

S&T response to The Future of DTT – Background thinking

The DTT platform has been remarkably successful when driven by a predominantly Free to Air offering. It does not provide the most advanced TV experience in the UK now, and probably will lag behind other more closely managed platforms in its ability to innovate services and advanced technical offerings. DSO will release spectrum for DTT and other uses. Auctioning such spectrum can only really tend to reinforce existing market dominance positions in the communications industries. Organisations that have large or especially excess profits will be in a position to enhance their position to control distribution of services of all kinds. This may be the market operating, but it is not necessarily the market operating under regulation. Regulation often requires negative feedback to control a system. It is not clear that this will be the case as the digital dividend is created. So, however the process goes forward, Ofcom must be concerned not just to provide competition for the use of the spectrum, but also to ensure that it exists amongst the users of it.

Capacity on DTT has become full and expensive. The six multiplexes deployed so far are quite full of services, although many of them have delivery costs much lower than the premium prices paid for carriage since DTT became successful. It seems that a reasonable market can operate within the current capacity as services wax and wane in attractiveness and profitability. Overall the system increases in value as penetration of reception equipment increases and reach gets closer to 100%.

Most enhancements to the technology of this system require the introduction of new equipment to the consumer. This can normally be done without devaluing the existing base of equipment because the underlying technology of transmission and decoding is maintained. However, if we seek to change the underlying technology of DTT, in particular to change the transmission standard in a way that is incompatible with existing receivers, then the change has potentially very serious consequences. The content delivered on such a system will again start off with zero customers at the start. It will become subject to a new market innovation process. In the proposal made by OFCOM and now under discussion, this process will be operating under the severe constraints imposed by the DDR process and the auction of spectrum.

It is arguable that, given the value of current capacity on DTT, an auction would naturally tend to allocate at least some spectrum to buyers who could use it to reach the (by then) 50million or more consumer units capable of receiving the current DTT signals. It would be necessary in all cases to build new transmission facilities, so this cost applies to all bidders. This would not introduce new kinds of services (other than perhaps local ones), only more of them.

The market is now seeing the introduction of HD reception equipment into the consumer sector. This is supported by some paid for content on Sky satellite and on BluRay disk, and this will soon be enhanced by Free to Air HD content from Freesat. All of these can deliver content to 'HD Ready' receivers. For PSBs, at least, the drive to provide HD content comes from 2 directions. Firstly, there is a growing market expectation in UK consumers that HD will become available as part of digital TV evolution. Secondly, the US market for content will demand HD production throughout. There is good reason to

believe that the provision of HD services will be expected by the public as part of the DSO process. HD ready sets are being sold widely. The consumer electronic industry has a large and growing turnover based on this technology shift and substantial revenues are being generated. For broadcasters, however, HD largely brings higher costs in all departments, without necessarily providing enhanced revenue to compensate. Pay systems may be able to gain enhanced revenue from HD deployment, but it is not clear that advertising platforms or licence fee funded ones can do more than protect their position against erosion.

So the introduction of HD into DTT in the auction will be difficult. It is not clear that there is enough economic incentive for auction participants to bid. There is a substantial HD industry, but it does not seem to have a path to invest in DTT spectrum, or a motivation to do so. That this is the case appears perverse and underlies the difficulty many have with the situation as it is now evolving. Ofcom is therefore attempting to provide for HD services in DTT without requiring that the capacity be found through the auction process. In doing so it seeks to limit the availability of capacity in the existing network (through reallocation) to achieve this introduction.

The delivery of HD in DTT requires the deployment of at least one and probably two new technologies. Firstly the content encoding should move to MPEG4 from MPEG2. This can be delivered over the existing or new transmission means. MPEG4 is a given here, and it can be included in HD reception equipment from 2008 onwards. The issue is whether it is correct to move to DVB T2, a technology not yet fully specified.

The question is this. Is it best to provide HD on DTT using MPEG4 on the new technology or to provide it on the existing network? If the existing network were used the introduction could be faster and lower cost, but this would happen at the cost of potentially more efficient use of spectrum available with DVB T2.

Normally, building a new communications network (which a DVB-T2 network will be) involves the construction of a parallel infrastructure to the existing capacity and, if necessary, duplicating carriage of services on old and new networks. In this case, Ofcom is proposing to remove part of the existing network (only now becoming established) and replacing it with a new one. This is like building a motorway and then closing a lane to accommodate a railway rather than building a railway on neighbouring land. In this case the land (spectrum) is becoming available but is apparently not available for this purpose.

The value of DVB-T2 is essentially that it provides for a 30% or so increase in efficiency as expressed in bits of data delivered per MHz of spectrum utilised. OFCOM has by implication put a value on that increased efficiency by calculating the value of the total DTT spectrum as £5-10bn. The value of the proportion of it saved by the use of DVB-T2 is then a proportion of this. At the time of writing this proportion is not calculated, but it points to a measure of value of the transition to DVB-T2 on one multiplex. Lets estimate that the saving is about 3% of the total spectrum concerned. This makes the value of T2 at maximum of £30m over 10 years for each multiplex converted, which is small compared to the value of the operations themselves using existing technology. Whatever the trade-off analysis that this leads to, it is clear that DVB-T2 introduction is subject to some delay, increased costs over current methods and disruption in the supply chain process for DSO. The introduction of the technology as described in the Ofcom paper is proposed to create some disruption to existing services and to take

place over some time. It is essential, in order to avoid creating an interim legacy population of receivers, to inhibit the use of MPEG-4 on DTT in the period before switching to DVB-T2. It might be possible to enable upgrade to T2 via adaptation modules in DVB-CI. This could be done, but if it were done it must be specified properly and any equipment sold on the basis that an upgrade will be forthcoming must be regulated to achieve this.

Response to Consultation questions re the Future of UK DTT

Question 1: which services are most likely to drive take up of DTT consumer reception equipment using new technologies? In particular, are HD services the most likely to do so?

Consumer reception equipment for HD is already a major part of the offering in the display/iDTV sector. HD reception will become important to the adoption of new services, especially as in many respects the display of SD DTT services is downgraded on LCD and Plasma displays compared to conventional CRTs because of the image processing required.

Question 2: do you agree with Ofcom's assessment that it would be beneficial for the DTT platform to begin to upgrade to new technologies – DVB-T2 and MPEG-4 - to make more efficient use of spectrum and to allow for the introduction of new services?

A transition would be beneficial. However, this is a 'second switchover' in the offing in the context of a very substantial recently installed base of MPEG2/DVB-T equipment. The addition of only one multiplex of DVB-T2, with the transition to 64 QAM on 4 muxes gives a total additional bandwidth available of 40 MBit/sec compared to the current mix of 64QAM and 16QAM muxes. This is, to be clear, less than the capacity of 1 Astra2 transponder, despite being an increment of 35% over the current system and 13% over the launch capacity of UK DTT. To make a difference sufficient to pull a whole new generation of equipment into the market, more capacity than this should be available. Further, the capacity increments provided by DVB-T2 are felt additionally if the system is provided on multiple frequencies. It is not clear that T2 is economically justified.

Question 3: Ofcom is particularly interested in hearing from multiplex operators and programme providers as to whether they are interested in using DVB-T2 and / or MPEG-4, and whether Ofcom should consider permitting their use on DTT?

Not a question S&T can answer.

Question 4: do you agree that the earliest possible availability and adoption of the technologies is in the interests of consumers and citizens?

Well, not necessarily. Generally the perceived value to the user of switching to a new layer of technology has to be high enough compared to the previous generation. This is not measured by cost-benefit analysis. This is an issue determined in a competitive market, so whether consumers adopt HD on DTT will be determined in competition with other delivery means including SkyHD, Freesat and BluRay. Again, having only a

limited supply of HD content on DTT may inhibit takeup, and moving too early may mean that costs are too high and the equipment market neither ready nor competitive.

Question 5: do you agree with Ofcom's view that DVB-T2 MPEG-4 reception equipment could be commercially available in time for DSO in Granada region in late 2009?

This is unlikely. If there is a DVB standard in Q2 2008 silicon has to be cut and tested and delivered to manufacturers for integration. Tests have to be built and included in any Digital Tick regime. The development cycle for late 2009 starts in mid-late 2008. I think that manufacturers are unlikely to put high priority effort into a new product for one transponder worth of data with a few HD services on it in a limited geographical region, especially since there will be open competition on Freesat and Sky. The project to get to DVB T2 should not be rushed. Any IPR issues need to be understood before launch, so given that the specification is not yet ready, there is as yet no opportunity even to begin this task.

Question 6: do you agree that some form of intervention is required in order for the DTT platform to commence an upgrade to new technologies without delay?

It is possible that very little intervention is needed provided that sufficient channel capacity is available to simulcast a suitable set of services. (i.e. at least 5 PSBs plus interesting commercial offers.)

Question 7: Do you have any proposals for launching MPEG-4 services on a DTT multiplex using DVB-T in advance of the proposed 2009 timetable and if so can you provide details of how such a service would not undermine the proposed MPEG-4/DVB-T2 launch in 2009?

It is important to inhibit such services if a DVB T2 rollout is planned. If this is not done, a costly interim legacy of DTT/MPEG-4 receivers will be created. If T2 is not to happen, then MPEG-4 could be introduced stepwise as the iDTV receiver base allows.

Question 8: do you agree with Ofcom's proposed approach for adding SD and HD versions of MPEG-4 and DVB-T2 profiles to the list of permitted standards for DTT in the spring, and that Ofcom's consent must be sought prior to adoption of these standards?

You must add them as a bundle, not separately, if T2 is going to be used.

Question 9: do you agree with Ofcom's proposal that Multiplex B should be cleared and upgraded to new technologies?

This is a major step to take so soon after the establishment of the network in the first place. It would seem to imply the reduction in value of the existing network to all concerned.

Question 10: do you agree with Ofcom's proposal that all multiplexes should be required to upgrade to 64QAM at DSO in order to make the most efficient use of spectrum (ie that the mode change should not merely be optional)?

Yes.

Question 11: do you agree with our proposals for accommodating Five, S4C, TG4 and GDS

No comment.