Networked Television

Additional comments:

In addition to the standard question format, we would like to add this free-form response, that we feel gets to the nub of the problem more precisely, this is particularly the case as the questions, as outlined in the consultation are specifically biased towards an outcome of the decision to release 700MHz spectrum as being formality (i.e. the decision has already been made), with language such as: "Question 8: Have we correctly identified the costs and benefits that could vary depending on the timing of release, and the impact of those factors? Are there other costs and benefits which would vary depending on the timing of release of the 700 MHz band which we should take into account? ", for example.

We are exceptionally disappointed in this pre-assumption in the phrasing of the questions towards this end, and hence add our direct responses here first, as well as addressing the direct questions asked in the consultation.

Executive Summary

We believe releasing 700MHz spectrum from DTT use to any alternative use is a serious threat to the long-term viability of free television in general, PSB remit (and the intervention and control needed to ensure plurality of PSB provision) in particular, which is a threat to democracy, and we are therefore strongly against this move, and urge Ofcom to urgently re-evaluate the move to remove 700MHz spectrum from the DTT use pool.

We are convinced of the EBU's stance, that mobile broadband not only does not need this bandwidth, but, further, expansion of mobile broadband can be better achieved at different frequency bands, and by differing technology options, where LTE provides the backhaul.

Further, as the EBU also points out, DTT services cannot be economically provided in spectrum outside of the UHF bands.
(See: http://www3.ebu.ch/contents/news/2013/05/ebu-stresses-importance-of-700-m.html)

Below we outline our thoughts as statements, backed up with some external resources to support the majority of our statements, which we believe helps to support our strongly worded opinion above.

Some statements:

UHF and DTT

UHF, and hence DTT spectrum is scarce commodity, and is so scarce that its use usually requires certain commitments to public service broadcasting (PSB) from those organisations entrusted with usage of it. The 700MHz band represents 30% of the available spectrum that DTT services can use. (See: http://www.broadcast-networks.eu/wp-content/uploads/2014/06/2014-06-18-9th-European-Spectrum-Conference-BNE.pdf).

DTT can only work reliably in the UHF spectrum.

PSB broadcasting both entertains, enlightens, educates and allows viewers to better

understand the world around them, to engage with that world, and is a cornerstone of the democratic society that we are luckily enough to live in, it is also highly valued by society generally.
(See: http://downloads.bbc.co.uk/aboutthebbc/insidethebbc/howwework/reports/pdf/now_future.pdf)

A very large percentage of viewers rely on DTT services to meet their television consumption needs, and this is particularly true of those viewers who wish to have access to so-called free to air programming, either because they are unable, or, more frequently, unwilling to pay subscription fees to access television content.
(See: http://www.digitag.org/WebLetters/2012/External-Dec2012.html)

Delivery of televisual services via broadband remains an immature industry, though developing rapidly, and high-enough speed broadband penetration remains lower than needed to make IPTV and related delivery mechanisms of ALL television an unlikely proposition for many decades to come, this is particularly true when we measure speeds available in the so-called 'last mile', due to exceptionally large numbers of legacy connections.

Regulatory frameworks offer protections for both consumers AND broadcasters, which are exceptionally hard (legally) to circumvent in the DTT world. This will almost certainly not be the case in the IPTV world, particularly as the net is fantastic at staying 10 paces ahead of law makers and legislation. In particular, though not exclusively, we are thinking on public service mandate, ability to regulate, where it is perfectly possible to move holding entities to different jurisdictions with almost over-night ease and the ability of any primary or secondary legislation to keep pace with developments in this sphere.

The promise of lower barriers to entry of IPTV and related technologies being delivered via broadband is currently under threat from so-called tier 1 services providers who are, from experiences in the USA, keen to charge very high bandwidth users (broadcasters) substantial fees for guaranteed quality of service over their networks. Such fees are not fully publicly known, due to confidentiality clauses in contracts, but are generally thought to be in the tens of millions of dollars.
(See: http://www.wired.com/2014/08/save-the-net-reed-hastings/ or just about any television / IPTV trade press over the last year for more on this).

The overhead cost of DTT to broadcasters is relatively fixed (broadcast infrastructure, for example), and programme costs are the core variable; in a web-delivery world, programme costs are likely to remain variable, and now infrastructure costs will become variable with demand as well - the cost of delivery being no longer a straight fixed cost.

Maintenance and expanding of DTT delivery, in the medium term is desirable to reduce fragmentation, which remains the core risk to any alternative delivery mechanism for television; fragmentation will be the final death of PSB.

While there is a chance that regulatory intervention will be used to protect users of the internet from these so-called "fast lane" charges, the flip side to this will be an enormous disincentive for tier 1 providers to continue the vast investments needed to provide greater back-bone bandwidth, which will have a knock on effect of making sufficient bandwidth available to make IPTV the panacea that it is currently portrayed as.

Lack of regulatory intervention, however, will result in much greater barriers to entry for television services, resulting in a reduction of services available, which has the knock on effect of reducing consumer choice, and guiding ownership of channels into the hands of a few large corporations - some would argue that this has already happened. This will become particularly true of the nascent local televisions services launching in the UK at this time.

Over time, and this is much more rapid than had previously been thought, consumers are demanding and expecting television services to be in HD and greater, which will require more bandwidth to be made available, at least in the medium term, for the DTT multiplexes. Removal of the 700MHz band will make this virtually impossible.

Local television service adoption, in the UK, is likely to already be partially crippled by lack of regulatory framework to allow them to be in HD. Loss of spectrum from DTT means these services are likely never to be available in HD, which will increasingly make their adoption by the viewing public less and less likely.

With the reduction of ITV local news, and local production generally, local TV is the last chance to make TV deliver to communities, and encourage engagement of those communities in an important part of the democratic process on a local level, which increases engagement in the democratic processes regionally and in the nations. For the points raised above, it is essential that local television has the chance to evolve to HD service in the future, if we are to see truly local service delivery on the ground. The market has already failed to provide for this to happen in any meaningful way over the last decades, is the expectation of Ofcom that the market will stop failing in a more fragmented and non-DTT world?

One solution could be to encourage regulatory intervention in the form of "must carry" on satellite and cable systems, however, we feel that this will be highly undesirable:

Mandating (through regulatory intervention) "must carry" on non-DTT platforms is likely to receive considerable industry push-back, and does not really work in the current UK (and European market), where PSB still pay non-DTT platforms considerable money for platform access (unlike the USA model, where must carry also involves non-DTT platforms paying for that content - it should also be noted that there is much talk of making local tv must carry an a la carte option in the USA at this moment, despite a large push back from major content providers from allowing the same thing for their second tier channels).

DTT consumption is on the rise, not falling.

DTT still provides the best usage model for spectrum usage - one "stream" to many, many users.

Better compression technologies already exist to allow even better use of the DTT spectrum, provided spectrum remains available, to allow more channels, and of higher quality than standard definition, but the lead time of implementing such compression technology has been a missed opportunity (which could and should have been mandated during the analogue switch off process), as industry and regulators still battle with delivery of DVB-T2, rather than moving forward with more advanced compression technologies; instead, without access to more spectrum, DTT consumers will be expected to shoulder further costs more than once to get DTT through in the decades ahead.

It is also highly unlikely that a multi-channel solution for true broadcast PSB solutions will ever be truly possible via IPTV, especially live television and sport, most certainly during the adoption rate suggested by Ofcom (see: http://www.techradar.com/news/television/why-live-tv-and-sports-in-4k-will-not-work-over-the-internet-1261910)

DTT available spectrum has already lost out due to digital switchover and the 800MHz band not being made available to DTT services, a further loss of available spectrum suitable for DTT transmission is likely to be highly detrimental to future available bandwidth needs, which in turn reduces opportunity for increased plurality of PSB services, and we believe that is fundamental assault on democracy itself.

It's Not Just About DTT

DTT is not the only user of spectrum that will be adversely affected, but systems such as wireless microphones and in-ear monitoring, used extensively by broadcasters, but also by large and small event producers, providing performances, music and presentations to very large numbers of people over time, which can enhance and enrich people's lives; the costs of upgrading this equipment will be considerable, and with much arts funding reduced since the financial meltdown, there are real risks of some providers simply not being able to deliver these upgrades. Even with advanced warning, the industry has been slower to respond that one would have liked.

We feel the point for other services have been very validly made by APWPT.org here: (http://www.dthg.de/resources/PMSE-strategy-paper_2012.pdf).

Mobile Broadband

Mobile broadband can, and does, use much higher frequencies than the UHF frequency that DTT requires, and new research has shown that it can co-exist in the 5GHz band with wifi, which would offer opportunities to make products utilising both technologies, and seems, at least on paper, to offer a better solution. (See: https://www.nttdocomo.co.jp/english/info/media_center/pr/2014/0821_00.html)

Most users still prefer Wifi coverage to other mobile data, as it is usually considerably cheaper and is more convenient for certain types of equipment. It also, usually, has far more generous data caps (or "fair use policies") than pure mobile broadband.

There is some suggestion that mobile broadband spectrum usage has be considerably over-estimated for the future expectation of use, the EBU suggests up to 100 times over-estimated. (see EBU paper link above, and http://www.pcworld.com/article/2598000/study-disputes-predictions-of-coming-spectrum-crunch.html for an academic appraisal.)

Current consumption patterns via mobile devices has suggested that consumers tend to consume short form video via mobile devices, rather than long-form programming, where television still rules, which would suggest that user use patterns are not at all as currently described in the consultation paper.

There is evidence that mobile as a second screen drives better engagement with existing linear television, which suggests that DTT usage will increase, not diminish, with deeper

broadband mobile penetration and faster fixed-line broadband speeds.

Pico-cell and other similar technologies can be better harnessed with LTE backbones to improve coverage, and overcome "through wall" signals issues, and this may be an overall cheaper solution.

Huge advancements in satellite delivery of internet services could also be harnessed better for mobile in some circumstances.

The assumption of cost savings to consumers for release of this spectrum for better and faster internet access is flawed, as the spectrum will be auctioned at considerable cost to mobile operators, a cost that can only be amortised over the licensing period when passed on as a cost to customers.

All evidence to date has not really produced the huge cost savings for consumers that mobile broadband was envisioned to: 1) due to the cost of the spectrum mobile operators are bidding on; 2) because highest bidder wins produces pseudo-monopoly provision; and 3) because it is not in operators long-term interests to make such services, most especially on so-called "unlimited" plans.

Further, there is some discussion in trade press that mobile broadband in the 700MHz band would make good use for premium services, such as broadcast to mobile, which would mean removing spectrum from broadcasters, who more typically provide free access service, to mobile operators, who are unlikely to make such broadcasting free, removing general consumer choice, without a willingness to pay.

Further, mobile "unlimited" plans usually have quite limited data caps in place. Increasingly "unlimited" plans end up being anything but, especially as, so far, carriers can turn off or slow down connections, even if the usage patter is legal (see: http://www.mediapost.com/publications/article/232156/t-mobile-to-slow-down-some-subscribers-with-unlim.html for one example).

Our Thoughts

We believe that the loss of the 700MHz spectrum for use of DTT services will be a catastrophic loss to the media industry more generally, to free public access to television services more specifically and as a follow on from this, a tragic loss for public service broadcasting and democracy as an outcome.

Linear television is likely to remain the cornerstone of television consumption for decades to come, though it is also likely to be complemented with IPTV services, most particularly in a catch-up viewing model, differentiation offerings (UHD). Inevitably IPTV WILL become a core delivery mechanism for content to consumers; but we believe this approach will not be fully mainstream for many decades, because over-the-air consumption of television via DTT (and analogue television before it) has remained remarkably resilient to new technologies, including IPTV (which has been "going prime time" for more years than we care to think about).

We do agree that better compression technologies could make more efficient use of the DTT spectrum, and such efficiency drives should be considered, in our opinion, as a policy

priority, even at the small expense of upgrading consumer equipment before its end of life.

However, we strongly believe that the frequency use efficiencies that can be achieved via use of better compression technology should free up spectrum to allow further choice of more channels, and the removal of the crippling position of local television licenses to be in standard definition, for example.

We believe this position is important as the DTT multiplexes are the cornerstone of PSB itself, as the scarcity factor of spectrum is what allows dictation of public service remit in the first place, and such a position will be diluted over time, resulting in less PSB services which is harmful to viewers and users, and as we state above, that is harmful to democracy itself.

The Cost Projection

The cost and savings projections provided by Ofcom do not take into account the largest cost of all, plurality of PSB provision, which cannot be placed in monetary terms.

Regulatory Intervention

While regulatory intervention remains an option, such as must carry provision to satellite and cable platforms, which could, potentially, free up the large majority of the UHF spectrum, we believe that such must carry provision cannot work for in the current UK environment without also intervention to insist on payment to content providers for their content, which would, in effect, cause non-DTT platforms to pass that cost on to consumers, which would effectively be an end of free PSB television, which we believe is a highly undesirable outcome for all concerned.

We must also face the fact that satellite and cable penetration remains relatively low in the UK (vs free to air via DTT).

We do believe there may be some merit for early light-touch regulation to enhance faster take up of better compression technologies ahead of end-of-life of current technology, such as:

1. Persuading the BBC's R&D division to open source their technology developed in their recent UHD trials to a not-for-profit entity to take forward to market on an open source basis. This could be made as a charter renewal requirement, for example, although the BBC might also be willing to do this without a charter commitment.

2. In order to accelerate take up of newer compression technologies, use the existing 700MHz band to broadcast using better compression techniques, so that programming is already available, and roll out such changes to the current multiplexes more rapidly once adoption is beyond certain threshold. Such early decoders will need to be capable of decoding current compression technologies, but see (3) below.

3. In combination with (2) above, allow a certain amount of bandwidth on national multiplexes to be reserved for data that can allow automated upgrade of decoder firmware for decoder manufacturers, allowing decoder boxes a longer lifespan, such that, as older compression techniques are switch off on the multiplexes, firmware updates can update firmware of decoders to take advantage of no longer needing to handle existing compression, which may allow boxes with sufficient processing power, to be reprogrammed to deal with

better versions of compression algorithms over time (we appreciate this is future proofing from now, not from the past.)

4. As part of the BBC's charter renewal, where it is likely an increase in the license fee will finally be allowed, offer exemptions from the increase to those license fee payers that have a voucher from the purchase of new decoding equipment that supports newer compression technologies in the year of purchase. This will be particularly useful in persuading rapid adoption of main and second screen updates, if a voucher redemption period could be made over up to two years, for example.

This works particularly well if the license fee increase were to be in the £50 to £100 range (see 5, below).

5. In a world that has brought us a £25 Linux computer, in the form of Raspberry PI, and open sources Arduino computers, it should be perfectly doable to make an open source project that would allow cheaper decoding devices (though it is appreciated that licensing of codecs will probably not make such devices that cheap).

These are just five examples of relatively light-touch regulatory intervention that could make a substantial difference to better use of DTT frequency.

Conclusion

We genuinely believe that the change of use of the 700MH spectrum is a challenge to PSB itself, as the current spectrum is simply insufficient to meet the needs of the viewing public going forward, and that is a challenge to democracy.

We believe there are better frequency bands available to broadband providers that television cannot economically use, and that, in accordance with the EBU's analysis, the spectrum is not required at all for broadband mobile, as sufficient spectrum already exists in the hands of mobile operators.

We further believe that, in the medium term, existing or enhanced versions of existing technologies for providing better wifi coverage is as desirable as providing more bandwidth to mobile data services.

Newer technologies and services are likely to make existing spectrum provide much more "bang for buck" in both DTT and mobile data, and therefore we believe the freeing up of this band is unnecessary and the heritage and cultural costs are too great for the loss of this spectrum from DTT.

Perhaps cynically, we believe the motivation of governments (worldwide) is that of coffer filling from spectrum auction, and, in this time of recovery from the financial mess of the recent banking fiasco, we do understand that need to get best value out of scarce spectrum, to best protect public finances.

However, we believe that does an injustice to the the PSB sector, in the cultural heritage that they contribute to, which has significant value in and of itself, and to the purposes of PSB, which is as much to educate as to entertain, as much to socially engage the electorate in the matters of state, and promote debate and to inform so that the electorate can make their

decisions on who should be in power in the first place.

While it IS true that IPTV-type services WILL eventually become a prime delivery method of television, it is likely to be a fragmented television provision, where PSB will find it hard to make a home (though not impossible), but that there are so many unknowns (fast lane, and will it be regulated, and if it is, will investment in faster and faster backbone bandwidth diminish) that adoption of IPTV as a prime delivery method of television is a longer way off than is suggested, at least for everyday consumption, AND is still a huge presumption that a high enough number of users will be able or willing to afford the bandwidth necessary to make IPTV the norm.

Consumers currently need merely pay for a decoder, a television and an annual license fee, and they can access good quality television services, much of it with a strong PSB heritage and commitment. Adding fast broadband will add considerable cost to the mix in the form of monthly fees that do not exist for DTT, this in and of itself will reduce the take up of IPTV in the short and medium term, and be exclusionary to those unwilling or unable to pay for such access.

We believe the benefits of keeping the 700MHz band for use as DTT spectrum far outweigh the benefits of switching that band for mobile broadband, especially as the need for that spectrum for such use is far from proven.

Need, vs desire for that spectrum is very different. We believe governments desire to auction it off is very high. But we do not believe it is needed. We do believe DTT, culturally and for the strengthening of democracy needs it more.

And this debate is, in our opinion, not just about a frequency block, but about the core ability of PSB to do that job as an enabler of democracy itself, which goes beyond the costs and benefits outlined in this consultation - unless we value getting our funny cat videos faster above the value public service broadcasting. We still hope that is not the case.

Question 1:Do you have any comments on Analysys Mason?s approach to quantifying the network cost savings and performance benefits?:

No, except to accentuate the large additional comments we have submitted, which is to say that we believe anything that does not include the cultural cost of reducing available DTT spectrum by 30% is flawed.

Question 2:Do you have any comments on the other benefits we have identified including the likely magnitude or how they may be quantified?:

No comment.

Question 3:Do you agree with our assessment of the likely benefits of changing use of the 700 MHz band?:

No, we believe the use of 700MHz spectrum outside of use for DTT is highly flawed.

Question 4:Do you have any comments on our analysis of the implications change of use of the 700 MHz band would have for the DTT platform?:

Your analysis shows that the spectrum is already marginalised with the intent of moving DTT from the spectrum, and, for the reasons stated in Additional Comments, we believe the underlying premise of moving DTT from this spectrum is heavily flawed in intent.

Question 5:Do you agree with our assessment of the likely costs of upgrading DTT transmission infrastructure?:

Broadly, as a cost exercise, yes; but the cost could be avoided entirely by not releasing the spectrum.

Question 6:Do you have any comments on our assessment of the timeframes within which it might be possible to complete a DTT replan?:

They sound like your minds have been made up already, which we strongly hope is not the case.

Question 7:Do you have any comments on our assessment of the loss of value from existing DTT services in case of change of use for the 700 MHz band?:

The value, discounting the services that cannot now launch in that spectrum, that you have not included is the intangible benefits of DTT delivery, and the erosion of PSB and your ability to regulate such PSB remit over time with the loss of this spectrum to DTT.

Question 8:Do you have any comments on our analysis of the implications of potential changes for DTT viewers and for the platform? Are there any effects that may be important to viewers that we should consider further?:

While wishing not the labour the point and try everyone's patience too far, the reduced ability to allow the DTT platform to expand and grow has not been look at sufficiently, in our opinion, and the knock on affect this has on the ongoing value of existing DTT into the future.

Ofcom and government's ability to regulate PSB remit is being eroded by this move, and the expectation that IPTV will take up the slack during the next 20 years is, we believe flawed on two levels:

a) Ofcom and government will lose the ability to regulate public service conditions in a non-DTT world, and that is not acceptable without a clear long-term vision and goal plan - which is missing.

b) To use the American terms "cable cutters" and "cable nevers" are on the increase, making DTT even more important moving forward - evidence shows DTT gaining traction, not losing it.

The biggest oversight here, however, is you cannot go back once the spectrum is auctioned

off, and the overall impact to consumers is barely touched upon, in real terms, vs the financial impact, which should actually be the least important part of the equation.

Question 9:Do you have any comments on our consideration of consumer information and support measures and on the factors we should focus on in the next stages of work?:

Better to talk to the EBU and others about why the 700MHz band is better off with DTT.

Question 10:Do you have views on the activities that Ofcom and other stakeholders could undertake now to help ensure that DTT equipment that consumers might buy in the coming years is as future-proof as possible?:

Mandate, through whatever regulatory means at your disposal, skipping DVB-T2 and move to better, in-the-field upgradable solutions for the next gen of STB solutions.

Co-ordinate with the BBC and government to get a small increase in the license fee (so badly needed by the BBC), but with a "dangling carrot" exemption for those upgrading to suitable equipment from paying the increase - allowing up to two exemptions per household - allowing legacy 2nd screen equipment to be updated too.

Question 11:Do you have any comments on our assessment of the impact change of use of the 700 MHz band would have on PMSE?:

You don't seem to consider that you will kill off some smaller players (purchasers) in the industry and do not seem, as we have laboured on about, to have considered that not freeing up the spectrum is the best solution.

Question 12:Do you have any comments on the mitigations for loss of access to the 700 MHz band including whether we have correctly identified the replacement bands suitable for further study and whether we have correctly identified actions that the PMSE industry could adopt to improve spectrum efficiency?:

See Q11 response.

Question 13:Do you have any comments on our assessment of the impact of the change of use of the 700 MHz band on the TVWS availability?:

No comment.

Question 14:Do you agree with our use of the Spackman method for discounting both the costs and benefits of change of use?:

We will only mention that it remains somewhat controversial in some academic circles, but seems to have become entrenched in Europe.

Question 15:Do you agree with our approach of estimating the cost of early replacement or should we be considering the full cost? Do you have any comments on how we have estimated the costs of early equipment replacement? :

We believe full cost should be considered, however, in a balanced exercise, all opportunity / risk costs should be considered for comparison purposes.

However, we believe, in cases such as end-user equipment, for example, there are better solutions to incentivising early replacement (such as license discounting, for example.)

Question 16:Do you agree with our overall assessment of the costs of change of use of the 700 MHz band?:

No. This is not a simple financial cost exercise; the risk costs to PSB and the ability for DTT (and other users) to continue to meet the needs of PSB delivery to consumers is not, to our mind, included.

Again, and sorry for labouring the point, but it is a point that needs labouring, it appears, but little consideration has been given to saving all these costs by not undertaking the change in the first place.

Again, labouring the point, we remain unconvinced that mobile broadband needs the frequency spectrum.

Question 17:Do you have any comments on our assessment of the impact of earlier or later change of use of the 700 MHz band?:

See final paragraph of our answer to question 16,

We genuinely believe that you should include in your calculations the cost of changing use at a much further out date - say 40 years from now, to show the opportunity costs (real terms) of keeping the frequency band for DTT (and other users) vs mobile broadband undertaking use of other frequencies and technologies.

Question 18:Do you agree with our proposal that we should make the 700 MHz band available for mobile broadband?:

At last, a key question.

No, we do not agree with the proposal, at all.

Your proposal, as we hope we have made fully clear, will undermine the ability of DTT to evolve in the short to medium term, and will seriously harm PSB in the mid to long term, causing great damage to democracy in the process.

Question 19:Do you agree with our proposal that we should seek to implement this change at the earliest possible opportunity?:

No. See question 18 response as to why.

Question 20:If, as a result of this consultation, we decided to go ahead with the proposed changes, what factors and evidence should we take into account when considering whether to hold an auction near to the time of availability of the spectrum or earlier?:

We hope the consultation process will show your underlying expectations of IPTV becoming the way forward for DTT will prove to be incorrect, and that further examination of the needs of consumers, broadcasters, existing other users, of PSB and of how that affects democracy will reduce your urgency for moving forward.

In the event that is not the case, we believe that, before moving forward, further independent research should be commissioned to understand the longer term impact on these areas before any final decisions are made - and by independent, we mean academic, non-broadcast and non-telecoms research companies, and better discussion with consumers.

It is not too late to prevent this terrible mistake.