Ofcom Call for Evidence
Future of TV distribution
December 2023

Public service broadcasting can play a role in supporting the UK's progression to an inclusive digital society, by financially aiding the transition of certain customers to IPTV and supporting necessary uplifts to communications networks quality and resilience.

Migration to IPTV is already well underway, with many consumers now using IP for all or part of their viewing experience. The prospective ending of over-the-air TV distribution will, however, require all viewers to access IPTV, all the time. This is something that a minority of citizen and consumers are currently not well placed to do, absent coherent policy intervention.

The communications sector in the UK is well placed to assist in the delivery of a consistent and high-quality IPTV experience, however the sector is likely to incur significant costs in doing so. The network investment needed to support viewing peaks over IP is likely to be considerable, even taking account of enhancements in compression and multicast technology.

Without a coordinated, policy-driven approach, the viewer experience will suffer and the additional network investment which will be needed to maintain viewing quality and reliability during peak viewing times will not be viable. There will also be a small proportion of vulnerable viewers who lack access to broadband connectivity and are reliant upon Freeview. These viewers will suffer the most when over-the-air transmission ends. Solutions are needed to expand the reach of connectivity to these consumers.

The optimal solution for all viewers and consumers is for a co-ordinated, multi-sector strategy to deliver an outcome where broadband (and with it TV content) is accessible to all, and where the cost of delivering viewing peaks is funded through a redirecting of the existing TV distribution funding, into the IPTV sector to ensure viewing quality is maintained at all times including live event peaks.

As part of this fresh thinking, Ofcom should consider how the freed-up spectrum is allocated, potentially moving away from its conventional approach to spectrum allocation, to one where the public good outcome is prioritised for public service broadcast audiences. This may mean the spectrum itself helps to contribute toward the cost of IPTV distribution, with allocations offered in lieu of financial contributions to IPTV carriage, with a proportion of the capacity created by that spectrum ringfenced to support IPTV distribution for a finite amount of public service broadcast content (e.g. seis used to deliver some level of smart TV connectivity for unconnected homes).

This is a project that will require long term planning, and must balance the interests of audiences, broadcasters, Communication Providers and fixed broadband and mobile bill payers. Ofcom should advise Government that the way forward is the creation of a coordinated policy framework which, at its heart, has the objective to create a digitally inclusive society, with all citizens able to access online services. This will include seeking ways to assist via redirected funding, the UK's communications sector to build the infrastructure to make IPTV accessible to all and put in place the policy to encourage Public Sector Broadcasters to ensure all viewers and listeners have the connectivity and equipment necessary to retain access to these important services.

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Answers to questions

1. **How are audience demands and expectations evolving, and how does that vary for users of different TV platforms and different demographics?**

Public service broadcasters retain the responsibility for ensuring that their audience can access the public service content. In today's world this means putting repeater masts in and providing viewer support to their vulnerable viewers and listeners. In a future scenario, where content is exclusively provided over the internet, public service broadcasters would retain this responsibility, ensuring their audiences can access a quality experience, with viewing remaining accessible to all.

Today, over-the-air distribution offers a quality viewing experience. If this quality level is to be maintained in an IP world, particularly for peak live events, then a significant level of broadband network investment will be required. Policy proposals therefore need to focus on addressing barriers to the achievement of a quality experience for all users *and* addressing the issue of accessibility for vulnerable customers which would extend to those who have thus far chosen not to consume broadband.

Service funding to support content creation, distribution of the content to users' homes and aid for vulnerable customers comes from the TV licence and from advertising / subscription revenues. Changes to distribution will create different costs rather than remove these costs. In determining the costs, we need a clearer view on what the scope of public service broadcast should be – addressing how it relates to Freeview, whether it should be a subset of key channels selected by Government as a minimum service.

We expect that, in its advice, Ofcom will follow its Impact Assessment Guidance setting out a methodical approach to data analysis and the cost benefit analysis assessment of alternative solutions. This will include collecting data from the public service broadcasters which will show the costs associated with over the air transmission and the costs associated with ensuring accessibility of services by all UK consumers. The cost benefit analysis will weigh up the continuation of these costs for a declining pool of regular users and intermittent increases during live peaks. The alternative scenario will be the transfer to transmission costs to network operators to carry out network upgrades to enable quality peak live event viewing and a change in the types of costs that public service broadcasters will face in ensuring accessibility, potentially funding connectivity for customers who will not be online in the 2030s.

2. **What do audience trends mean for the financial prospects and sustainability of TV distribution platforms, and what are the key decision points over the next ten years?**

The migration to IPTV is already underway, but today there is a choice over how TV content is consumed, with consumers able to switch to terrestrial or satellite TV distribution if online quality reduces. When over-the-air TV distribution is turned off, communication networks may not be able to accommodate the quality experience for peak viewing events, absent further investment. It is essential that a mechanism is created that allows the money currently spent on over the air distribution to be ringfenced and allocated into delivering a quality IPTV viewing experience for

all viewers. This is particularly crucial for the broadcast of national events, which provide the backdrop to national life and contribute to wider community and national cohesion. IPTV over best-efforts internet access should not be considered an orderly transition path for TV distribution. Instead, a well-managed and co-ordinated approach is needed to both fund communication networks to deliver a quality peak viewing experience and improve accessibility for all.

There needs to be recognition by both Ofcom and Govt that there is a trade-off between external funding support for IPTV distribution and the cost to consumers of mobile and broadband subscriptions. Absent any funding support, communications bills are likely to rise across the market as the volume of data being consumed will increase sharply (even allowing for an increase in the efficiency of distribution). With consumer willingness to pay stretched, it is likely that the quality of service offered on IPTV will have to be compromised.

3. How do broadband networks and supporting infrastructure need to evolve to support resilient delivery of TV over the internet in the future?

Government and Ofcom have worked on several initiatives to enable the upgrade of our 20th Century internet access fixed communications networks for ones suitable for the 21st Century, via the Governments Future Telecoms Infrastructure Review and the Ofcom Wholesale Fixed Access Market Review 2021. This trajectory is expected to continue in Ofcom's forthcoming Wholesale Fixed Access Market Review for 2026. The Government is funding access to hard to reach, high-cost consumers via Project Gigabit. The Government has also set out a Wireless Infrastructure Strategy to support the rollout of 5G connectivity. Ofcom has also carried out the Mobile Strategy Review, aimed at improving the health of the sector. Operators and Government are jointly funding the Shared Rural Network to increase mobile coverage to 95% of the UK.

For the access component of fixed networks, changes to Ofcom policies have incentivised the rollout of fibre networks which increase the capacity to accommodate (*inter* alia) IPTV services. For mobile, increasing access capacity requires the provision of suitable spectrum, which for propagation deep into buildings means sub-1GHz spectrum, which will fortuitously be released by TV services migrating away from over-the-air transmission. However, Ofcom must then ensure that the spectrum is made available for mobile networks without forcing costs onto the mobile network operators. Both fixed and mobile communications networks then require supported and appropriately located caches and up-sized backhaul connectivity to support peak network traffic loads for live events. Content caches and backhaul connectivity is installed and provided by the large ISP and MNO Retailers. Smaller reseller ISPs, MVNOs and other resellers are reliant upon the backhaul backbone of their wholesale provider (one of the larger ISPs/MNOs). The investment needed to support public service broadcast across IPTV is in the fixed and mobile backhaul network capacity and where users rely on mobile connectivity in additional mobile network capacity.

Fixed and mobile backhaul networks have not been built with the support of peak IPTV services in mind and would come under particular and new pressures in the event that public service broadcasting fully transferred to the internet.

The competitive nature of retail internet and mobile consumer markets will limit the ability of retail ISPs and mobile service providers to charge consumers more for their services to reflect the transfer of public broadcast services from over the air to the internet. This will impact the ability for networks to maintain quality and increase network resilience. The distribution component of TV licence, advertising or subscription revenues for public service broadcasts will be needed to fund uplifted quality and resilience of the fixed and mobile networks.

The accessibility of public service broadcast content is a matter for the public service broadcasters, not broadband providers as consumers transition to IPTV/Streaming/Multicast. Households that choose not to have a broadband connection or can't afford one and who currently consume linear broadcast TV need a solution. A new set of services will need to be created for users that have specialised needs as they do not have broadband services over which they can view public service broadcast.

We have run an initial high-level assessment of potential scenarios where public service broadcasters wish to commission communications providers to provide an 8 HD channel IPTV service to understand the potential impact on the traffic that needs to be supported:

1. Scenario 1 Low market share: Expected streaming traffic in busy hour: [redacted] uplift to last known peak of fixed broadband traffic)
2. Scenario 2 High market share: Expected streaming traffic in busy hour: [redacted] uplift of fixed broadband traffic)

To have a better understanding of the costs implicated in providing a TV solution on our network, a proper detailed analysis needs to be done to cover the impact on our network; we'll need a clearer understanding of the requirements.

Depending on the level of traffic generated from IPTV, different components of our Network will need upgrading or replacing entirely to cope with the increased traffic.

> First, there are Cablelinks, which connect BT Openreach to Vodafone for consumer broadband services. Next, we have the Edge Base Access Backhaul, these are crucial points where Cablelinks converge. Moving on to Regional Aggregation Routers that manage traffic from Edge Base Access to the Core. The core network is responsible for transporting traffic across the UK. Then, Internet Gateway Routers facilitate peering and caching for internet traffic. To plan for IPTV traffic, we must identify whether caching within the network is feasible or if new peering points are required, determining their locations and quantity. Finally, the Broadband Network Gateway Routers terminate all broadband subscriber connections. These are critical points to consider for the overall network evaluation.
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> The service will likely be over both the fixed and mobile network to increase the population and geographical coverage; increasing access capacity requires the provision of suitable spectrum, which for propagation deep into buildings means sub-1GHz spectrum coupled with the adequate capacity spectrum, both of which need to be assessed in terms of cost.

The impact of this additional traffic on our network has the potential to be very large. To cost robustly we will need to understand the solution and potential traffic forecasted to come up with an accurate cost.

There needs to be a joined-up approach, potentially uplifting public service broadcasters approach to addressing vulnerable customers' ability to afford to access the public services content and combining this with a more structured approach to social tariffing to include a wide range of organisations which benefit from a full digital society.

4. **In what ways might different types of 'hybrid' terrestrial and internet services deliver benefits for audiences and what risks may arise?**

Ofcom perhaps needs to look a unique approach to reallocating the vacated spectrum (departing from the conventional spectrum auction approach). Doing so on a public good trade off arrangement, where a proportion is used to support public service broadcast TV distribution and the remainder can be used commercially by MNOs. This would allow communication providers to reach all households (those with broadband and those without), providing a means to access public service broadcast content.

5. **Given the sharing of infrastructure, what would the implications for other sectors be if there was a change to the use of digital terrestrial television (DTT)?**

N/A

6. **What coordination and planning across the value chain might be necessary to secure good outcomes for audiences and key providers over the long term?**

In a world of TV distribution entirely over the internet there are questions around the "whole system" costs and a question around how costs are presented to customers. Public broadcast services costs are covered either via the BBC licence fee, by advertising revenues and by subscription charges. Households with inadequate broadband connections can expect to be upgraded via commercial of Project Gigabit rollout or via universal service funding. A missing link is the cost of increasing the backhaul bandwidth to a new busy hour peak considering the transmission of live events over the internet and the resilience of the network necessary to support public service broadcasts in power outage situations. Today we do not know which organisation will win live event transmission events and therefore the policy to ensure networks are appropriately funded to have capacity to transmit such events needs to cover all future eventualities.

We propose new specialised policy to enable charging by networks to organisations creating high density network events. This is likely to necessitate a more fundamental legislative review of net neutrality, going further than Ofcom's revised 2023 guidance. It would allow a more permissive attitude towards the ability of content providers to contribute towards IPTV distribution costs to assure a quality viewing experience across a range of circumstances. This commercial approach could be implemented to allow a level of differentiation, while guarding against discrimination.

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Ofcom is expected to consult regarding communications network resilience in 2024. Higher levels of network resilience will need to be funded from a range of sources. Beneficiaries will include public service broadcasters where service transmission occurs over the fixed or mobile internet.

The transmission of public service broadcasts services along with access to a full range of public services via the internet should be considered as we progress with policy communications social tariffs and their funding.