Eroding the Assets of Citizenship? From Broadcast to Broadband

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Abstract

The promise of convergence and the maturing internet appear to create arenas of communicative plenty but, instead of the end of spectrum scarcity, we are witnessing a new challenge of 'coexistence' and fierce competition over spectrum between the broadcasters and mobile telecom providers. Some European countries have already decided on further reductions in the broadcast spectrum, though the vast majority disagreed with the mobile industries' proposal at the World Radiocommunication Conference in November 2015 that the entire UHF band should in future be shared by mobile broadband and broadcasting. This article explores the proposition that broadcasting requires adequate spectrum in order to deliver the information and cultural assets that are vital for citizenship, at a cost likely to remain significantly lower than comparable service delivered via subscription or broadband providers.

Introduction

The promise of convergence and the maturing internet create arenas of communicative plenty but, instead of the end of spectrum scarcity, we are witnessing a challenge of 'coexistence' which in practice entails fierce competition over spectrum between the broadcasters and mobile telecom providers. Initially, the European Union, advised by its Radio Spectrum Policy Programme, identified the 800 MHz band as the most suitable digital dividend to be given up by broadcasters to the new mobile interests.

However, at the World Radiocommunications Conference in 2012 (WRC12) this European consensus was challenged by a counter proposal - that the 700 MHz band should be re-allocated for mobile use. This unexpected raid on broadcasting territory was successfully advocated by other interests at the Conference and supported by the votes of countries in the

Middle East and Africa – also members of the International Telecommunications Union/ITU, Region 1. Moreover the European consensus began to be broken down as some member states of the European Union identified additional spectrum in the 700MHz part of the Ultra High Frequency band (UHF 470 -790 MHz) to be transferred from broadcasting to mobile use in their own countries. For example, Finland proposed this reallocation in 2012, followed by the United Kingdom (UK) in 2014 (Ofcom, 2014a).

As a consequence of the WRC12 proposals digital terrestrial television broadcasters in Europe now faced the loss of both the 800 and the 700MHz bands. And the mobile operators then started to push hard for the reallocation of the entire UHF band, including its lower reaches (GSMA, 2015a). From the point of view of the broadcasters what had been presented by the mobiles as a positive proposal, put forward in the name of 'coexistence' and the 'co-primary' role of the two industries, would – if put into effect – dramatically reduce the scope for both private and public digital terrestrial television (DTT). Thus at the most recent World Radio Conference in November 2015 (WRC15) the most intense conflict revolved around the lower part of the UHF band - the 470-694MHz portion - since this is the only remaining part of the spectrum dedicated solely for DTT after the loss of the 800 and 700 MHz bands.

The context of this development includes at least three different but inter-related factors. On the macro-level, this is about *globalization*. So far, national governments and regulators have protected European public broadcasters, partly because broadcasting has been seen to meet the vital social, cultural and political functions necessary to a democratic nation state. In addition, European governments have used broadcasters as tools of their industrial policy projects, for example the development of digital television, and as partners for their domestic electronics manufacturers - for example Nokia. When compared to Africa or the

Middle East, Europe was also developing new communications services, so the pressure for change was originating from within Europe and not being imposed on it.

But European countries appeared increasingly less able to dominate the shaping of WRC spectrum policy goals for ITU Region 1 (Europe, the Middle East and Africa) (El-Moghazi et al., 2014). The African and Middle Eastern countries, working with the mobile industries, have developed plans for spectrum use diverging from Europe's priorities. For most of them, the 700 MHz band was their first digital dividend, as the 800 MHz band had already been allocated for other uses such as national defense (El-Moghazi et al., 2014). Moreover these countries have an especially strong social and economic interest in supporting their own development by improving mobile broadband services. The number of existing broadcast TV operations is smaller than in Europe and the investment needed for mobile broadband infrastructure is relatively low by comparison. From a European perspective, a possible irony here is that two of the largest makers of telecommunications equipment - striving for harmonised world-wide spectrum allocations for mobile use and for global markets for their devices - still have their headquarters in Europe. (Scott and Jolly, 2015; Bocquet, 2014; Nokia, 2014; Ericsson, 2014) An additional or perhaps principal reason for pressing to reallocate the 700 MHz band for mobile use in ITU Region 1 is that this band is already in mobile broadband use in ITU Regions 2 and 3 (the Americas and the Asia-Pacific). And global harmonisation of spectrum allows economies of scale.

A second factor, operating at what we might call the intermediate or 'meso' level of analysis concerns the role of *supranational responses* and the pressures that these may exert on the globalization process. For example, although the WRC12 decision on the 700 MHz band went against the views of the European Commission's own senior advisory body, the European Spectrum Policy Programme (RSPP), the Commission (EC) did not fight against

this but quickly adapted a new policy approach. This was perhaps not surprising, as the Commission had already recognised the need to identify a second digital dividend during the early phase of drafting the RSPP report. Thus the EC commissioned a report on the future use of the whole UHF band (Lamy, 2014), organized a public consultation on whether it should follow the recommendations of this report and finally, prior to WRC15, made a formal proposal to the member states. This entailed reallocating the 700 MHz band for mobile across the EU while keeping the lower part of the UHF band in broadcast use, just as the Lamy report had suggested (EC, 2015).

Interestingly, even though the member states generally agreed with the Commission about the future use of UHF, they refused to accept the proposal as a formal joint position of the European Union (EU), primarily to keep spectrum policy strictly within their national competence (Valero, 2015). There is tension between some member states and the Commission on this issue, not least because the new EC President of 2014, Jean-Claude Juncker, wanted the EU to take over the 'management of radio waves' in order to promote economic growth in Europe.

It can be argued that the EU has not been openly hostile to public service broadcasting (PSB). However, the combination of its growing support for market-focused media policies and a perceived need to protect the economic interests of commercial enterprises has already resulted in severe restrictions for European PSBs (Venturelli, 1998; Brevini, 2013a, 2013b). As the European commercial broadcasters wanted the EU to limit the expansion of PSB broadcast services, the result was the EU's Amsterdam Protocol (1997: 17). This recognizes the importance of PSB for democracy and culture and the right of member states to define the PSB remit and to finance public broadcasting from public funds – as long as this funding does not distort competition. In other words, the official EU protection could be seen as a

golden cage allowing the formerly dominant paradigm of PSB to be seen as a deviation from the commercial norm.

Following the creation of this Protocol various European newspaper publishers became concerned about PSB activities on the internet. These they saw as a severe threat to their own electronic news business. This time the complaints from the commercial industry led to the *Communication on State Aid to Public Service Broadcasting* (European Union, 2009), which limits PSB expansion into new media by requiring an *ex ante* test for any significant new service (Brevini, 2013a). Now the European PSBs find themselves in the middle of a third round of contest against powerful commercial industries – with the PSBs now perhaps surprisingly allied with the terrestrial commercial broadcasters – as the mobile industries are lobbying the EU and its member states to support the reallocation of more UHF spectrum for mobile broadband use. Since the EU is also desperately trying to find ways to accelerate the economic growth of the whole region, its policy decisions on the future of UHF band could have been a severe blow to public broadcasting. However, the Commission proposal for WRC-15 to reallocate the 700 MHz band to mobiles but to keep the remaining UHF band for digital terrestrial television (DTT) can be seen as a pragmatic compromise, accepted not only by the European Broadcasting Union (EBU) but also by the African Telecommunication Union (ATU) (EC, 2015; EBU, 2015a).

The last of our key contextual factors can be seen in operation at a micro or nation state level of analysis. Under the impact of a wider neoliberal frame of reference, most of the European countries are arguably in a gradual transition from what Jessop calls Keynesian welfare states to Schumpeterian competition states, focusing more on innovation and national competitiveness than on citizen welfare (2002; Pelkonen, 2008). As a part of this process, not only social policy but also media policy and spectrum policy are increasingly subordinated to

economic policy. The continuing importance of broadcasting in creating social and cultural value tends to be neglected, and social judgments are made primarily from an economic standpoint (Jessop, 2002; Delaere and Cullell-March, 2014). Perhaps the most striking example is Finland. It was the first EU member state which decided as early as September 2012 to clear broadcasting from the 700 MHz band and to reallocate it for mobile broadband. In October 2015 it was also the only EU member state to support the reallocation of the entire UHF band with co-primary status for mobile use (GSMA, 2015b; Pursiainen, 2015).

At the same time that Finland is suffering from a prolonged economic recession and rapidly increasing public debt, it is also investing over €100 million in research and development for 5G - the next generation of mobile broadband technology. An early release of new mobile spectrum is expected to support the project. It has also been suggested that a steady supply of additional spectrum made available for auction is designed to hold back the prices paid, thus assisting mobile operators in investing in new network infrastructure and equipment (Lindén, 2012: 231; Sims et al., 2015: 197-199). This it is hoped will directly improve the Finnish economy as well as indirectly supporting national competitiveness in the global market.

In the sections that follow we combine general comment with specific examples from Finland and from the United Kingdom.

The battle for spectrum (1): market pressures

Spectrum is the basis of all mobile connectivity. However, the frequencies below 1 GHz - for example the entire UHF band - are among the most desired by all industries, because they

provide possibilities for better in-building penetration with relatively small antennae and larger coverage areas. According to Galperin (2004a), one of the most important reasons for strong government support for an accelerated transition to digital television, on both sides of the Atlantic, was that analogue TV switch-off would release spectrum from broadcast use for mobile industries. By 2013 most EU member states had completed the switchover to DTT. But the implementation that would see mobile broadband services enjoying the digital dividend of the 800 MHz band has been slower than the EU expected (for details see Ala-Fossi and Lax 2016 in this issue).

Nation states are expected to gain economic benefit from the reallocation of DTT spectrum for mobile broadband in at least four different ways. The first and most direct involves the injection of cash, coming as revenues from spectrum auctions, as the publicly owned frequency spaces are sold or leased to privately owned telecom companies. Although the frequencies remain the same however they are used, their value is dependent on both the availability of spectrum and on the number of potential users in the area. This is why the spectrum auction revenues in countries with a large area and small population like Finland tend to be relatively modest. But in countries with a large potential market the competition over spectrum can lead to very high auction prices and even spectrum overvaluation.[1] The more the operators pay for the spectrum, the less they can invest in the actual mobile networks and services (Lindén, 2012; Sims et al., 2015).

The second, more indirect improvement to the economy of a nation - and one which also has profound social dimensions – comes if the reallocated and auctioned spectrum improves the availability of cheaper and faster broadband, especially in the most sparsely inhabited and rural parts of the country. Mobile broadband using lower frequencies (like the UHF band) with large coverage areas is usually the more cost-efficient way of building the infrastucture for new services in these areas - when compared to fixed networks.

The third factor is related to spectrum availability and the speed with which spectrum can be released from other uses. The larger the supply of the available spectrum, the lower the price the operators have to pay for it. And the sooner a new part of the spectrum can be taken into mobile use in a particular nation, the more this can benefit manufacturers like Nokia and the mobile telecom operators within that country. Such companies are already investing in research for the development of new standards like 5G, using higher frequencies above 6 GHz, and for new services like the Internet of Things (IoT). Such services can be located on the bands released from other use, thus innovating and creating more economic activity and more new jobs. This way a policy aimed at smooth and early release of spectrum can become a basis for national competitive advantage.

Finally, it is widely assumed that better and faster broadband services and possible European leadership in the global mobile technologies would lure new investments and boost the economies not only of the most competitive member states but of the whole European Union. This is perhaps the greatest promise of the next generation networks (NGN) (Bocquet, 2014). The increasing use of ICT and network technologies have certainly improved productivity in many areas, and a Swedish study - supported by one of the leading mobile network technology companies - suggests that doubling the broadband speed would lead to an additional 0.3% growth in national gross domestic product (GDP) (Rohman and Bohlin, 2012; Ericsson, 2011)

All the direct, indirect and potential economic benefits described above are the carrot, which the mobile industries are understandably using to lobby and to shape national and supranational policies in their own interests. It is no wonder that the European states, striving to improve their competitiveness and to create economic growth through new technologies are very interested in reallocating public resources - including spectrum space - into what some see as activities that are more economically promising than broadcasting. However, in

case the carrot does not seem to be enough to make the public policies change the mobile industries have also a stick in their selection of methods. They can remind Europe that it has already '…fallen behind other developed regions in the mobile Internet race, putting the future of mobile and broadcasting as well as the wider economy at risk' (GSMA, 2015a).

It is certainly the case that there has been significant growth in mobile broadband use in recent years, and the mobile industry is convinced that an increase in consumer demand for mobile video services in particular will drive an (almost) exponential growth of mobile data traffic. Based on extrapolation from recent trends, the International Telecommunication Union has estimated that mobile broadband would need, globally, at least 1340 MHz of spectrum to meet demand by 2020 (ITU, 2013). However, experts at the EBU have severely challenged both the input assumptions and the mathematical approach of the ITU report, arguing that the report is flawed and that its erroneous conclusions should not be relied upon in the debate about the spectrum needs of international mobile telephony (IMT) (Beutler and Ratkaj, 2014).

Interestingly enough, in his report for the European Commission on the future use of the UHF band (consisting of a total of 320 MHz of spectrum) Pascal Lamy did not refer to the ITU estimates. Instead he relied on mobile data traffic forecasts provided by Ericsson, a company with its headquarters in Sweden (Lamy, 2014). According to the latest Ericsson Mobility Report, there has been a 55 per cent growth in all global mobile data traffic between the first quarters of 2014 and 2015. The company still predicts – just as it did two years earlier – a 45 per cent compound annual growth rate (CAGR) in global mobile data from 2014, which amounts to a tenfold increase by 2020. Ericsson expects mobile data traffic growth to be faster than average (by a factor of eleven) in the Asia-Pacific region, and also in Central Europe, Middle East and Africa, but slightly slower in Western Europe (rising by a factor of nine). Currently about 45 per cent of all mobile data traffic is video, and Ericsson

believes that video use will continue to grow annually at about 55 per cent resulting in a thirteen–fold increase by 2020. (Lamy, 2014; Ericsson, 2015).

The growth of mobile video is important for the mobile sector as it is recognized as one of the profitable 'data hungry applications' - along with internet browsing and file downloads - in those parts of the world with rising smart phone penetration. In its 2014 report on the mobile economy GSMA noted that worldwide mobile revenue growth is expected to slow to 2.9 per cent per annum for the next five years (2015-2020), down from a growth figure of 5 per cent per in the previous the five years. This forecast is accompanied by warnings to regulators and government tax departments not to produce disincentives for new investment in the sector - with particular reference to Europe where '…Roaming price caps are estimated by the European Commission to have reduced revenues by €15 billion by the end of 2012' (2014: 26).

There is also an uneasy relationship between mobile video and broadcasting since the increasingly popular delivery of moving pictures and sounds via fixed or mobile broadband appears to challenge the future prospects of broadcasting. If broadcasting is like the fixed price meal – offering at its best good quality and good value at the same low price to all - then mobile video is the more expensive 'à la carte' offer: choose what you want when you want it, but it will cost you more. We are living through a period of rapid change in the take-up of mobile video, video on demand etc., though traditional linear TV viewing seems still to be popular. In the UK, for example, average daily viewing per person was down from 4 hours in 2012 to 3 hours and 40 minutes two years later in 2014; a reduction of around 8 per cent (Ofcom, 2013; 2015: 145). The more personalized, catch-up services offered by broadcasters are relatively more expensive to distribute than live broadcasts, though many viewers will remain unaware of this. A BBC Trust report of 2013 indicated that iPlayer viewing

represented under 3 per cent of all BBC viewing but that its delivery cost was six times more than the delivery cost per viewing hour of linear TV (2013: 22 and 39).

The battle for spectrum (2): public policy

In the United Kingdom, during this period, the companies providing fixed and mobile broadband seem to have been the most effective lobbyists in the process of developing public policy, arguing the case for the beneficial impact of new mobile services on the national economy. By contrast the civic, social and cultural arguments that can in principle be advanced by public service broadcasters (and their listeners and viewers) seem to have been less clearly presented and certainly less influential. A brief revue of strategy documents issued by the key Ministry, the Department of Culture, Media and Sport (DCMS), and by the regulatory body, the Office of Communications (Ofcom) shows both how important the expansion of fixed and mobile broadband was thought to be and how significant the re-allocation of spectrum has been in that process.

It may also be worth noting that the budgets and resources of both the Ministry and the regulator, Ofcom, reduced during the period 2012 - 2015 as a consequence of Government policy in the wake of the banking crisis of 2008. At its peak, the cost of British taxpayer support for the banks was estimated at £1,162 billion, reducing to around £122 billion by March 2014. By contrast, all expenditure on UK public services in 2014 was £714 billion (National Audit Office: 2015; HM Treasury 2014: 70-72). The cost of protecting the banks continued to cast a long shadow over other kinds of public expenditure and, more generally, over political debate and the setting of public priorities.

A key objective for the Conservative and Liberal Democrat Coalition on entering Government in 2010 was to make radical reductions in public spending, against the

background of the enormous bank-related commitments noted above. Two examples of the reduction in resources at public agencies that might be expected to develop public interest policies for communication are noted here. Firstly the staffing levels at DCMS were reduced by just under 20 per cent in 2012 and secondly Ofcom was required to reduce its overall budget by a total of 28 per cent over the four years 2011 – 2015 (DCMS, 2013: 27 and 184; Ofcom, 2012a: 10).[2] It would be unwise to assume that fewer staff means less attention to public interest issues. Nonetheless the pressure on public posts may have led to a sharper focus on the importance of generating additional revenue for the Treasury and possibly to a greater sympathy for income-generating spectrum auctions. In addition the general climate of policy shifted towards support for innovative and job-creating industries and such support could itself be seen as consistent with public interest principles. However, political disagreement continues to revolve around the extent and nature of this shift and, as our introduction has suggested, changes in elite policy-making could include support for economic interests at the expense of social and cultural welfare.

The Ministerial Foreword to *The UK Spectrum Strategy* of 2014 emphasizes that spectrum is 'worth over £50bn a year to the UK' and proposes to 'double its annual contribution to the economy by 2025'. The societal benefit that derives from spectrum-dependent 'live entertainment and broadcasting' is noted, but priority is given to a system for valuing spectrum that 'keeps economic value as its bedrock'. There is an attendant reassurance that social costs and benefits would be taken into 'proper account' but the 'bedrock' metaphor remains the dominant image. Interestingly this document also refers to satellite services as 'not an easy technology … development cycles are longer than for most terrestrial services and it is important for regulators to take a long term view, even if in the short term this leads to spectrum not being fully utilized. (DCMS, 2014: 4-5; 12-13; 49)

This rationale in defence of long term thinking would also be welcomed by the terrestrial broadcasters though the Government's perspective is clearly to see the need for change in respect of mobile and wireless data as 'high' when the need for DTT is only 'medium' (DCMS, 2014: 22).

Drawing on a 2012 consultancy report *UK Spectrum Strategy* also presents some illuminating detail on the respective economic value of mobile services and broadcasting. The former were believed to be worth 60 per cent and the latter 20 per cent of the total economic value of spectrum use in the UK, while mobile services supported a supply chain with annual revenues of around £20 billion and some 75,000 jobs and the broadcasting supply chain was estimated to be worth around £16 billion and to support 40,000 jobs (DCMS, 2014: 15).

In a policy world where there had been lack of consistency – for example various public services including Defence enjoyed Crown immunity and were not therefore required to apply for spectrum licences - the 2014 document expressed an admirable intention to seek a more consistent methodology for assessing the value of spectrum to the UK. In pursuit of this objective the Department invited a panel of experts to assist, taking account especially of the need to incorporate 'social value' into the process. The group reported their findings in July of the following year, in the wake of a General Election. The report, *Incorporating Social Value into Spectrum Allocation Decisions,* was published a few months later in November 2015. It would be premature to assess what impact this might have on longer term spectrum decisions affecting either DTT or the mobile services.

While the 2014 DCMS strategy document was an attempt at creating some policy breathing space, much water had already flowed under the bridge (Ofcom, 2009; 2012b). In particular the UK had already experienced the transfer of the 800MHz frequencies to the mobile sector. The regulator Ofcom had auctioned these licences in 2013. Government and

regulator had both been aware that this re-allocation could cause interference with digital television signals and since 2012 was the year of final switchover from analogue to digital television transmission such interference would have to be avoided or remedied. The problems had also been noted in the consumer and civil society sector (Voice of the Listener and Viewer, 2012) As indicated above the UK had been an early adopter of the 800MHz clearances in order to accommodate the new 4G mobile devices (Ofcom, 2012b: 4).

Ofcom's own report had indicated that as many as 2.3 million households could be adversely affected by loss or distortion of their TV signal (2012b). The Government had therefore committed financial support to provide remedies where necessary in respect of detriment caused by a change in public policy (DCMS, 2012). Those mobile operators who were successful in obtaining the new spectrum were required to fund and deliver a help scheme; initially referred to as 'MitCo' and then 'at800' (2013). At the time of writing at800 was still operating in the UK though the number of homes adversely affected was understood to be less than the original estimate (IP&TV News, 2014).

Sensing the way the wind was blowing from the unexpected WRC12 proposal to release additional spectrum for mobiles, Ofcom took an in principle decision to reallocate the 700 MHz band, also, from broadcasting to mobile (2014a and 2014b). WRC15 confirmed the international decision to release this band though Ofcom is unlikely to announce an auction date in the UK until the broadcasters have done more of the onerous planning work required to re-locate DTT transmissions. Freeview, the main DTT platform for free-to-air television in the UK and present in some 75 per cent of homes, has maintained a discreet silence since WRC15 but must clearly be relieved that it lives to fight another day with relatively secure access to the lower UHF band at least until 2023 (Ofcom, 2014c; Digital UK, 2015).

However, it is not yet clear what cost and disruption may be experienced by European viewers in the wake of the WRC15 decision to move DTT providers out of the 700MHz

band. A significant number of homes will currently rely upon free-to-air transmissions in this band. In the UK alone Freeview noted an Ofcom estimate of up to 20 million homes adversely affected by the move and expressed concern that some of these homes would be faced with loss of 'all their channels' and the need for 'a more complex manual re-tune' (Freeview, 2014: 2-3). In Europe it is estimated that 230 million viewers – nearly half the population of the EU (46 per cent) rely upon DTT and could be adversely affected by the frequency migration (Ratkaj, 2014). For the providers the biggest worry will be the loss of viewers in the ensuing confusion and those who have relied upon a free service and a roof top aerial may think they have no option but to change to a monthly payment system with a cable or satellite provider.

Nonetheless, the major concern that DTT broadcasters might be deprived of *any* suitable frequencies has, since the WRC15 decision, become at least a delayed concern. It seems that the DTT providers can rely on the spectrum they need at least until 2023 when the issue will be reconsidered by WRC (EBU, 2015b).

European broadcasters: dead ends and open doors

For nearly a century national public service broadcasters, as well as commercial broadcasters more generally, have been protected by their technological distinctiveness along with a set of normative assumptions about the social, cultural and political importance of broadcasting. In Europe the already mentioned Amsterdam Protocol, included as part of the main European Treaty since 1997, is one example of the legal recognition and financial support afforded to PSB in particular (Galperin, 2004b).

However, as a result of extensive political, economic and technological changes, broadcasting now finds itself one of the '…smallest players in their new pool of competitors'

(Accenture, 2015: 4). The advent and rapid expansion of spectrum-hungry mobile broadband and the growth of internet protocol television (IPTV), as well as the downgrading of arguments about the information requirements of citizenship have - taken together - left broadcasters fighting for political recognition and support. This is the case despite the evident and continuing popularity of television and despite the high political and social significance of - for example - pre-election and election night coverage; a recent example being the general election broadcasts in Finland and in the UK in 2015. The importance of live coverage of these events, as of major sporting competitions, national celebrations and natural (or man-made) disasters serves as a reminder of the importance of linear and live TV even at a time when the medium is seen by some as redundant. Moreover the fact that funding arrangements for European PSBs include provision for making programmes as well as transmitting signals reminds us of the value of original drama, comedy and children's programmes drawn from and returning to diverse national audiences. While the provision of well-resourced and well-researched documentary and factual programmes - dealing with current affairs and operating under the banner of impartiality - remain a key asset for informed citizenship.

The emergence of a new organisation the Future of Broadcast Television, bringing together manufacturers, broadcasters and network operators from all over the world (China to Brazil, Russia to Europe, Korea to the United States) and linking public and commercial providers indicates that the medium intends to fight not just for survival, but for a place at the high table of industrial innovation and research (FOBTV, 2015). From a contrasting global perspective, the economic value of the broadcast industry in Europe may be seen to constitute a fraction of the value of telecommunication businesses or of the so called 'super-platforms' like Amazon, Google and Facebook (Plum, 2013; Accenture, 2015). Though broadcasting also has a distinctive economic value deriving from its often pivotal role in the creative

industries, rich in just that kind of intellectual property generation that Europe has regarded as one of its strengths.

Conscious of these issues and aware of the specific conflict over spectrum resources the European Commission attempted an initiative to bring the competing parties together. The aim was to reach an agreement that would be good for the European continent as a whole. Pascal Lamy, former European Commissioner and subsequently Director of the World Trade Organisation was invited to chair a 'high level group' consisting of industry representatives, though with a rather striking absence of citizen or consumer interests. The group of 19 executives from the mobile and broadcasting sectors met over a period of six months from January to June of 2014. Unfortunately no agreement was reached and the deadlock was specifically about spectrum allocation issues (2014: 6). Consequently the report was submitted in the name of the Chair, not the group, though some useful fragments were skillfully extracted from the process: the facts that all parties agreed upon.

There were some positive words from Lamy about broadcasting. In most member countries DTT constituted the 'backbone' of the European audio-visual model. Citizens were provided with '…a broad range of quality programming, free at the point of access'; a universally available service delivered '…major public policy objectives such as cultural diversity and media pluralism' and the debate about the future of the UHF band was 'not about sacrificing culture for the sake of the digital economy'. Following a brisk review of changes in technology and viewer habits in the use of both mobiles and televisions, the sometimes loose talk of convergence was rejected: 'I conclude that convergence of both platforms is not on the practical policy agenda yet' and mobile standards were 'not currently capable of supporting broadcasting to mass audiences on big screens' (2014: 3-4). Nonetheless there was an urgent need to recognise mobile's fast expansion and current

capacity problems, as well as the speed with which new discoveries might resolve these. This led to the catchphrase of the report, the so-called '20-25-30' solution to the current impasse.

Lamy offered neither a dead end nor an entirely open door to either party – by 2020 (or a couple of years before or after that) broadcasters would have vacated the 700 MHz band in favour of the mobiles but there would be 'reassurances for the sustainable development of terrestrial broadcasting in spectrum below the 700 MHz band'. The year 2025 would see a major review of needs and resources for both industries, and terrestrial broadcasting would be 'an important platform until 2030' (2014: 6-7). For mobiles the change points would not come soon enough and for broadcasters and audiences the year 2030 might sound like Armageddon and the end of DTT.

However - and as already indicated - there was encouraging news from WRC15. Sufficient suitable spectrum would be provided to DTT broadcasters at least until the long-term review process begins again in 2023 – and possibly before. Within this window of opportunity it will be for terrestrial broadcasters, including public service broadcasters, to persuade their audiences that these services are vital and necessary both in reflecting and sometimes shaping everyday culture and in the way that they address the key and crisis points of political life.

Conclusion

Both mobile and broadcasting interests have produced small mountains of expensively generated statistics designed to show that each makes a greater economic contribution to society than the other (GSMA, 2014; Aetha, 2014). But not very much attention seems to have been given to the interests and wishes of the users. In respect of broadcasting the four main replacement candidates are cable, satellite, internet service providers and mobile

telephony. The current costs of commercial cable and subscription packages can be fairly easily researched but there is limited information on the likely costs of online and mobile delivery in the event that either of these providers becomes an important delivery mechanism for the daily four hours of television use including the big live events that attract very large audiences.

By contrast the various European publics are aware of the monthly cost of supporting a national public broadcaster, funded directly by the viewers or indirectly from the public purse. It seems unlikely that the relatively small part of this cost that covers the delivery of programmes into the home via DTT could be matched by future fixed or mobile, broadband providers relaying television services. Broadcasters and Governments must now assist viewers in gaining a realistic picture of the cost of delivery of a national service relayed via mobile or online providers.

But, in concluding, there is clearly more at stake in the spectrum debate than the cost of receiving television services. The European Community has had the privilege of devoting spectrum and other public resources to the development of (mainly) popular and impartial systems of public service broadcasting and to providing a platform for exploring political conflicts and supporting indigenous cultures, languages and minorities. This has been the case in many but not all European countries. We argue that - while the development of new mobile technologies and markets is important – universally available broadcasting services must also be supported due to their actual or potential role in the exercise of citizenship and the working of democracy. In a very different era the outgoing President of the United States, George Washington, captured something of the importance to society of access to good quality information gathered carefully and from a full range of sources:

> Promote then, as an object of primary importance, institutions for the general diffusion of knowledge. In proportion as the structure of government gives force to

public opinion, it is essential that public opinion should be enlightened. (Washington 2000: 21)

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[1] The largest telecom operator in Finland at that time, Sonera (formerly Telecom Finland) lost 4.3 billion euros in 2000 as a result of investing in 3G spectrum licences in Germany and Italy as it became financially unable to use these licenses for any services. Subsequently, in 2002, Sonera was bought by a Swedish telecom operator Telia (formerly Telecom Sweden).

[2] The unexpectedly large number of staff departures in this year included people on fixed term contracts working on the delivery of the London Olympics. However the Government's Comprehensive Spending Review of 2010 had put pressure on all Departments to reduce staff numbers and this included civil servants in the media area of DCMS.