.

The DTT network offers UK consumers the choice of a reliable service, free at the point of consumption with near universal (over 98%) coverage.

In contrast, our previous report estimated that around 5.5 million premises (18%) still won't have taken up a high-speed fixed broadband connection by 2040.

Those forecast to be without high-speed fixed broadband are more likely to be elderly, have mental or physical health issues, or in a low-income household. Overall, 301 constituencies are expected to have adoption rates below the forecast national average (of 81%).



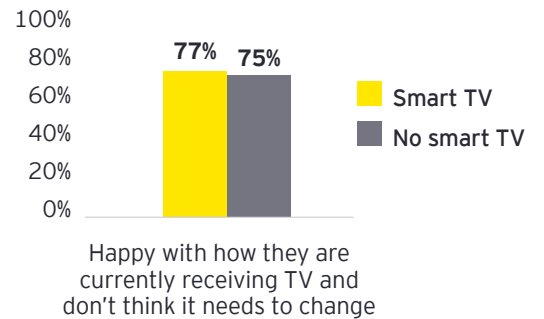
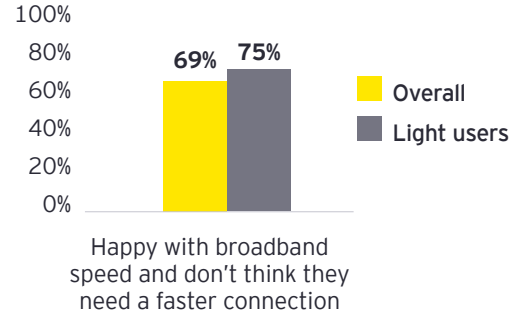
Consumers are happy with existing TV offers, and don't want to be forced into watching only over the internet

Over three-quarters of respondents don't think TV service offerings need to change

In May 2024, we undertook a representative online survey of 1,500 UK households to gather views on their satisfaction with their current broadband and TV services, and their attitudes towards a potential switch over to IP-only TV delivery.

Our survey data shows that the majority of consumers are happy with their current broadband, especially those who don't use many online services.

The data also shows that the majority of consumers are happy with how they are currently receiving TV, and those without a Smart TV – the greatest users of DTT – are just as happy as the overall sample.

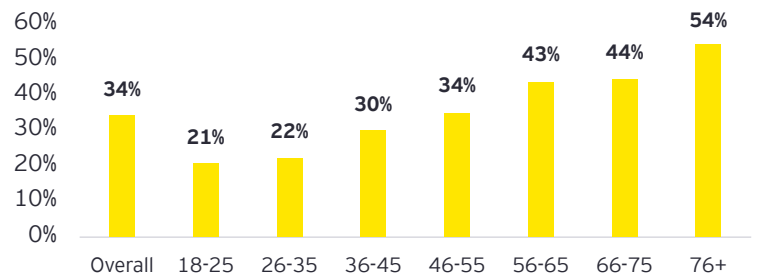


34% don't want to pay extra for additional functionality

When asked in our survey, 34% of people don't want to pay extra for the additional content and functionality that IPTV could provide.

This includes more than a fifth of under 35s and around half of over 65s.

Concerned about paying extra for interactive or on-demand features or additional television content that I won't use

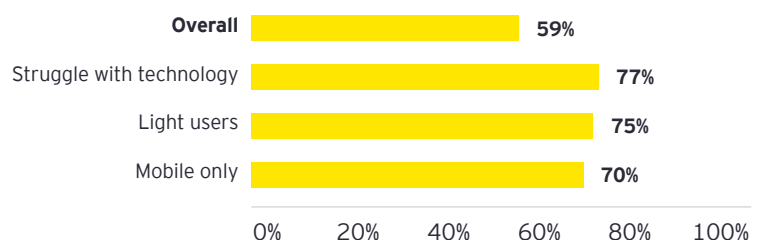


59% of people would be concerned about being forced to have high-speed internet to watch TV

More than half of the people we surveyed (who already have internet access) say they do not want to be forced to have a high-speed internet connection in order to watch TV.

This is particularly pronounced among those groups that say they struggle with technology or are less engaged with fixed broadband (either as light internet users or mobile-only internet users).

I don't want to be forced to have high-speed fixed broadband internet connection in order to be able to watch television



If there was a full switch over to distribute all TV via the internet, the costs to the UK would be significant

In addition to £2.1bn of upfront costs, £1bn of annual ongoing costs would be required to migrate to IP-only TV distribution.

Our estimate of the potential incremental costs of migrating to an IP-only TV delivery model are set out below.

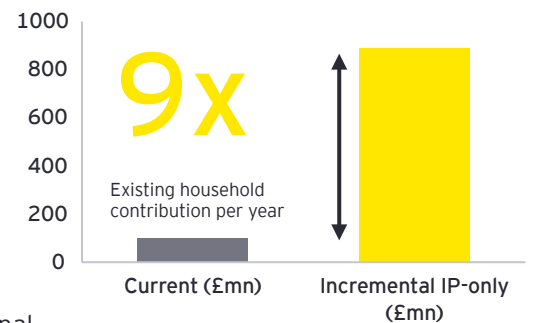
£2.1 billion in one-off costs (in addition to planned network upgrades)			£1 billion per year in ongoing costs		
£1,571 million	£129 million	£412 million	£888 million p.a.	£130 million p.a.	£25 million p.a.
Fibre connection (final drop) costs for unconnected premises	Technology costs (in-home equipment and set up)	Consumer awareness campaign costs	Incremental broadband rental costs for premises not otherwise taking high-speed fixed broadband	Incremental content delivery network costs	Ongoing support costs

£888mn per year of ongoing costs would represent a nine-fold increase in households contribution to TV distribution costs

Currently, broadcasters pay for TV to be distributed over the transmission network operated by Arqiva. These costs – currently around £200m per year, with scope to reduce in the future (see p.11) – are funded through a combination of the TV licence (in the case of the BBC) and advertising revenue (in the case of commercial broadcasters).

This means that households currently pay a small share of the overall TV distribution costs – around £4 per household per year, as around 3% (£100 million) of the £3.74 billion licence fee is attributable to this.

In contrast, a full switch over to IP-only TV would see the cost contribution from households for TV distribution to increase nearly nine-fold, as an additional £888 million in annual broadband fees for previously unconnected premises would be needed to ensure everyone has a suitably reliable, high-speed internet connection.



74% of consumers would expect a reduction in licence fee if they were forced to pay extra for their internet connection

When asked, 74% of consumers say they would expect a reduction in the licence fee if they were forced to pay extra for their internet connection to receive IPTV. For comparison, that £888 million per year of additional broadband costs represents 24% of the current licence fee.

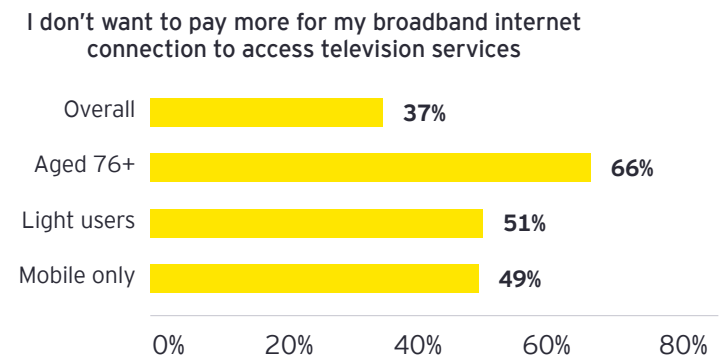
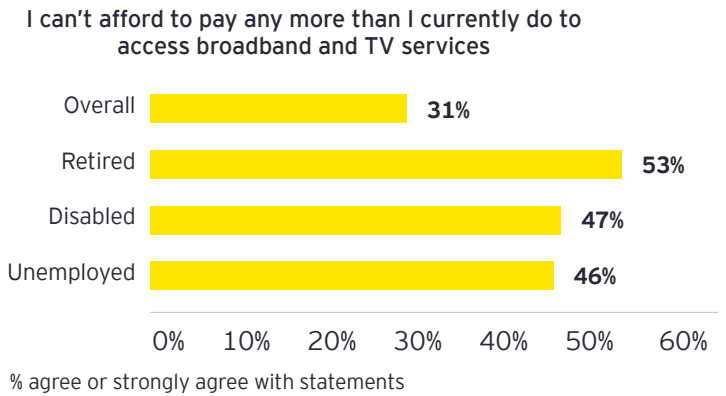
It remains unclear who would bear this cost, as many of those households would likely be unable or unwilling to pay for a new broadband subscription. Whilst some may be eligible for social tariffs – putting more of the burden onto Internet Service Providers (ISPs) – others may require ongoing government intervention in the event of a transition to IP-only TV, placing the burden on taxpayers.

Substantial government intervention would be needed to help with affordability, usability, confidence and awareness

Affordability: Almost a third of consumers say they can't afford to pay any more to access broadband and TV services

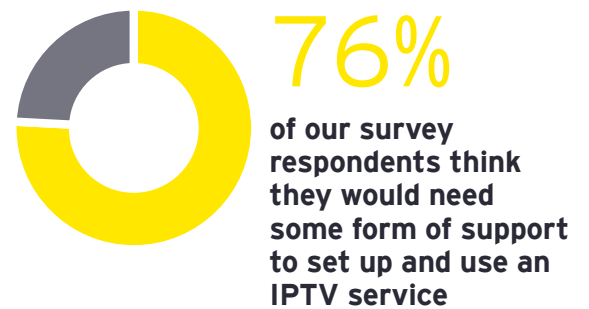
Ofcom research highlighted in January 2024 that 28% of households (eight million) had difficulty affording a communication service, with those on benefits and those including someone with an impacting or limiting condition being most affected.

Our own survey research confirms this, with vulnerable groups highlighting greater concerns around affordability and a lower willingness to pay for a high-speed fixed broadband connection to receive TV, which government may be forced to fund in the event of a full switch over to IP-only TV distribution.



Usability: Over three-quarters of respondents believe additional support to set up IPTV services would be required

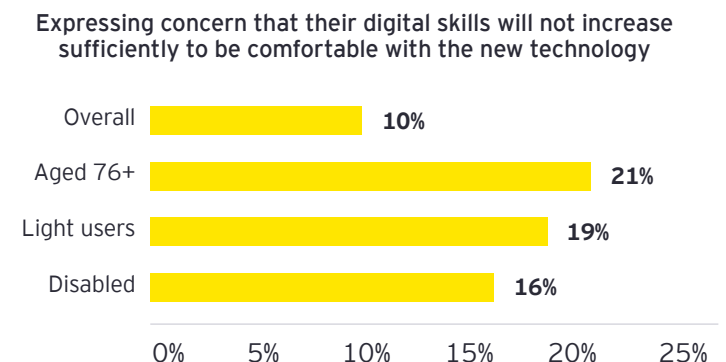
Many of the respondents to our survey also expressed a need for some form of additional support in the event of a transition to IP-only TV. The type of support required ranges from information provided online, via the TV or through the post to in-home engineering support and ongoing support from friends, family or carers.



Confidence: A significant group of people would not be comfortable accessing TV over the internet

Furthermore a significant group of people were concerned that their digital skills would not be sufficient to be comfortable with new technologies.

This suggests that even with broader policy interventions, not all consumers would be ready or willing to make a full switchover to IP-only TV.



The cost savings from IP-only delivery would be minimal, with little public support for government funding

Cost savings for industry would be minimal due to an estimated £130mn of additional spend required to deliver all content over the internet

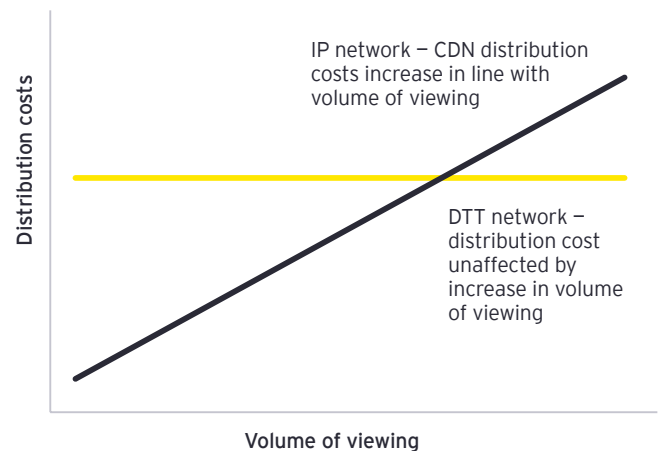
In the event of a full switch over to IP-only TV distribution, broadcasters would need to pay an estimated £130 million in costs related to the incremental data they must transmit across the 'Content Delivery Networks' (CDN) in order to deliver all of the live TV that is set to be broadcast.

We estimate that around 70% of these incremental CDN costs (£89 million) would be incurred by PSBs.

Even under the existing Net Neutrality regime, there may be additional costs imposed by internet service providers (ISPs) to offer 'specialised services' with improved service levels agreements (SLAs) required for a reliable live TV service – further increasing costs to broadcasters of IP-only distribution.

In contrast, Ofcom's proposition to support a more efficient DTT service (as part of a continued hybrid DTT/IP distribution system) would mean falling costs to broadcasters for DTT transmission, less incremental CDN traffic for broadcasters, more resilience at peak-times for viewers and less pressure on broadband networks.

Illustrative example of how network distribution costs scale with changes in volume of viewing

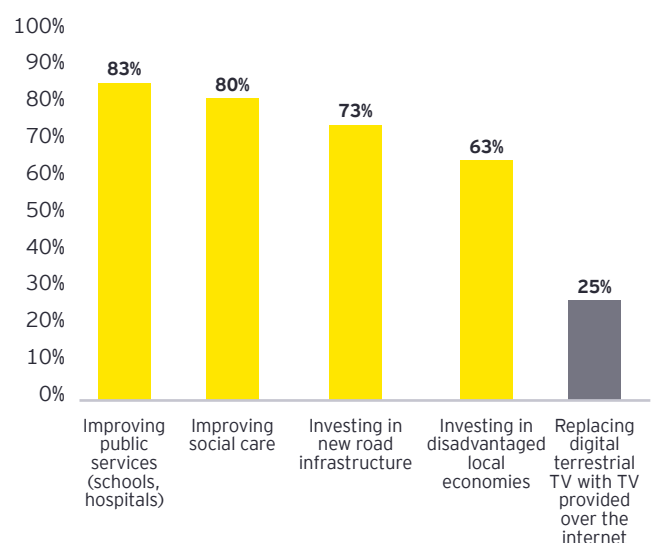


40% of survey respondents say a switch to IP-only TV distribution would be a bad or very bad use of government funding

Given the different needs and attitudes across different customer groups, it seems likely that the government would need to fund an extensive awareness campaign if there was a full switch over to IP-only TV. A campaign like this – undertaken over a period of five years – was required when the UK moved from analogue to digital TV over the period 2007 to 2012 (known as the 'Digital Switch over' or DSO).

Compared to the DSO, a potential switch to IP-only TV would likely be more complex, more time consuming and more expensive, as many people would need to be persuaded to take up broadband or upgrade their broadband in order to reliably stream live TV. However, taxpayers feel that funding a potential transition to IP-only TV would not be a good use of government funds.

Respondents considering different areas of spending to be a good use of government funds



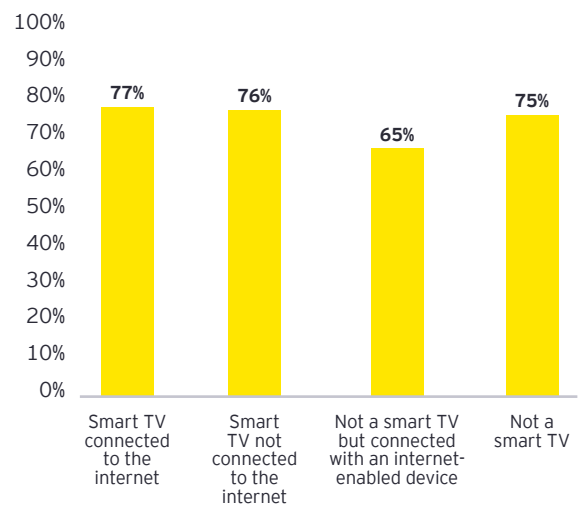
The benefits to consumers of IP-only TV delivery would be limited, with internet adoption uninhibited by DTT

The incremental consumer benefits would be limited compared to the existing DTT / IPTV hybrid model

Consumers are currently taking up the broadband service that meets their individual needs and adopting online services where they see the benefit in doing so. Many online services, such as online banking or e-health services, don't require high-speed fixed broadband and therefore some people may find that a lower-cost broadband or mobile-only connection better suits their lifestyle and budget. Other consumers may have little interest in online services or find that limited digital skills pose a barrier to engagement and adoption.

There are undoubtedly many benefits to consumers from having access to the internet. However, the development of broadband adoption in the UK is not currently being inhibited by the DTT network and whilst a move to IP-only TV would obviously drive a significant increase in fixed broadband penetration, it is not currently clear if forcing consumers to adopt it by switching off DTT is in the best interest of the population.

Respondents who are happy with how they are receiving TV and don't think it needs to change



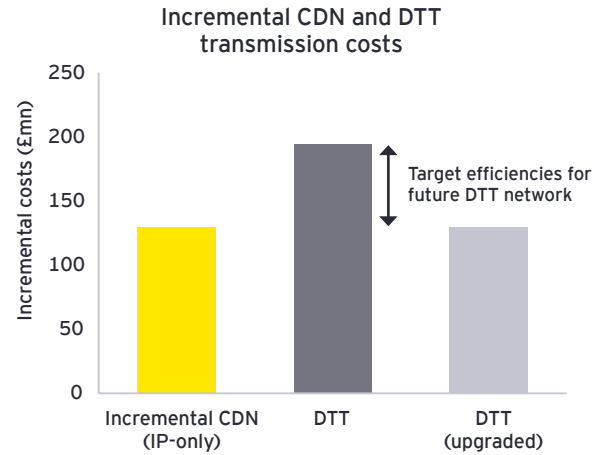
Maintaining the existing hybrid DTT / IPTV model, with targeted investments to upgrade DTT, would be more cost-effective and fairer

Cost effective: anticipated efficiencies in DTT will erode any potential savings from IP-only distribution

A switch-over to IP-only TV would be expensive, at an estimated £2.1 billion in one-off costs and £1 billion per year in ongoing costs. It is unclear who would bear the incremental costs of connecting all premises, with many consumers unwilling or unable to pay for high-speed fixed broadband.

Maintaining a hybrid model is an achievable and more cost-effective solution. Currently, the costs that broadcasters pay for DTT transmission are £194 million per year (source: Arqiva Regulatory Accounts), – £64 million higher than the £130 million estimated annual cost of incremental CDN traffic in the event of a switch over to IP-only TV.

This suggests the DTT transmission network would need to be 33% more efficient in order for the cost of the existing DTT / IPTV hybrid model to equal that of an IP-only distribution model. Through discussions with industry, it is expected that the DTT network would be able to meet the required level of efficiency over time, eroding any relative cost savings that broadcasters anticipated from distributing TV only via the internet.

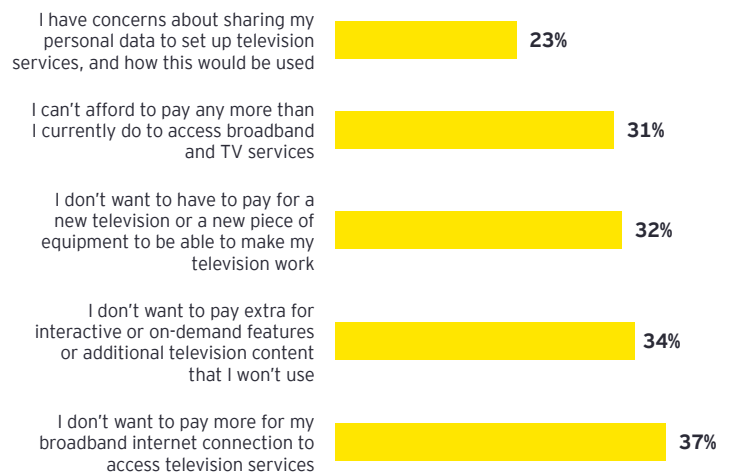


Fairer: Maintaining the DTT network helps address consumer concerns

Maintaining the status quo promotes customer choice and ensures that there is not a shift in who pays for TV transmission; a more equitable outcome for consumers. Our survey highlights that a transition would not be easy for many customers – significant concerns exist around affordability, sharing of data and using the hardware and software required for IPTV.

Our survey further found this expense would not be supported by a significant number of people.

Key concerns of moving to an IP-only delivery model



74%

would expect a reduction in the licence fee if they were forced to pay for their internet connection to receive TV

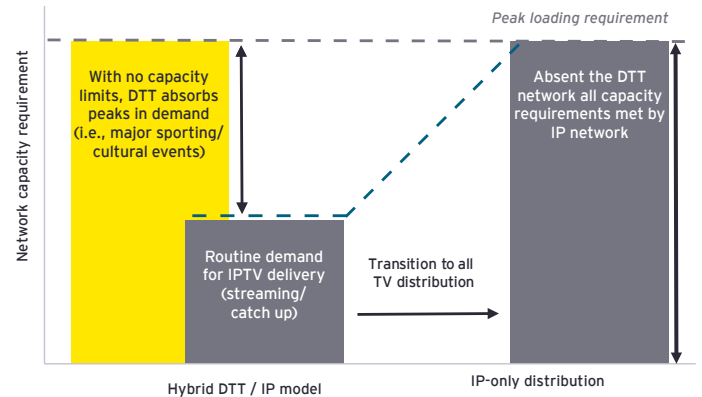
A hybrid DTT / IPTV model is also more resilient and sustainable than IP-only distribution

Resilient: The DTT network is highly reliable and scalable when faced with peak-viewing events

In contrast with the broadband network, the number of potential points of failure in the DTT network is drastically reduced. This results in a highly reliable service level which has delivered over 99.9% service availability for Arqiva's customers in each of the past five years.

The DTT network offers proven resilience to transmit major live cultural and sporting events to almost every household in the UK, simultaneously. Fast moving content such as sporting events require higher bandwidth, leading to potential peak loading concerns for major events if all traffic were to move to IP-only. This leads to potential peak loading concerns for major events if all linear traffic were to move to IPTV.

Therefore, a hybrid TV service not only mitigates peak loading concerns – reducing the risk of outages in the first place – it also provides broadcasters with an alternative distribution platform when outages inevitably do occur, allowing them to maintain their service to customers.



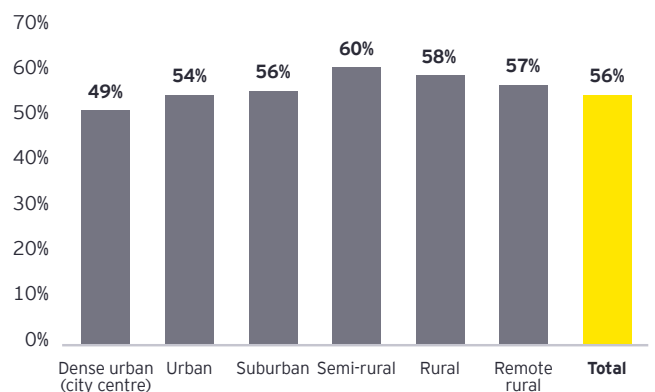
Sustainable: DTT helps maintain complementary services and is more environmentally sustainable

Maintaining the DTT network helps protect the future of radio, which shares the broadcast infrastructure (and therefore the costs of maintaining it) with DTT. Widespread access to radio services is particularly important for use in cars and as a critical supporting technology in times of crisis. Our survey found that radio remains important for the majority of respondents.

Ofcom's report¹ on carbon emissions from streaming and DTT calculates that one hour of viewing TV via terrestrial networks has an energy consumption of 10.6Wh, whereas for streaming this is 54Wh, making DTT five times more efficient than IP streaming.

Therefore, moving away from a hybrid TV distribution model could increase carbon emissions and reduce the environmental sustainability of the sector.

Access to radio content is important to me – % respondents who agree / strongly agree



5x

DTT is five times more energy efficient than IP streaming

¹ Carnstone (2024), report for Ofcom, "Carbon emissions of streaming and digital terrestrial television", v2.0.



1 Introduction

1.1. Despite the growth of streaming services the DTT network remains critical national infrastructure, with significant questions remaining around the practicality and cost of a potential switch over to IP-only distribution

Our January 2024 report ('our previous report') estimated that over 5.5 million UK premises (18%) will still not have taken-up high-speed fixed broadband in 2040, despite the government's commitment to 99% network coverage of high-speed fixed broadband by 2030.¹

These 5.5 million premises will be skewed towards those who do not take fixed high-speed broadband because of a lack of interest, because a mobile connection alone meets their needs, or because of accessibility and affordability issues – including some of the most vulnerable segments in society.



The next evolution of the TV market remains uncertain

In its May 2024 report, 'The Future of TV Distribution', Ofcom outlines three broad approaches that could be taken forward:²

Investment into the current DTT service

A more efficient but full DTT service could be considered if ongoing investment or funding could be sustained. This may include investment in new equipment for more efficient broadcast signals.

Reduce the DTT service

The DTT service could be reduced to a core service, which maintains a minimum number of core channels, e.g., main public service channels. Co-users such as FM/DAB radio could remain, which also provide power-resilient broadcasts in emergency situations.

Switching the DTT service off in the longer term

DTT might be completely replaced by IPTV services. However, this would require careful planning to ensure the universal provision of public service broadcasting.

All of the options noted by Ofcom have different potential costs and benefits. However, there has not been enough research and engagement for these costs to be fully quantified, and many questions remain to be answered.

¹ EY (2024), "TV distribution after 2034: Why it cannot be assumed that broadband will offer a universal solution for all of the UK".

² Ofcom (2024), "Future of TV Distribution: Early market report to government".

1. Introduction

Within this report, we consider Ofcom's third, and most transformational scenario – a full switch over to IP-only TV distribution – and address the significant questions of:

1. How much a potential switch over to IP-only TV distribution would cost, considering one-off and ongoing annual costs.
2. Who would pay those costs, as well as the challenges associated with different stakeholder groups funding the transition.

We bring fresh evidence through an online consumer survey of 1,500 respondents, representative of the UK online population:

- ▶ Our survey offers insights into the current state of broadband and TV services usage and explores attitudes towards a potential switch to IP-only TV distribution.
- ▶ It helps us better understand the issues around digital skills developments, implications for consumer choice and how the costs and benefits may be more or less pronounced across different segments of society.





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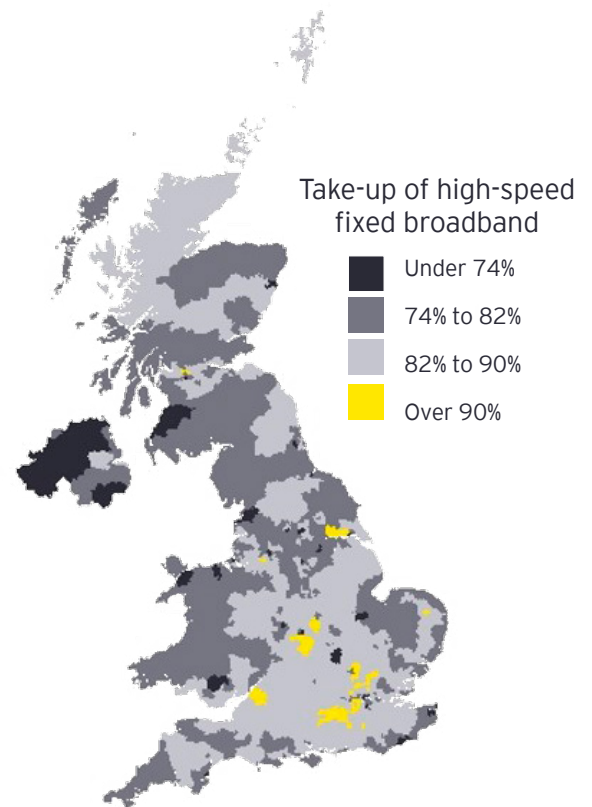
TV and internet access today

2.1. The current hybrid model of free-to-air and streaming TV along with a choice of broadband service works well for consumers

Under the current hybrid model, consumers have the freedom to choose which TV and communications services they take – or don't take – based on their preferences and the affordability of the different options. Households have the flexibility to decide what speed internet connection best meets their needs, whether to subscribe to fixed or mobile services, and whether or not to combine their internet service with various pay-TV or OTT streaming services. Alongside this, the DTT network offers UK consumers a reliable broadcast TV service (over 98% of UK), free at the point of consumption, with near universal coverage and greater than 99% service availability.

In contrast, our previous report estimated that around 5.5 million premises (18%) still won't have taken up a high-speed fixed broadband connection by 2040. Those forecast to be without high-speed fixed broadband are disproportionately represented by some of the most vulnerable groups in society, such as the elderly, those with mental or physical health issues and low-income households. Overall, 301 constituencies are expected to have adoption rates below the forecast national average (of 81%), with a geographic analysis revealing a continuation of the 'digital divide' as reduced levels of take-up remain more pronounced in constituencies towards the peripheries of the country.

Currently, approximately 87% of households opt for fixed broadband services (with 72% taking a high-speed connection), whilst an additional 6% rely exclusively on mobile internet for their online activities. Among the 7% who do not use broadband at all, some are deterred by affordability issues, whilst others show a lack of interest in online services altogether. In our previous report, it was estimated that by 2040 around 5.5 million premises will still not have adopted high-speed fixed broadband as a result of these reasons.



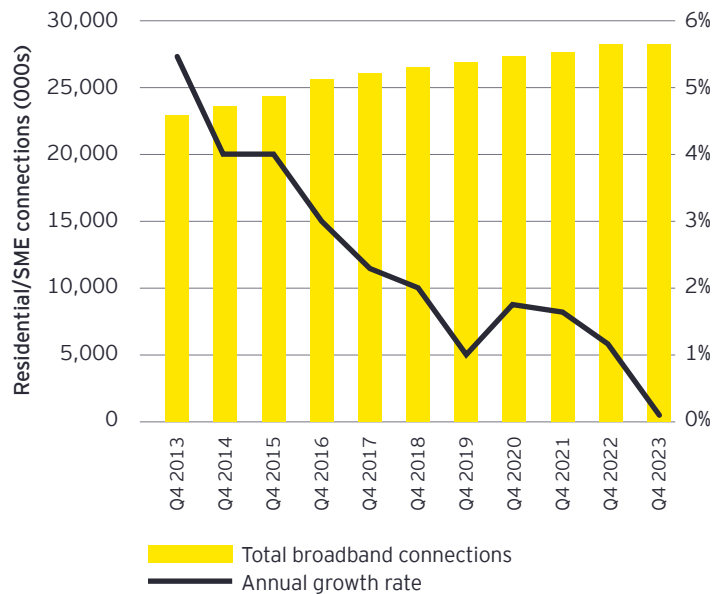
2. TV and internet access today

Consumer preferences for TV and internet services:

- ▶ Some households, such as light internet and TV users, may decide their needs are met by a mobile broadband connection and free-to-air broadcasting over DTT alone.
- ▶ More frequent internet and TV users may choose to purchase a bundle of communications services, selecting some combination of fixed broadband, mobile and TV services in a single package.
- ▶ Additionally, many households will also subscribe to OTT streaming services – such as Netflix, Prime Video or Disney+, either through a connected device (such as smartphone or tablet), a smart TV, or through a plug-in dongle.
- ▶ Hybrid households will take OTT or pay TV services and also watch DTT – either through their main TV or via other TVs in the house which only receive DTT.

Recent data from the UK underscores the fact that there will be a sizeable fixed broadband connectivity gap in 2040 and suggests that the UK may now have reached a saturation point for fixed broadband. Ofcom data shows minimal growth in fixed broadband connections for residential customers and small- and medium-sized enterprises (SMEs) in the year to 2023, which increased by only 0.1%.³

Point Topic forecasts that UK fixed broadband connections will grow by just under 2% between 2023 and 2030.⁴ This suggests fixed penetration could go down as this growth on an annual basis (0.28%) is lower than the 0.6% average annual growth rate in the number of new households over the past 10 years.⁵



³ Ofcom, Telecommunications Market Data Update Q4 2023

⁴ Point Topic (2024), "Global fixed broadband subscribers forecast to grow by 15% to 1.6 billion by 2030"

⁵ Office for National Statistics (2024), "Families and households in the UK: 2023"

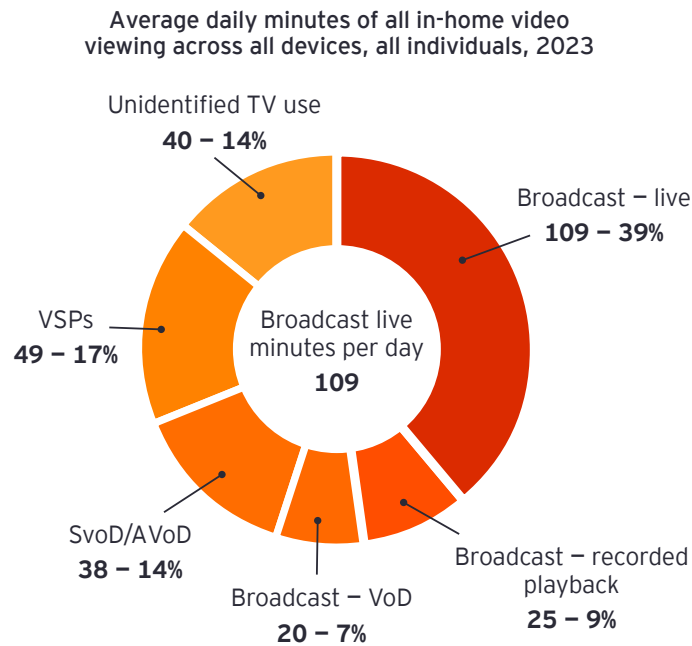
2.2. Whilst viewing is fragmenting across devices and platforms, DTT still plays a critical role in UK households

In its 2024 report on the Future of TV Distribution, Ofcom highlights that over 80% of households in 2023 (21.8 million) watch the traditional TV channels (via DTT, satellite or cable) – either in combination with an IPTV or an OTT service (17.9 million), or as the sole way to receive TV (3.9 million). It also highlights that the 17.9 million hybrid households can:

“
Enjoy the best of both worlds: supplementing viewing of traditional TV channels with on-demand and scheduled content over broadband.”⁶

40%

The report highlights that the share of live broadcast TV remains nearly 40% of total viewing across all devices, despite the recent increase in streaming content.



Source: Barb as-viewed. Individuals (age 4+), across TV and other devices in the home where they are connected to the Wi-Fi. Of the 20 minutes of viewing to broadcaster VoD, less than one minute is watched live, at the time the programme is being broadcast on the linear channel.

⁶ Ofcom (2024), "Future of TV Distribution Early market report to government", Page 6

2. TV and internet access today

Importantly, Ofcom data also highlights that DTT remains the platform of choice for major live sporting and cultural events and for news content, meaning that, despite the growth of streaming services, a substantial volume of TV viewing is still – and is expected to remain – distributed via DTT.⁷

PSB remains the home of top content

BARB data highlights that in 2023 all of the top 10 programmes with the highest viewership were on PSB channels.

The New Year's Eve fireworks and the coronation of King Charles and Queen Camilla were watched by an average audience of around 12 million viewers with 83% and 74% of viewers respectively watching these live.

Major cultural events such as these are primarily consumed live, supported by the DTT network.

Source: Ofcom (2024), "Media Nations: UK 2024"

PSB remains a main source of news

A 2024 Ofcom survey on news consumption highlights that most UK adults (96%) say they consume news in some form. Online news is the most popular source of news, with 71% of people reporting that they access news online in some form. However, broadcast television news consumption is close behind at 70% of UK adults.

Ofcom also highlights that PSBs remain a dominant force in news delivery reaching 91% of TV news audiences.

Source: Ofcom (2024), "News consumption in the UK 2024"



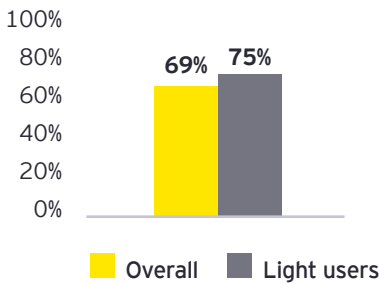
⁷ Ofcom (2024), "Media Nations: UK 2024"

2. TV and internet access today

2.3. A large share of the population are happy with the broadband and TV services that they currently have

The current levels of fixed broadband penetration and take-up of pay TV and OTT streaming services reflect the needs of the UK population, though demand for these services varies greatly across different groups of consumers. Some consumers choose not to take them despite their availability, as they do not see the value in taking them. Others have internet access but do not actively engage with the market to change the services they take – research undertaken by Uswitch⁸ shows that over a third of households have never switched their broadband provider, whilst our own survey shows that 30% of consumers don't know the advertised speed of their broadband connection.

Happy with broadband speed and don't think they need a faster connection



The majority of consumers in our survey responded that they are happy with their current broadband speeds, and don't think they need a faster connection.

Nearly 70% of overall respondents did not feel the need to upgrade to a faster connection, increasing to up to three quarters of respondents we categorised as 'light users' based on the number of online services they either never use or only use once every few months.⁹

Over 60% of the light user group rarely or never use free online streaming catch-up services provided by the main PSB channels.

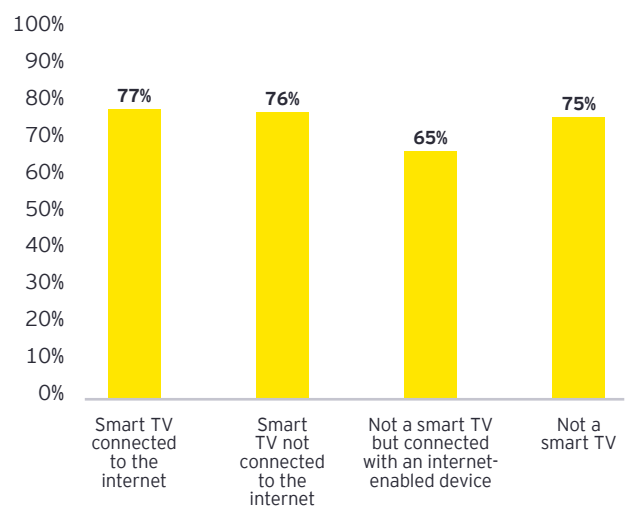
Similarly, many viewers are currently happy with the quality and variety of content provided by their current TV service. In the context of the broader media landscape, DTT has continued to fulfil viewer demand through curated programming of live events, films and TV shows, and remains highly valued by a significant audience segment.

The majority of consumers in our survey (75%) say that they are happy with how they are currently receiving TV.

This proportion did not decrease for households that do not own a smart TV, with 75% of these respondents also stating they are happy with their service – only slightly lower than those with a smart TV connected to the internet (77%).

Those who do not own a smart TV but have an internet-enabled device showed slightly lower satisfaction levels, with 65% of this group (9% of the sample) being happy with the way they receive TV.

Happy with how they are receiving TV and don't think it needs to change



⁸ Telecom Tech News (2023), "Ofcom's easy broadband switching process set for delay".

⁹ Light users were defined as those who rarely or never use five or more of the nine services we capture in our survey



3

Practical challenges with IP-only TV distribution

3.1. We estimate that 5.5 million premises won't be connected to a sufficiently high-speed fixed broadband network in 2040

In our previous report, we estimated that 5.5 million premises in 2040 would not have high-speed fixed broadband, defined as a broadband connection that can provide download speeds of at least 30 Mbit/s. We expect that the majority of these will have no fixed broadband connection at all, either relying solely on mobile or because they have no interest in having a home broadband connection.

The government's Universal Service Obligation (USO) ensures all households and businesses in the UK will be covered by a broadband network.¹⁰ As a result of these targets, the vast majority of households in the UK now have access to Superfast broadband (97%). The government's latest targets for 2030 aim to ensure that all households have access to 'gigabit' broadband, capable of 1Gbit/s download speeds.

In measuring progress against this target, the key performance indicator is the number of 'premises passed', i.e., a fibre optic cable network is available at the nearest distribution point (typically located at a telegraph pole or underground chamber). It does not require the fibre to be physically connected to the premise. This final connection (known as the 'final drop') requires an engineering visit to take the fibre from the distribution point into a terminating unit inside the customer premise. (See typical IP distribution network diagram below).

By the mid-2030s, Fibre to the Premise (FTTP) broadband will be the only broadband available to purchase in many areas of the country due to the regulatory 'stop sell' mechanism defined by Ofcom to facilitate migration. The switch-off of the publicly switched telephone network (PSTN), now scheduled for 2027, may act as a trigger for some customers to switch to FTTP but this may not be necessary for those who just take a landline phone and it won't address those households who don't take either a fixed line or a broadband service.

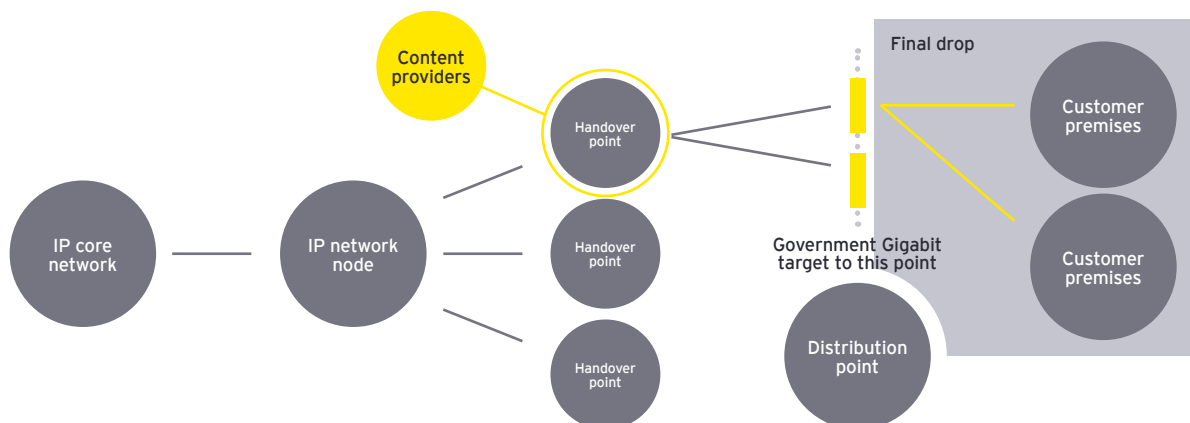
We are not aware of any current plans to force customer migration to FTTP broadband and therefore the installation of the final drop at a given premise would only be triggered by a customer putting in an order for a broadband service.

There are practical challenges to install final drops. For example, as structural works to the premises (such as drilling through walls) may be needed to install terminating units, there may be issues getting landlord permissions for those in rented accommodation. For multiple dwelling units, there can also be challenges around in-building wiring and connecting all units within a building at the same time.

¹⁰ Characterised by a download speed of at least 10 Megabits per second (Mbit/s) and an upload speed of at least 1 Mbit/s.

3. Practical challenges with IP-only TV distribution

Typical IP distribution network



The need for speed

In order to access reliable IPTV, ISPs recommend a broadband speed in the range of 25 to 60 Mbit/s (depending upon the ISP and the viewing quality required).

The Ofcom Future of TV Distribution report notes that responses to its call for evidence explicitly state that Superfast broadband speeds (30 Mbit/s) were more likely to provide a reliable viewing experience.



3. Practical challenges with IP-only TV distribution

3.2. 59% of consumers don't want to be tied to having a fixed broadband connection in order to be able to access TV services

The current hybrid model allows consumers to choose what connectivity services meet their needs including being able to choose not to have a home internet connection at all or to have one when those in the household can afford it. Having a broadband connection is a financial commitment that many people struggle with, particularly those who do not have a guaranteed income.

The cheapest broadband deals available in the market are typically linked to a 24-month contract, meaning that households that are not in a position to commit to a longer-term contract (such as those that cannot pass the required credit check) end up paying more for their broadband service.

Research undertaken by Citizen's Advice in May 2023 highlighted that one million people cut off their broadband in the prior year as the cost-of-living crisis left them unable to afford internet access, with those receiving Universal Credit being six times more likely to have stopped spending on broadband compared to non-claimants.¹¹

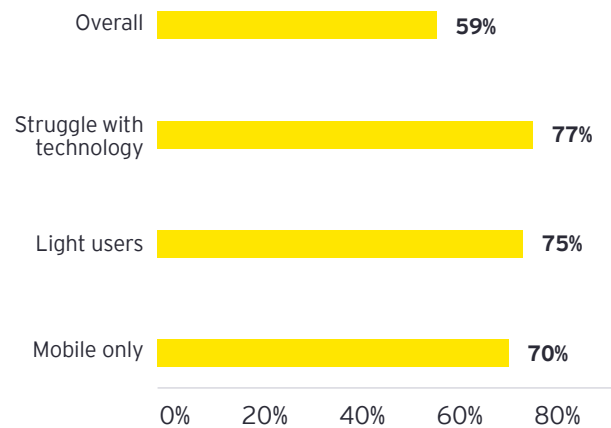
Consumers in our survey highlight that they are concerned about becoming over-reliant on internet connectivity in order to receive TV.

Overall, 59% of survey respondents say they don't want to be forced to have a high-speed fixed broadband internet connection in order to be able to watch TV, with the sentiment strongest among:

- ▶ **Those that struggle with technology:** 77% of respondents in this group say they don't want to be forced to have a high-speed fixed broadband connection to watch TV, reflecting the additional complexity new IPTV hardware and user interface could create for some users.¹²
- ▶ **Light internet users:** 75% of respondents in this group say they don't want to be forced to have a high-speed fixed broadband connection to watch TV, reflecting their lower engagement with online services.
- ▶ **Mobile-only users:** 70% of respondents in this group say they don't want to be forced to have a high-speed fixed broadband connection to watch TV, reflecting either their limited use of online services, a preference for a mobile connection, or affordability constraints limiting their choices.

These responses reflect the availability and quality of free-to-air services provided by the DTT network.

I don't want to be forced to have high-speed fixed broadband internet connection in order to be able to watch television



¹¹ Citizens Advice (2023), "One million lose broadband access as cost-of-living crisis bites"

¹² Agreement with statement: People in my household struggle when using technology (computers, televisions, mobile phones)

3. Practical challenges with IP-only TV distribution

3.3. Many consumers feel they would not benefit from the additional content and features that IPTV can offer

Whilst IPTV offers certain benefits, our survey found that 34% highlight a concern that they do not want to pay more for features they won't use.

The benefits of a switch to IP-only TV distribution may therefore not be significant when considering that a large segment of the population may not value these features or won't use them.

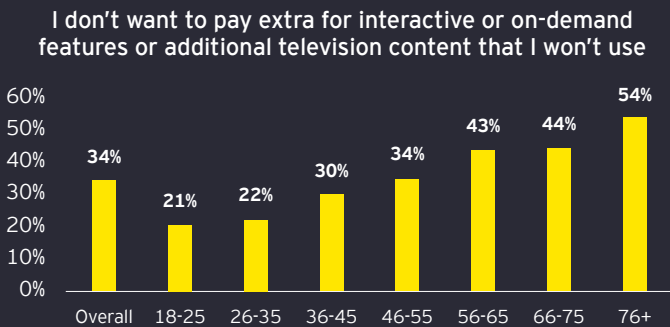
It also highlights the enduring benefits of the current hybrid model and its ability to satisfy consumer preferences and demand whilst maintaining freedom of choice.

Our survey found that concern over having to pay extra for features they won't use was only topped by people stating they were concerned about having to pay more for their internet connection to access TV.

34%

When presented with a list of 13 potential concerns they would have in the event of a potential switch to IP-only TV distribution,¹³ 34% of our survey respondents say they do not want to pay extra for interactive or on-demand features or additional content that they won't use.

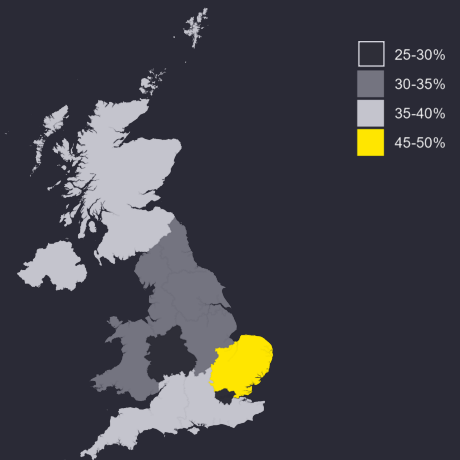
One in five young people aged 18 to 25 had concerns around paying extra for interactive or on-demand features and this rose among older age groups ...



... it was the number one concern for those aged 36 to 45.

It was also the number one concern for respondents in London, the East of England and the North West

% concerned around paying extra for interactive or on-demand features that they won't use



¹³ Answer to question: "Please think about a situation where the UK would move all of the broadcast television services (including BBC1, ITV1 etc.) from being provided through rooftop aerials to only being provided over the internet. If this were to happen, which of the following concerns do you think you would have?" [Multiple choice response from 13 options]



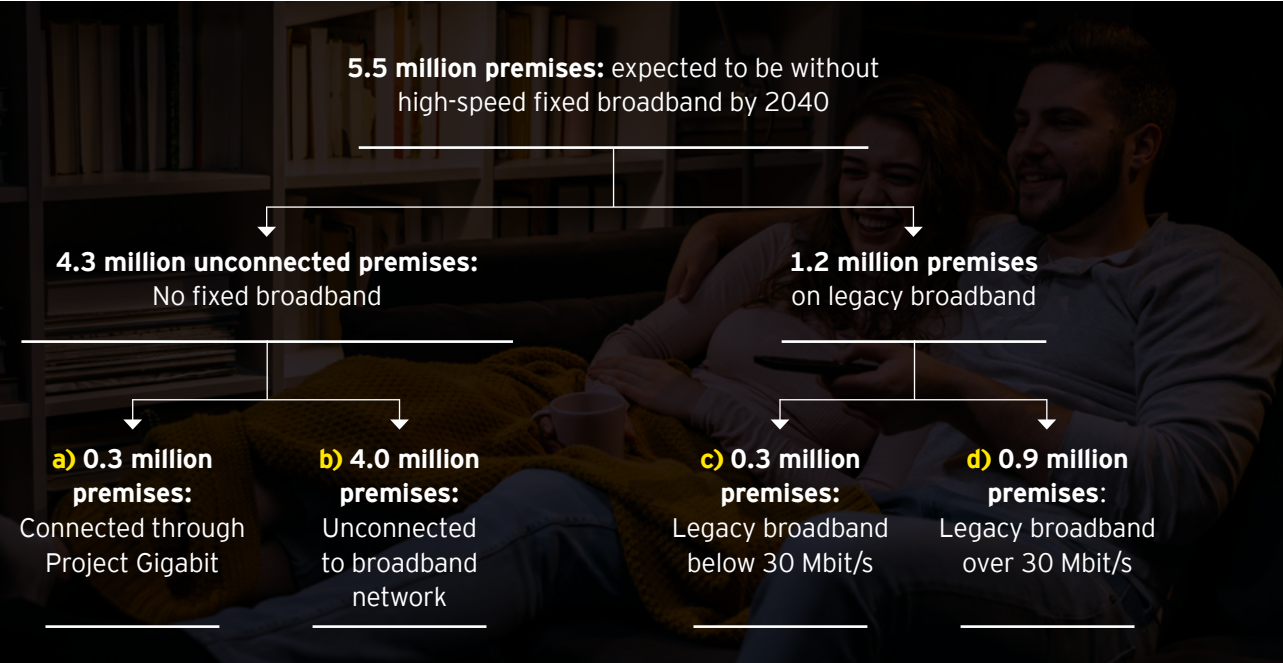
4

One-off costs of switching to IP-only TV distribution

4.1. We estimate it would cost up to £1.6 billion to connect all TV viewing premises to a sufficiently high-speed fixed broadband network in 2040

	No. of households	Unit cost for final drop	Total
Previously unconnected premises	4 million	£284 - £363	£1.2 - £1.6 billion
Households upgrading from legacy broadband	0.3 million		

Our calculation of final drop costs is set out below, starting with our assumptions of volume by consumer group:



4. One-off costs of switching to IP-only TV distribution

a) Connected through Project Gigabit

We estimate 0.3 million (around 1% of UK premises) will be covered by 'Project Gigabit', the state funded scheme to ensure nationwide high-speed fixed broadband availability. We have excluded this group from our analysis of the incremental costs associated with a potential switch to IP-only TV distribution, as these are assumed to be included within the Project Gigabit funding.

b) Unconnected to broadband network

This leaves 4 million previously unconnected premises which, assuming FTTP is the only available broadband sold at 2040, would need a new FTTP installation – and a final drop to receive IPTV.¹⁴

c) Legacy broadband below 30 Mbit/s

We estimate that 1.2 million premises will remain on Fibre to the Cabinet (FTTC) or other legacy broadband. However, access to FTTC does not necessarily guarantee delivery of high-speed fixed broadband. Due to the physical characteristics of the copper network, premises that are more than 700 metres away from the street cabinet – which comprise 25% of total premises – are unlikely to reliably achieve speeds over 30 Mbit/s.¹⁵ We therefore assume that around 0.3 million legacy broadband household will require an upgrade to FTTP – including a final drop – in order to receive a high-quality, reliable TV service.

d) Legacy broadband over 30 Mbit/s

The remaining 0.9 million are expected to maintain their legacy broadband connections as they will likely be able to get a reasonable TV viewing experience without the need for full fibre broadband.

To quantify the incremental costs of final drops, we have drawn on data from Ofcom. In its 2021 Wholesale Fixed Telecom Market Review (WFTMR), Ofcom estimated the current national cost of a final drop to be £284. Ofcom modelled a build out of 7 million of the 9.2 million less competitive (i.e., more expensive to roll out to) households in the UK. The average final drop cost in its model for the three years to 2040/41 is £363 in current prices.

We use the Ofcom current assumption of £284 as our lower bound estimate and £363 per household as our upper bound – reflecting the fact that those homes that are yet to be connected are likely to cost more than the (mainly lower cost urban and suburban) houses already connected with a final drop. This makes the total cost of connecting these premises up to £1.6 billion.

4.2. Consumers would need to pay an estimated £129 million for additional in-home equipment and installation to receive IPTV

	No. of households	Unit cost	Total
Households which require an internet-enabled device to receive IPTV	4.6 million	£20	£92.7 million

¹⁴ As a simplifying assumption we have assumed these 4 million households live at a property where a final drop has not previously been installed for a previous resident

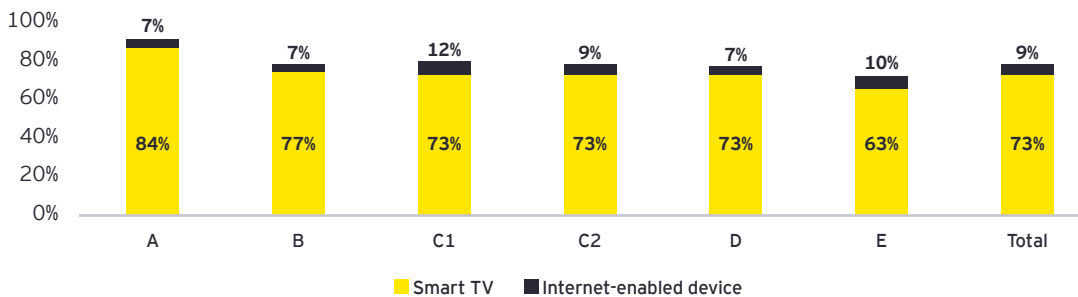
¹⁵ ThinkBroadband.com "Fibre Broadband (FTTC / FTTH) Guide"

4. One-off costs of switching to IP-only TV distribution

IPTV requires in-home equipment, such as set-top boxes, or Smart TVs with built-in Wi-Fi connectivity and IPTV apps. Our survey shows that 73% of UK households have a Smart TV as their main TV, with a further 9% connecting through an internet-enabled device. There is significant disparity in Smart TV ownership between the highest and lowest social grades.

Our survey results show that 84% of people in the highest social grade (A) have a Smart TV compared to only 63% of those in the lowest band (E).¹⁶

Internet-enabled TV ownership by social grade¹⁷



Technological obsolescence would drive a requirement for new set-top boxes

Whilst most TVs sold currently are Smart TVs, as these TVs get older, they will become obsolete, and no longer supported by manufacturers (e.g., to get the software updates required to maintain performance and be able to install and use the latest apps). As these TVs age, it becomes more likely that they will lack the required hardware to process the latest video technologies and codecs.

We would expect that those households who choose not to have high-speed fixed broadband in 2040, or do not have it due to affordability issues, are least likely to have an up-to-date Smart TV – particularly as the majority of respondents to our survey (70%) say they would want to keep their technology for as long as possible, rising to 72% of those in social grade E and 80% of those aged over 65.

We therefore expect that by 2040, all 4.3 million premises which are not connected to sufficiently high-speed fixed broadband, along with the 0.3 million who will likely be connected via Project Gigabit, would also need to incur some in-home technology costs to receive IPTV.

We do not assume that these customers would necessarily need to replace their TV as relatively cheap plug-in options for IPTV are widely available. We have assumed that an IPTV set-top box with reasonable functionality could be purchased for around £20, giving a total estimate for in-home equipment cost of £92.7 million.

Proportion of people who agreed, or strongly agreed, that they would want to keep technology products for as long as possible



¹⁶ Social grades are a socio-economic classification produced by ONS. Survey respondents were classified into social grades based on their responses to the question 'Please indicate to which occupational group the chief income earner in your household belongs, or which group fits best?'

¹⁷ Responses that 'It is an internet-enabled Smart TV ...' or 'It is not an internet-enabled Smart TV but is connected to an internet-enabled device (e.g., Apple TV, Amazon firestick)' to the question 'Which ONE of the following best describes the main television your household uses?'

4. One-off costs of switching to IP-only TV distribution

4.3. Some consumers, especially more vulnerable groups, would require additional support to set-up and configure an IP-only TV service

	No. of households	Unit cost	Total
Households which require engineer call out	1.4 million	£25	£35.9 million

In its report on the Future of TV Distribution, Ofcom notes that it expects that:

“

[the] take up of IPTV will depend significantly on how simple it is to use, including to those used to traditional TV interfaces.¹⁸

In order for a potential switch to IP-only TV distribution to be successful, households would need to:

Understand what capability they currently have in terms of broadband speed and TV functionality, and be able to determine whether it is sufficient for them to receive IPTV.

Understand what additional in-home equipment they may need to reliably receive live TV in the event of a switch to IP-only TV distribution.

Have the confidence to effectively install, use, maintain, and troubleshoot a new IPTV service and the associated new equipment and user interface.

However, for many households this would require significant one-off and ongoing support, meaning considerable costs to consumers, providers, or government.

¹⁸ Ofcom (2024), "Future of TV Distribution: Early market report to government"

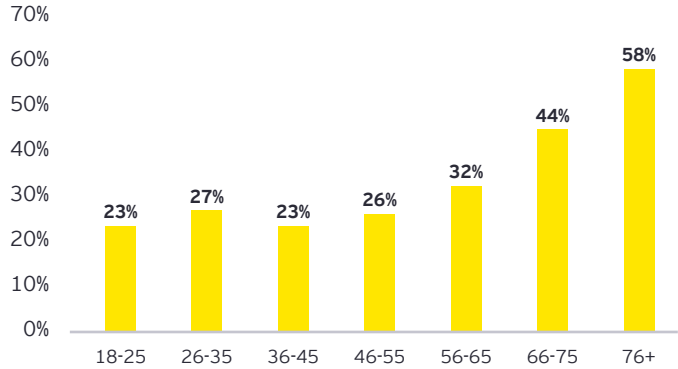
4. One-off costs of switching to IP-only TV distribution

76% of those in our survey say that they would require some form of support to set-up and use an IPTV service.¹⁹

A significant proportion of these households (31%) say that they would require an in-home visit from an engineer to help set up the new in-home equipment needed for an IPTV service, rising to 58% in those aged 76 and older.²⁰

Importantly, the data shows that it is not just age that drives the need for support. Whilst it remains the case that older, more vulnerable groups are the most likely to need assistance, around a quarter of those aged under 55 also feel they don't have the confidence or ability to set up an IPTV service.

Proportion of people who would require an in-home visit by an engineer to set up new in-home equipment



To be conservative, we have only considered the 4.6 million premises which will be unconnected at 2040 in our estimation of the required support costs. We estimate that 1.4 million households (4.6 million x 31%) would need some kind of one-off support to help set up their new in-home equipment. At an average cost of £25 for a basic technician call-out,²¹ the estimated additional one-off costs of engineering support for a potential switch to IP-only TV distribution is up to £35.9 million. This can be considered conservative as we assume a relatively low cost for a basic call out, and an assumption that only a single visit per household would be required for the initial set up of their IPTV service.



¹⁹ Respondents were presented with a list of 9 types of support covering information via TV campaigns, leaflets, online information, a helpline and support from friends, family and carers. Respondents were also provided with the option that they would not need any support

²⁰ Responses of 'an in-home visit by a verified engineer' to the question: 'What form of support would you require to set up new in-home equipment?'

²¹ Checkatrade (2023) "TV setup service at home cost guide"

4. One-off costs of switching to IP-only TV distribution

4.4. The awareness campaign needed to support consumers through a switch to IP-only TV distribution would likely be complex and costly

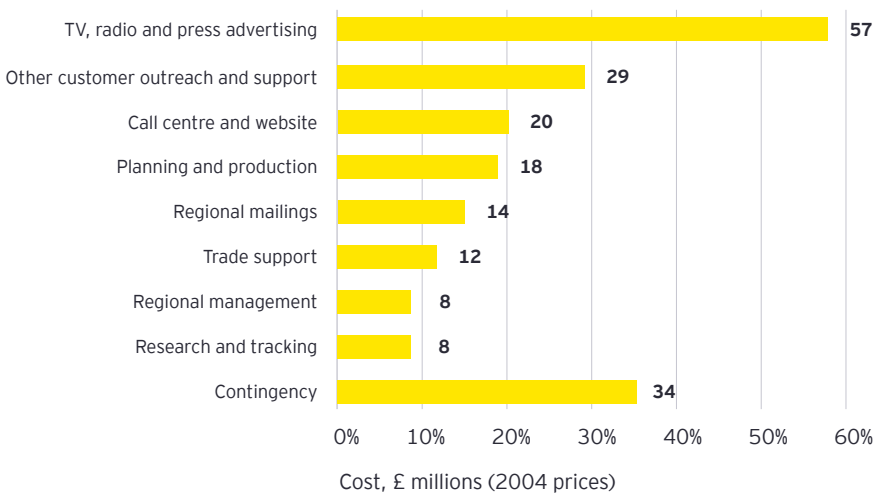
	Total
Awareness campaign costs	£412 million

In order to ensure that the entire population was prepared for a potential switch to IP-only TV distribution with the right connectivity and in-home equipment in place, we anticipate that a significant public information campaign would be required over a number of years preceding the change.

For example, following the transition from analogue to digital broadcast, known as the Digital Switch over (DSO), £200 million (in 2004 prices) was budgeted for public information campaign costs.

This £200 million included the following key elements:

Breakdown of the £200 million public information campaign costs incurred for the DSO



In the context of the current Future of TV Distribution debate, industry representatives anticipate that a potential switch to IP-only TV distribution would be more complex, more time consuming and therefore more costly, with the Digital TV Group noting that:

¹⁸ Ofcom (2024), "Future of TV Distribution: Early market report to government"

4. One-off costs of switching to IP-only TV distribution



The broad conclusion of all our stakeholder outreach and opinion gathering is that the gradual transition to ‘all-digital’ television (all-IP) is more complex, will take longer and involve significantly more stakeholders than the transition from analogue to digital broadcast.

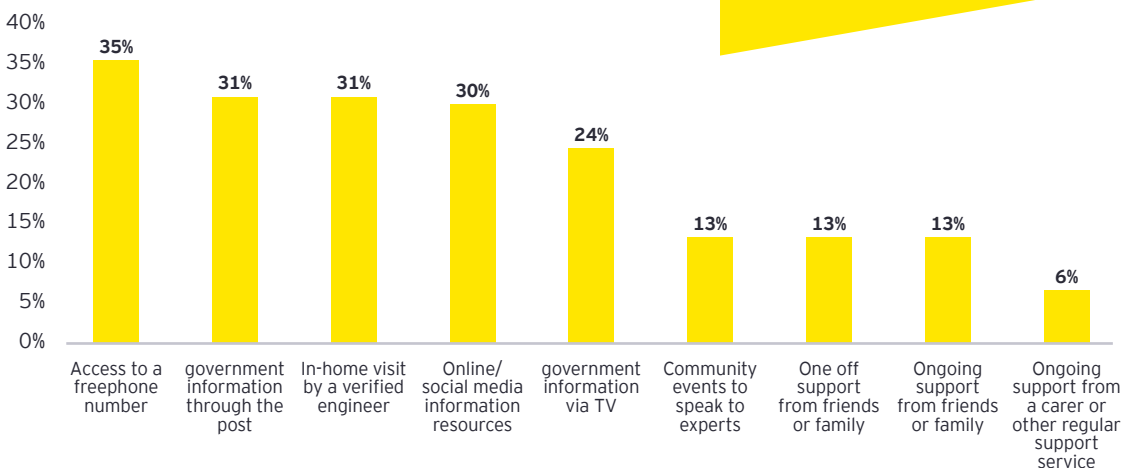
Consistent with this, the results of our survey suggest that a wide variety of different campaign and support elements would be required in the event of a switch to IP-only TV distribution. The chart below shows a summary of the types of support that consumers think they would need to set up and use an IP-only TV service:²²

76% of the sample say they would need at least one form of support, with those respondents indicating the need for 2.6 different support options on average.

The youngest age group chose an average of 2.1 options, with online channels being the most prevalent option.

Older age groups indicated they would need more support (choosing three different options on average) and were more skewed to more traditional channels – e.g., information via the post and access to a free helpline.

Types of support needed for a potential switch to IP-only TV distribution



²² Responses to the question: ‘What support do you think you would need to set up and use an internet-based service? Please select all that apply.’

4. One-off costs of switching to IP-only TV distribution

If the public awareness campaign and associated support for any potential switch to IP-only TV distribution were to cost the same as the DSO, this would be £343 million in current prices.

However, given the scope for additional complexity – as all households that want to watch TV need to have both access to high-speed fixed broadband in addition to the right in-home equipment – we assume it could take an additional year and therefore be 20% more expensive than the DSO.

We estimate the cost to government for an awareness campaign and the associated support needed for a switch to IP-only TV distribution could be up to £412 million.





5 Additional ongoing costs of IP-only TV distribution

5.1. An £888mn of additional subscription costs would represent a ninefold increase in household contribution to TV distribution costs

	No. of premises	Unit cost / month	Total annual cost
Premises without high-speed fixed broadband	4.1 million	£18.17	£888 million

As discussed in section 3.1, there will still be a substantial number of households in 2040 that do not have a high-speed fixed broadband connection capable of delivering reliable live IPTV.

4.1 mn premises

£18.17 per month

£888 million per year

We estimate that in the event of a switch to IP-only TV distribution, 4.1 million premises would need to take a fixed broadband connection that they would otherwise not have taken.

This primarily comprises those premises that are already covered by high-speed fixed broadband but have chosen not to take a connection (4.03 million in total).

In addition, we include 14% of the 0.31 million premises covered by Project Gigabit (42 thousand in total), assuming that – in the absence of the potential switch to IP-only TV distribution – the fixed broadband penetration of this group would stand at just 86%, equal to our 2040 estimate for the rest of the UK.

Our pricing assumption is based on the average monthly rental price for entry level FTTP (up to 115 Mbit/s) from the Openreach price list of £16.52. We have added 10% to this to reflect retail costs and margin (to get £18.17) and assume that the cost in 2040 would be the same in 2024 prices.

The actual fixed broadband rental price that these households would pay will depend on two factors:

1. Initial set-up costs: Fixed broadband rental costs typically reflect some recovery of the final drop costs to avoid having high up-front costs for consumers through a connection charge. We have not assumed any pass through of final drop costs to broadband rental costs but recognise that this cost could be partially or fully passed on to consumers over time.

2. Price discounts: Given the unconnected households at 2040 will likely be skewed towards those who have affordability issues or belong to other vulnerable groups, these households may be more likely to qualify for social tariffs (which are typically between £15 and £20 per month).

For the 4.1 million premises that would require a high speed fixed broadband connection, the total subscription costs are estimated to be around £74 million per month, or £888 million per year.

5. Additional ongoing costs of IP-only TV distribution

5.2. An additional £130mn of CDN costs would be required to distribute live TV over IP, making any industry savings doubtful

	Incremental data per day	Unit cost per GB of data	Total annual cost
Cost of distributing remaining Linear TV over IP on CDNs	46.7 million GB per day	£0.0080 (public CDN) £0.0072 (private CDN)	£130 million

In the event of a switch to IP-only TV distribution, the vast majority of the UK's linear TV viewing would require IP distribution, meaning broadcasters would need additional capacity in their content delivery networks (CDNs) to manage the additional data traffic.²³

43.7 million hours per day

Ofcom's Future of TV Distribution report estimates that UK TV viewers will each watch an average of 156 minutes of video content per day in 2040.²⁴

Despite the growth in IPTV services, 23% of this (35 minutes) is projected to remain linear broadcast or personal video recorder (PVR) viewing,²⁵ totalling 43.7 million hours per day across the UK.²⁶

In practice, much of that viewing would be co-viewing, with several members of the same household watching programmes together around the main TV set.

Barb research from May 2020 found that around 50% of all viewing was co-viewing by groups of two or more.²⁷

²³ The CDN model works by injecting content onto servers connected directly to the handover point, where it passes straight onto the access network. In this model, users get their own point-to-point stream when requested, ensuring delays to access are limited. This method means that broadcasters must host their content at every access node in the network including co-location at key network handover points, of which there are many (over 1,000 nationally), to ensure a reliable TV service.

²⁴ MTM (2024), "Broadcast Distributions costs report", page 9

²⁵ MTM defines 'linear broadcast' as TV that is watched according to the broadcast schedule (i.e. live playout) via DTT or digital satellite. However, we note that Sky (the UK's leading satellite provider) is moving away from satellite broadcasting and toward IPTV distribution. We therefore assume that by 2040 all linear broadcasting is via DTT.

²⁶ By 2040, the UK is projected to have a population of 73m aged 4+ (the age at which viewing trends are considered by Ofcom). Multiplying this by the 35 minutes of average daily linear broadcast and PVR viewing identified by MTM gives 2.6 billion minutes (equal to 43.7 million hours).

²⁷ Barb (2020), 'What People Watch: Solo vs. co-viewing', May.

5. Additional ongoing costs of IP-only TV distribution

17 billion GB per year

Based on insight from industry experts, we assume that each hour of HD video playback requires 1.5GB of data to be transmitted across the CDN.²⁸

This assumes two further generations of video codecs will be released between now and 2040, significantly reducing the data required (which currently stands at around 4.5GB per hour for HD content).

Multiplying by the 43.7 million hours of daily linear viewing would mean an average of 65.5 million GB of incremental CDN traffic each day. However, this overstates the incremental data required as it assumes a unique stream for each viewer.

To account for co-viewing, we assume that 50% of all linear broadcasting is watched by an average of 2.36 people (the average number of people aged 4+ per household projected for 2040), with the remaining 50% of linear viewing assumed to be solo-viewing.

This means that a transition to IP-only TV distribution would result in an estimated 46.7 million GB of incremental data being transmitted across CDNs per day, totalling 17 billion GB (17 Exabytes) each year.²⁹

£130m per year

Broadcasters have two broad choices when it comes to distributing content over CDNs. They can either purchase capacity on public CDNs (such as those from Akamai, Amazon CloudFront, or Cisco), or build their own capabilities (such as the BBC's BIDI, or Netflix's Open Connect CDNs).

We assume that 60% of the incremental data following a switch to IP-only TV distribution would be carried over public CDNs, at a cost of 0.8 pence per GB (based on publicly available information, validated in our expert interviews).³⁰ The remaining 40% (6.8 million GB per day) of incremental linear broadcast traffic is assumed to be carried over private CDNs.³¹ For this, we assume broadcasters save 10% compared with public CDN, reflecting a balance between the efficiencies that a larger public CDN can achieve and the need for those operators to charge a margin that broadcasters would avoid with private CDN.

In total, we estimate broadcasters would face an additional £130 million in CDN costs per year to distribute the remaining linear broadcasts over IP, assuming no additional data storage or ingress costs (given the content is already available on the CDN) and includes the volume discounts that would be anticipated for a major UK broadcaster.

²⁸ As well as drawing on the expertise of EY's in-house media strategy team, we interviewed a leading digital media expert from video strategy and technology consultancy Fairmile West, who regularly advises a wide range of video content providers on their IP distribution strategy.

²⁹ 73 million projected UK population in 2040 divided by 31 million projected households gives an average of 2.36 people per household (after rounding). 50% of the projected 46.7 million linear broadcast hours gives 21.8 million hours of shared viewing. Dividing this by the average of 2.36 people per household means 9.3 million hours of linear broadcast content would need to be transmitted across the CDN to service these shared viewing minutes following a switch to IP-only TV distribution, requiring 13.9 million GB of incremental data. The remaining 50% of solo linear viewing requires a further 32.8 million GB of incremental data transmission each day.

³⁰ Based on insight from our expert interviews, we assume that the BBC is the only UK broadcaster that would achieve the scale required to warrant the investment needed to run a private CDN. All others are assumed to rely on existing public CDN infrastructure.

³¹ In 2023, Barb found that the BBC accounted for around 40% of all linear broadcast viewing. We consider this a conservative estimate for the BBC's share of linear viewing in 2040, given that a growing number of commercial linear broadcasters are expected to turn to IP distribution instead of DTT.

5. Additional ongoing costs of IP-only TV distribution

Super peaks and net neutrality

The costs of increased CDN usage can be considered a lower-bound estimate of the incremental costs to broadcasters with the potential for further increases if ISPs start to pass-on more of the network costs through commercial peering arrangements, specialised service offerings, or following future changes to the UK's net neutrality laws to allow traffic charges.

Daily average TV viewing alone does not consider the effect of one-off peak viewing – such as major cultural or sporting events – on distribution costs and network investment needs. ISPs anticipate significant investment would be required to build the additional capacity needed to ensure reliable TV delivery at peak-time.³² For example, in its response to Ofcom's Call for Evidence on the Future of TV Distribution, BT stated that it expects peak traffic on its core network to grow significantly (around five-fold) by 2030, up to a maximum of 159 Terabits per second (Tbit/s).³³

With much of this traffic expected to be for live TV, particularly 'super peaks' caused by live special events, it can reasonably be expected that ISPs would seek to recover some of these costs from broadcasters through new charges for carrying video traffic.

In a recent review of its Network Neutrality guidelines, Ofcom considered the impact of allowing ISPs to charge content providers to carry their traffic.³⁴ It concluded there could be significant benefits from allowing ISPs to charge content providers for traffic as it would encourage more efficient network usage and reduce network costs, whilst reducing broadband prices for consumers by recovering some of those costs from content providers (particularly in the case of ad-funded services).

In response to Ofcom's consultation in February 2023, ahead of that review, BT raised the risk of a growing investment gap, noting that:

“

There is already evidence of an investment gap emerging, i.e., that ISPs will be unable to meet future anticipated demand unless the current approach to net neutrality changes.³⁵

- ▶ Other ISPs (including Three, TalkTalk and Virgin Media O2) have also expressed concern that content providers do not have sufficient incentive to make efficient use of networks, given the current restrictions which prevent ISPs charging content providers for their traffic.³⁶

Though not common, some countries (such as Italy) require content providers to contribute to the costs ISPs face for carrying their traffic, whilst in others (such as France, Germany and South Korea) it is more common than in the UK to find content providers negotiate commercial interconnection or network access agreements.

However, Ofcom notes that imposing a regulatory requirement on content providers to negotiate with ISPs would be a significant step that would require new legislation. In the meantime, it points to flexibility within the existing UK net neutrality regime that would allow ISPs to charge content providers. For example, ISPs can offer paid-for 'specialised services' that deliver the higher quality or reliability needed for particular content, so long as the incremental need over-and-above 'normal network' operation can be clearly demonstrated. With the increased demands that live TV places on the network, the need for such 'specialised services' in the market is increasingly likely to be the case.

³² BT Group (2023) "Future of TV Distribution: BT Group's response to Ofcom's Call for Evidence"

³³ BT Group (2023) "Future of TV Distribution: BT Group's response to Ofcom's Call for Evidence"

³⁴ Ofcom (2023) 'Net Neutrality Review', 26 October, section 11

³⁵ 'Net Neutrality Review: BT response to Ofcom's Consultation', 2022, page 3

³⁶ Three (2023) 'Three's response to Ofcom's Net Neutrality Review Consultation', page 31-32; TalkTalk (2023) 'Ofcom net neutrality review: TalkTalk submission', 2023, page 4; Virgin Media O2 (2023) 'Net Neutrality Review: Consultation; Virgin Media O2 Response', 2023, page 8

5. Additional ongoing costs of IP-only TV distribution

5.3. The ongoing support needed for this complex transition (particularly for vulnerable consumers) would cost £25 million per year

	Total annual cost
Customer outreach and support	£5.0 million
Call centre and website	£3.4 million
Ongoing support visit costs	£16.7 million

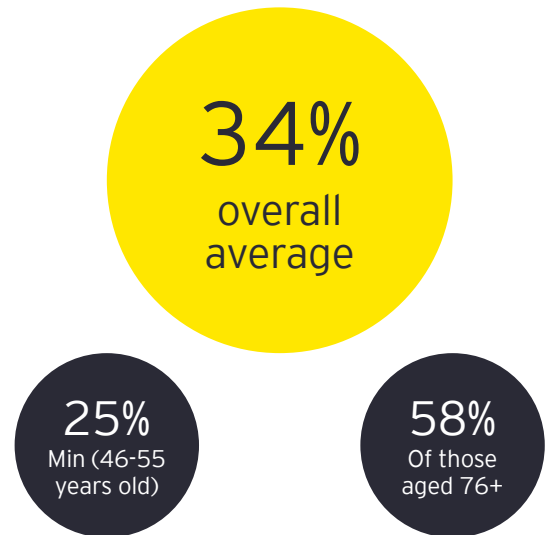
Given the likely complexity of a switch to IP-only TV distribution for some consumer groups, we would expect that some level of consumer outreach and support would be required on an ongoing basis. This ongoing support would likely be needed in the event of a switch to IP-only TV distribution to help consumers troubleshoot issues with both the IPTV service and broadband as well as managing issues such as software updates.

Our survey asked respondents how confident they would feel in connecting, using and troubleshooting an IPTV service in the event of a switch to IP-only TV distribution.

When asked about their confidence in setting up a new IPTV service the 46-55 age group were the most confident. The 18-25 age group were the second least confident with 29% saying they would not be very, or not at all confident, compared to 22% for the overall sample. This highlights that it is not just older people who can struggle with technology and that all age groups may need some level of support in the event of a switch to IP-only TV distribution.

The 46-55 age group were also the most confident in troubleshooting issues with the TV service not working properly. 25% of this group say they would not be very, or not at all confident, compared to 58% of people over 76 and 34% overall.³⁷

Proportion of people who agreed, or strongly agree, that they would want to keep technology products for as long as possible



³⁷ Responses of 'not very confident' and 'not confident' to the question: 'How confident do you feel in troubleshooting any issues with the television service not working properly?'

5. Additional ongoing costs of IP-only TV distribution

Our analysis and research suggests however, that there would be a disproportionate cost to supporting the most vulnerable people, and many of them may not be able to receive sufficient help from friends and family. This would require additional, costly, support from in-home technicians, and other services such as freephone support, postal information, or charities.

We have based our cost estimates for customer outreach and support and the call centre and online support by assuming these costs would be 50% of the annualised costs used in our assumptions for the one-off costs of public information campaigns.

For ongoing support visits, we have estimated these costs using data from our survey. The data shows that 6% of respondents say that, in the event of a switch to IP-only TV distribution, they would require ongoing support from carers or other regular support services. Charities such as AbilityNet already operate to provide digital skills support to vulnerable groups, offering an insight into the associated cost and complexity. In a recent report for BT, AbilityNet states that support costs are at least £60 per person (and up to £800).³⁸

Applying £60 per person to 6% of the 4.6 million homes (280,000) that we expect would require an internet-enabled device in order to receive IPTV, we estimate a total annual support cost of £16.7 million.



³⁸ BT Group (2023) "Digital inclusion: New insights and finding a sustainable way forward"



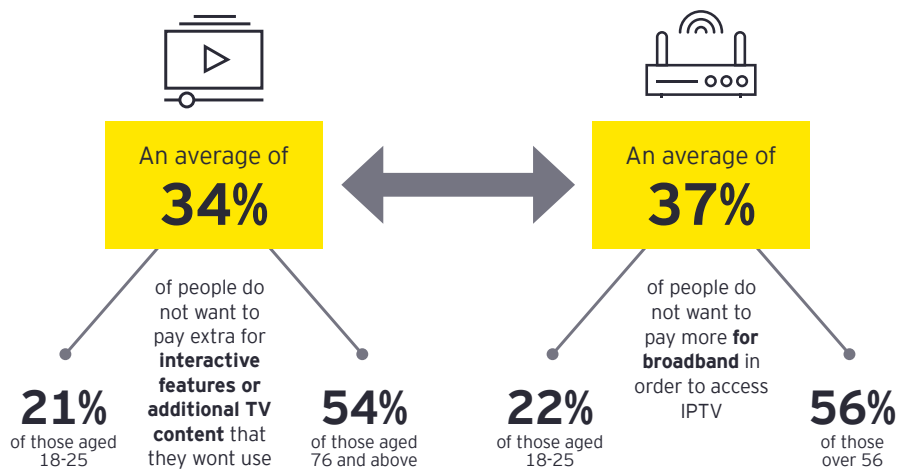
6 Funding challenges for IP-only TV distribution

6.1. Many consumers would be unable or unwilling to pay the additional costs associated with a switch over to IP-only TV distribution

A move to IP-only TV would force those consumers who are unconnected to high-speed fixed broadband in 2040 to pay to upgrade their in-home equipment and broadband subscription.

Our research suggests that this would have a disproportionate impact on the most vulnerable groups of society such as the elderly and those who are financially struggling.

Ofcom reported that over 8 million households have problems affording communications services,³⁹ with around 1.9 million UK households who have fixed broadband services struggling to afford the monthly payments. A potential transition to IP-only TV would therefore be expected to require significant government support for the UK's most vulnerable groups in order to ensure TV remains accessible across the UK.



The impact of a potential switch to IP-only TV distribution would vary across regions and consumer groups. When asked about the concerns they would have, 31% of total respondents say they can't afford to pay more, rising to 37% and 45% in social grades D and E respectively. The results vary significantly by region too, with only 21% of London-based respondents saying they can't afford to pay more, versus 43% in the East of England.

The results, being reflective of an online population sample, provide a conservative view of affordability issues, which may be more pronounced in the 13% of households which currently have no fixed broadband.

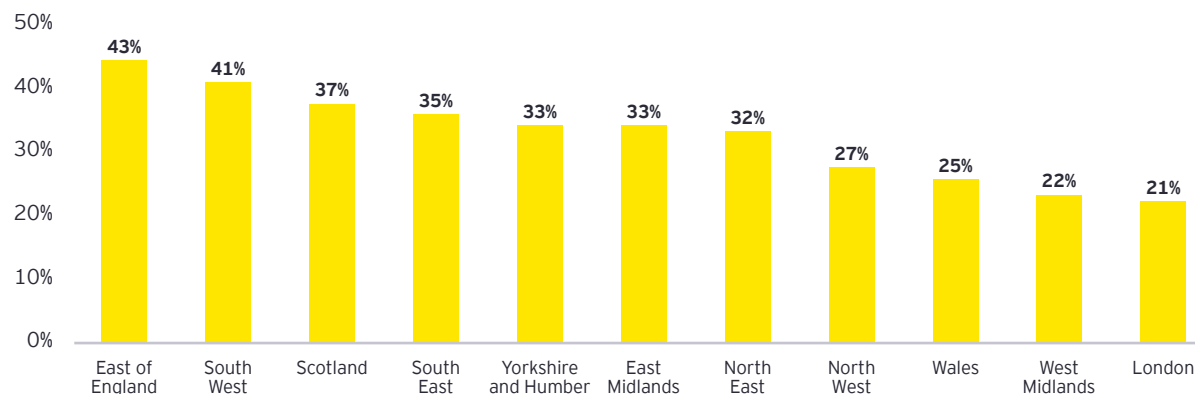
70%

of our survey respondents say they expect the government to subsidise high-speed fixed broadband for those who can't afford it.

³⁹ Ofcom (2024), "Communications Affordability Tracker"

6. Funding challenges for IP-only TV distribution

Proportion of people who 'can't afford to pay more' to access broadband and TV



It is expected that many of these households could be eligible for social tariffs, reducing the financial burden on households but shifting it onto industry. However, despite most ISPs offering a social tariff, it is estimated that there are around one million households in the UK that cannot afford connectivity at all. In addition to this, there are barriers to entry for households that may prevent them from getting access to a monthly broadband subscription, for example, credit checks. In the event of a switch to IP-only TV distribution, these households would need additional government support to take out a monthly broadband subscription.⁴⁰



⁴⁰ BT Group (2023) "Digital inclusion: New insights and finding a sustainable way forward"

6. Funding challenges for IP-only TV distribution

6.2. Significant government intervention would likely be required to plug the funding gap for a switch over to IP-only TV distribution

Given the potential affordability challenges, it is likely that government intervention would be needed to fund a potential switch to IP-only TV distribution.

There are a number of ways government might consider raising these funds, including through the TV licence fee or via direct tax funding. For example, during the DSO, the government ringfenced around £600 million of the TV licence fee to support people with the transition, which was then managed by the BBC on behalf of the Department for Culture, Media, and Sport.

Currently, a portion of the TV licence fee is allocated by the BBC to fund its distribution over DTT, with similar fees paid by other commercial TV broadcasters.

Given this precedent, the government could adopt a similar approach, charging a levy to broadcasters to cover the cost of universal TV distribution over IP.

This method introduces significant complexities and challenges, including:

- ▶ Determining the appropriate charging and distribution mechanisms
- ▶ The approach raises questions about fairness, particularly for licence fee payers who may not directly benefit from subsidised broadband connections

Alternatively, the government could use tax funding to pay for the transition. In this case, the government would directly subsidise connections to provide universal TV coverage, through a voucher scheme or a similar mechanism. This would involve the government allocating funds to ensure that all households can access IPTV services. This option presents several political and technical complexities to implement.

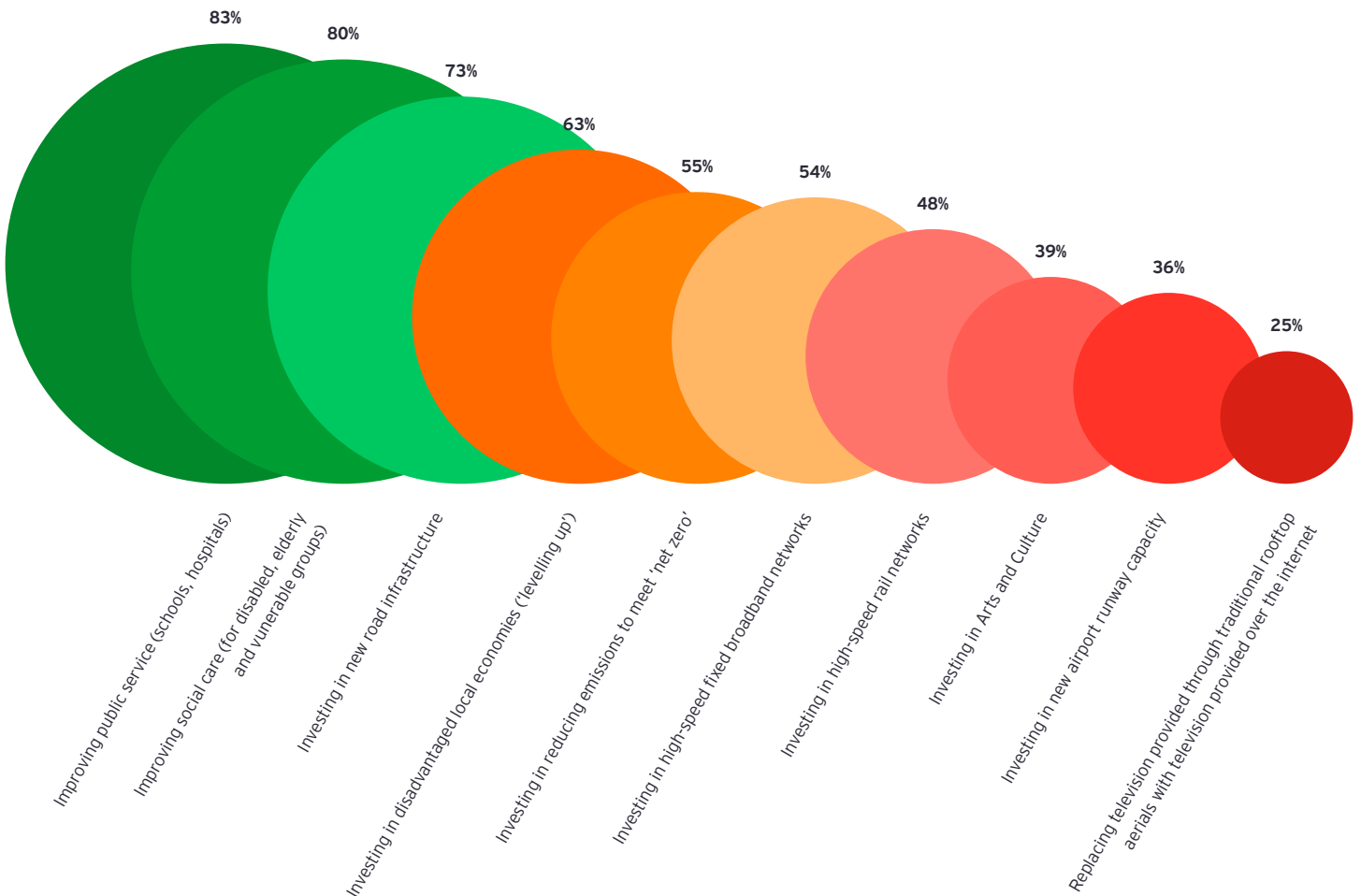
Gaining consensus on the allocation of public funds for the scheme could be challenging, including the prioritisation of public spending, with some arguing that funds could be better utilised in other critical areas, such as healthcare, education, or infrastructure.

However, **74%** of all survey respondents stated that they would expect a reduction in their TV licence fee if they had to pay for a broadband connection to watch TV and **64%** stated that they would expect the government to pay for the equipment needed to connect to IPTV.

6. Funding challenges for IP-only TV distribution

40% of survey respondents say a switch to IP-only TV would be a bad or very bad use of government funding

Our survey asked consumers for their views on whether the following areas of government spending were a good or bad use of taxpayer money. A potential switch to IP-only TV distribution ranked last in terms of the number of respondents that consider this a good use of government money. For a switch to IP-only TV distribution, only 25% say it was a good use of government spending whilst 40% of respondents see it as a bad, or very bad use.





7 Recommendations

As Ofcom notes in its Future of TV Distribution report, additional work is needed to understand the complex cross sectoral issue of the future of TV. The final decision on the future of TV distribution will be shaped by many stakeholders and careful consideration will need be given to the distribution of costs and benefits on different groups.

All options for the future role of DTT will involve significant trade-offs, and Ofcom is yet to carry out an impact assessment to fully assess the potential effects of each direction of travel for DTT. Our fresh analysis, supported by primary consumer research, underscores the need for significant further work.

Our analysis identifies considerable hidden costs resulting from a switch to IP-only TV distribution, with the financial burden being most felt by the more vulnerable consumer groups.

Our survey data in particular highlights a number of issues around the diversity of attitudes and needs across different stakeholder groups, calling into question whether a switch to IP-only TV distribution would benefit all consumers.

More generally, our research finds that consumers access and use digital services in ways that best suit them, with many finding that a hybrid model works well, offering them flexibility around their choice of broadband connection and TV services.

We therefore recommend that the government:

- 1 Recognise the significant one-off and ongoing costs which would be incurred if there was a move to IP-only TV distribution and the financial burden on consumers or government.
- 2 Further assess the non-financial risks of IP-only TV distribution, including risks to universality and the resilience of communications infrastructure.
- 3 Undertake extensive consultation with industry, consumers and consumer groups to understand the role that an enhanced, efficient DTT service could play within an ongoing hybrid TV distribution environment.

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