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The Government should decide now the post-2034 future of Digital Terrestrial Television (DTT)

A white paper by the University of Surrey's
5G/6G Innovation Centre

*The views expressed are solely those of the University of Surrey's 5G/6GIC,
and do not necessarily represent the members of the Strategic Advisory Board.*

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1. Introduction

The last UK Government committed itself to supporting Digital Terrestrial Television (DTT) until at least 2034. Their aims included providing a transition period for those viewers who currently rely on traditional DTT TV viewing to move to other platforms

Deferring the decision in this way has had consequences:

- 1. The very possibility of a 2034 decision to close DTT has blighted long term policies/investments for improving DTT.
- 2. Conversely, it lost the migration dynamism that would have resulted from a clear-cut announcement that DTT would close at a date not long after 2034.
- 3. It leaves the broadcasting eco-system vulnerable to a disorderly DTT exit.
- 4. Hard-pressed mobile network operators face a long period of planning uncertainty.
- 5. Delaying the decision means the clock cannot start on the long lead activities necessary to enjoy the fruits from a more optimal use of this valuable spectrum.

“The decision on whether DTT is to have a long-term presence in the UK or not could be settled now.”

This White Paper sets out the case for notionally cutting the DTT spectrum in half and allocating half to the mobile operators much sooner than 2034 and retaining the other half for DTT with a security of tenure much longer than 2034.

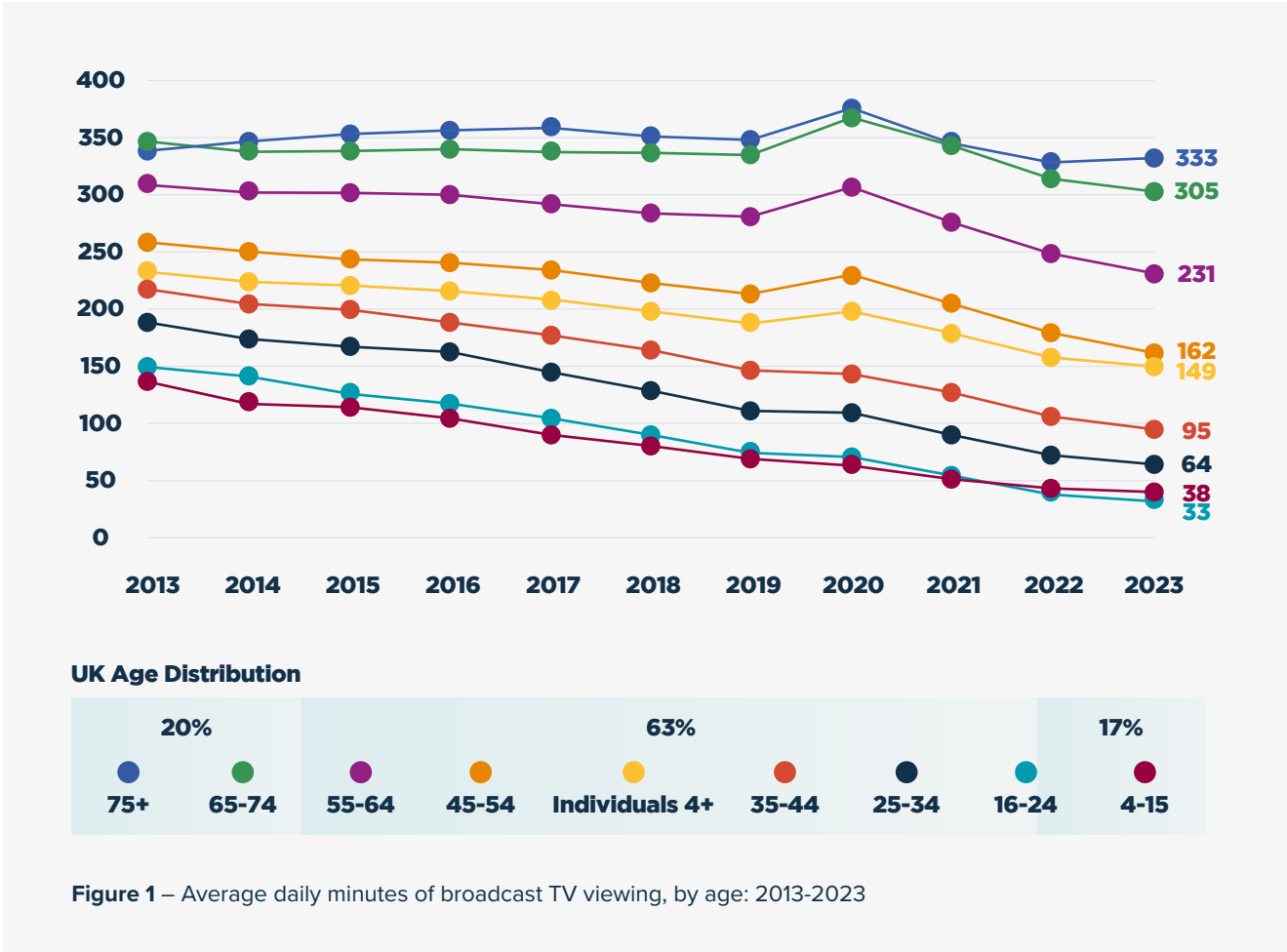
This would catalyse both the DTT and mobile broadband network innovations and investment. To ensure an optimal outcome, the DTT policy decision should be a part of a wider industrial policy aimed at driving growth of the UK contents industry and better performing mobile networks.

This White Paper is the next in our series aimed at aligning regulation and innovation behind opportunities that could drive investment, economic growth, and society wellbeing.

2. DTT in the overall landscape

In 1994 the conventional wisdom was that DTT had no future as it could never compete with satellite and cable TV platforms on the number of new digital TV channels. The conventional wisdom was wrong. UK DTT outran its rival digital delivery platforms. Its success was powered by “Freeview,” an easy-to-understand proposition offering a bundle of decent quality “free” TV channels, with strong leadership from the BBC.

Today the conventional wisdom is that the future of TV broadcasting is on-line and DTT’s demise is inevitable. The evidence behind this widely held view can be seen in data provided in the latest Ofcom Media Nations UK 2024 report and illustrated in figure 1.



However, there is nothing inevitable nor desirable about such an outcome:

- There is an important viewing cohort (the over 75's) remaining steadfastly loyal to the simplicity of the DTT TV proposition.
- In highly competitive very open markets, like the Internet, only “scale” or “niche” ensures survival. UK Public Service Broadcasting (PSB) has or is neither. Moving PSB entirely on-line is akin to moving from being big fish in

a small pond to being small fish in a shark infested ocean. It was how the UK lost its indigenous electronics industry in the 1980's.

- There is no extra revenue for telecoms operators (fixed or mobile) from investing to carry the huge peak data traffic loads from occasional real time national mass TV viewing events. Therefore this investment is unlikely to happen.

3. Where DTT is failing badly across its TV channel line-up

“ There are lessons here for any DTT fight-back. ”

Freeview is a story in two unequal halves. The twelve most popular TV channels soak up around 70% of all DTT viewing. The viewing of the twelve least popular channels has become almost too small to measure. It is this long tail of low audience share channels where many are struggling. Factors driving this decline in TV viewing numbers include viewers having the control of when they want to watch various genre and:

- Small audience sizes reduce what can be charged for ad slots and therefore more ads must be shown to sustain revenues. The ad breaks on many DTT channels become annoyingly long.
- Film studios used to have release windows where all movies would eventually finish on free to air TV. The big streaming companies have muscled free to air broadcasters out of showing many top movies, leading to a quality disparity of movie re-runs.
- Clever algorithms facilitate access to quite viewable on-line short videos culled out from billions of hours of low-quality content posted free on YouTube, TikTok etc by the public. This is drawing younger people away from viewing TV.

There are lessons here for any DTT fight-back.

4. Where DTT succeeds

The five TV channels that always appear in the twelve most viewed DTT channels inevitably include BBC1, BBC2, ITV, Channel 4, and Channel 5. There are several factors behind this:

- Compelling live content that is easy to access
- Investment in compelling TV programmes
- Top positions in the DTT EPG

Evidence of viewer satisfaction is to be found in the Ofcom Media Nations UK 2024 report.

	BBC	itv	4	5
Programmes made for UK audiences	67%	60%	57%	49%
A wide range of different types of programmes, such as drama, comedy, sport or entertainment	64%	60%	54%	43%

Figure 2 – Proportion of PSB viewers who rated the delivery of different attributes of PSBs ‘well.’



5. The case for backing a DTT future

5.1 The UK has a vitally important content industry to protect and nourish

As noted earlier, an all-on-line PSB future is a very efficient way to off-shore large parts of the UK TV content industry. The fact that the UK still has a vibrant content industry is down to an industrial policy (in all but name) supported by all parties over many years that has created a semi-protected

TV content incubation space through mandating DTT in all new TVs, limited competition on the DTT multiplexers and a prime position on the EPG for PSB channels. This has sustained a size of market that supports enough advertising revenue to fund UK content creation alongside licence fee funded content, as shown in the Ofcom Media Nations UK 2024 report.

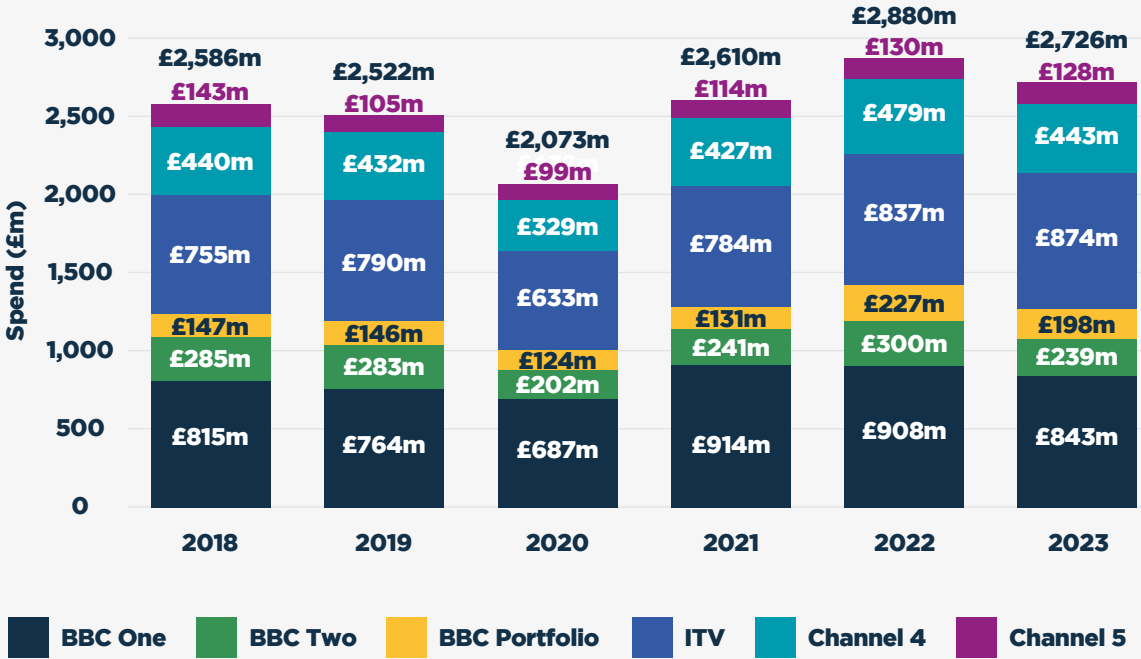


Figure 3 – PSB first-run UK-originated spend, by channel: 2018-2023

5.

The case for backing a DTT future

5.2 Freeview Play from Digital UK has defined the ideal future Electronic Programme Guide

A potentially exciting vision for PSB future lays in the seamless integration of linear TV over DTT and streamed video over WiFi fronted by a great electronic programme guide (EPG) that points viewers first to PSB content. Having that EPG in all new TV sets sold in the UK is a critical component in any industrial strategy for the UK contents industry. But global TV suppliers have their own ideas for the EPG in their new TV sets. There are good arguments for manufacturers to having that freedom to innovate. But there is an industrial, societal and competition policy case for a new regulation that gives viewers an easy to make choice of which EPG they want as the default. Thus a standardised version of Freeview Play should be mandated in all new TV sets in a way that is not subordinated by the manufacturer's own version. The industrial policy aim is that PSB content must always be the easiest to find.

Regulatory support might also include a requirement (costing very little) for all new homes to come fitted with a DTT antenna to maximise the DTT advantage

Finally, the national TV towers infrastructure (a major cost component of the DTT platform) is also a part of the national mobile infrastructure. Thus the overall regulatory policy framework around DTT and mobile must create a realistic economic basis to sustain this infrastructure. The government has a number of levers it can pull in combination to reduce the cost of a slimmed down DTT network to make the cost to Public Service Broadcasters of running on two platforms proportional to the benefits.

5.3 DTT's golden future lays in "quality" and not "quantity" of TV channels

The UK DTT viewing data shows a preference for quality over quantity of TV channels. Thus between five and twelve DTT TV channels is likely to be optimum for a fully integrated DTT/on-line delivery future. The Ofcom

report mentions DTT being reduced to a "nightlight" service. But the DTT industrial policy vision should be more "bright lights" than "nightlights."

A reduction in the number of DTT channels intensifies internal PSB competition for UK content creators that will raise TV channel quality. Other ways to improve the "quality competitiveness" of DTT includes broadcasters releasing prime new content first on DTT and the Government expanding the list of "crown jewel" events.

Having such a DTT quality content space free from all the ever-present on-line threats from malevolent foreign actors also strengthens national communications infrastructures resilience in times of heightened tensions and worth the national effort to sustain DTT.

5.4 DTT infrastructure offers superior quality pictures for important mass viewing events

Net neutrality removes any commercial incentive for the telecoms network operators to invest in capacity ahead of demand for very exceptional mass concurrent viewing peaks. Thus High Definition DTT may well retain a competitive advantage through better picture quality over on-line delivery for viewing big events on large TV screens.

5.5 Current minority DTT channels have a more sustainable future on-line

The minority channels on DTT are in a squeeze. They must pay the multiplex provider a significant carriage fee. But they are not attracting an audience size to generate significant advertising revenue to readily pay their way. The danger is falling overall DTT viewing numbers pushing many into financial failure. Were the DTT minority channels to go on-line, "net neutrality regulation" would give them free transmission to their viewers. Those minority channels *supporting UK content* should be allowed presence on Freeview Play and this would provide a far more sustainable future for displaced DTT TV channels that are contributing to UK content creation.

6.

The mobile operator's case

6.1 Mobile Operators' struggle to keep up with capacity demand

It is in the younger age groups where video streaming over the broadband Internet has heavily eaten into the DTT viewing numbers. Further, a subset of this viewing has been displaced by services such as YouTube and TikTok. These offer short duration videos that are particularly popular on smartphones, and this is driving up traffic over broadband mobile networks. As a result, those networks are heading into serious congestion over 70% of the country where high capacity 5G bandwidth is unlikely to ever be deployed for economic reasons. The 600 MHz DTT spectrum is the only economically viable option in prospect for congestion relief over large parts of the UK.

6.2 Evolutionary or revolutionary mobile use options

The possibility of such valuable spectrum being found for mobile services should trigger a reflection by the mobile industry as to whether something more imaginative is made of the 600 MHz opportunity than just overlaying x% more spectrum capacity.

One such possibility is to use the released 600 MHz spectrum to introduce full duplex working. This is where signal cancellation technology is used to allow the same frequency to be used for both directions of transmission. Another possibility is cell sweeping to fill cell edge capacity voids.

A third possibility is to use new 600 MHz spectrum as a decanting band for totally replanning the entire mobile spectrum below 1 GHz to iron out all the historic band fragmentation.

Something along these lines could be brought into the conditions for accepting the spectrum and justified by the economic contribution from the overall spectrum efficiency gain.



7.

Programme Making and Special Events (PMSE) applications case

This secondary use of the DTT spectrum is important for the contents industry for their programme making and special events (PMSE). As the most acute need for mobile use of 600 MHz is where it is not economic to deploy wide area high capacity 5G, there could be much scope for spectrum sharing. Introducing the concept of "protected PMSE locations" for existing users and giving MNOs case by case flexibility of either paying to relocate PMSE kit to another band or finding spectrum sharing solutions saves money and disruption.

The ideal long-term home for wideband PMSE applications is through local access licences in the 3.8-4.2 GHz band eg private 5G cells.

Safeguarding use of 600 MHz PMSA equipment at special events, eg Glastonbury, is both important and feasible. Mobile network operators are likely to be at those events anyway to boost cell capacity with the use of other spectrum bands, so MNOs temporarily closing the use of any acquired 600 MHz spectrum within the immediate vicinity of those short duration events would be a sensible solution.

8.

Re-planning the spectrum retained for DTT

The re-affirmation of a much longer life for DTT plus a new operational flexibility between DTT and on-line delivery opens the possibility of a long-term plan to make more efficient use of the retained DTT spectrum eg closing regional multiplexes.



9.

Firing the starting gun on long lead time preparations

Clearing bands or re-jigging channels, coordinating any frequency changes internationally, building an installed base of TVs with Freeview Play or any sort of imaginative mobile use of freed up 600 MHz spectrum are all long lead activities. Since these are essential before the benefits flow, ***the most important reason to take a decision now is that it fires the starting gun on all these long lead activities.*** The result will be the country gaining

ten years of enjoying the economic fruits that can flow from a more optimal use of this valuable DTT spectrum. It was the last Government's intention for Ofcom to have new revocation powers over multiplex licences, but the powers could not take effect before the end of 2030. However no government binds its successor if the case for change is strong enough. We argue that the case for change is overwhelming.

10.

What the decision should be

Ofcom has usefully boiled down a tangle of issues to three options:

1. Investment in a more efficient DTT service
2. Reducing DTT to a core service
3. Move towards eventual DTT switch-off

The next step is for the Government to arrive at a single proposition that sets the direction of travel. We strongly advocate starting from a strengthened DTT version of Ofcom's Option 2, build around it a comprehensive industrial strategy for boosting the UK contents industry and better performing mobile networks ***and put that decision on a fast track.*** That will not just maximise the economic growth benefits sooner but also allow the knock-on effects to be better managed. It is time to get moving.



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