

Massaro, Maria; Bohlin, Erik

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Why you cannot fit a round peg in a square hole: path dependence of radio spectrum policy on digital dividend in Italy and the United Kingdom

Maria Massaro¹, Erik Bohlin

Division of Technology and Society, Department of Technology Management and Economics

Chalmers University of Technology, Gothenburg, Sweden

Abstract

The advent of digital television has triggered a revolution in the use of radio spectrum worldwide and in particular in Europe, where the digital switchover, meaning the migration process from analogue to digital broadcasting, has led to two major consequences on spectrum use. First of all, there has been an improvement in the quality and an expansion in the range of television services, but also a significant part of the Ultra High Frequency (UHF) band has become free from traditional terrestrial broadcasting usage and released for other services.

In response to the outcome of the 2007 World Radiocommunication Conference (WRC-07) to allocate the upper part of the UHF band – the 800 MHz in Europe – for mobile services, Europe committed to structuring a regional plan promoting harmonisation of spectrum use across EU member states. In 2012, the first Radio Spectrum Policy Programme (RSPP) was approved. EU member states agreed on clearing the 800 MHz band from television broadcasting services and making it available for mobile services by 1 January 2013 (European Parliament & the Council, 2012). However, some EU member states showed a high degree of sensitivity about how intrusive the RSPP could be in the policy area of radio spectrum, which is considered a core area of national sovereignty. It is suffice to think that fourteen EU member states asked the European Commission (EC) to grant policy derogations due to a variety of exceptional reasons, having missed the previously agreed deadline, and nine of them have actually been granted. Different paths towards the allocation of the digital dividend to mobile services, in terms of policy and regulatory interventions, have been traced by EU member states under the EU umbrella. Moreover, Europe is carrying out studies on future spectrum requirements, including the 694-790 MHz (700 MHz) band, which will be allocated to mobile services in Europe from 2016, according to what has been stated at the 2012 World Radiocommunication Conference (WRC-12). This band is used to be referred to with the expression “second digital dividend”.

The patchy use of radio spectrum across EU member states seems to make it difficult to translate European interventions on radio spectrum policy into national level to differing extents. In particular, path-dependency turns out to be a critical factor, as radio spectrum policy diffusion follows a path dependent process, where the legacy of previous domestic policy and management practices exerts long standing effects at domestic level and influences national outcomes in unique ways.

Since the mid-1990s, several studies have been conducted on the so-called process of Europeanisation, with the aim to understand how European institutions and policies determine national changes by transferring supranational norms into domestic structures (e.g. Knill, 2001: 12; Bache & Marshall, 2004: 2). Europeanisation studies reveal considerable variation in the impact of EU institutions and policies on EU member states. National patterns of adjustment to the Europeanisation process differ in function with differing institutional starting points, for this reason the homogenisation or harmonisation of domestic practices across Europe is often considered an unrealistic expectation (Cowles at al., 2001: 221; Harmsen, 1999: 86; Bache & Marshall, 2004: 3).

¹ Corresponding author: email address massaro@chalmers.se

Thus, this paper claims that radio spectrum policy reforms at European level represent a necessary but not sufficient condition for domestic adaptation (Cowles et al., 2000: 2; Radaelli, 2000: 16). By means of a comparative study of the path towards the allocation of the digital dividend traced by Italy and the United Kingdom (UK), this paper asserts that the EU objective of harmonised spectrum usage across EU member states is subordinated to a process of transposing European initiatives into national level, which is actually country-specific. EU member states may struggle to adhere to European requirements, when deep alterations of domestic *modus operandi* are required. The comparison is an attempt to understand whether and to what extent existing domestic structure and past decisions regarding radio spectrum may prevent the process of EU harmonisation of spectrum use to be accomplished. The discussion is shaped by the concept of “goodness of fit” between European and domestic institutions, applied to the policy area of radio spectrum.

By exploring the case of the digital dividend in Italy and the UK, this paper aims at increasing awareness of the role that national institutions and prior path of policy development play as filters of European policies, facilitating or hindering institutional adaptation. This is to encourage European policy-makers to formulate radio spectrum policies and goals, taking into great account this mediating effect, which varies across EU member states and leads to different outcomes (Börzel, 1999). It is noteworthy that established national patterns are resistant to change, but also flexible enough to adapt to European policy developments (Olsen, 2002). This means that the goal of harmonised radio spectrum use across Europe can be achieved, but all the variables at stake need to be considered in the formulation of appropriate strategic actions, such as existing domestic policies and practices and national economic and social needs.

Keywords: digital dividend, spectrum policy, path dependence, mobile service, Italy, United Kingdom.

1. Introduction

The use of radio spectrum in Europe has been shaken up by the advent of digital terrestrial television (DDT) technology, which allows for higher quality and wider range of television services. Therefore, a significant part of the Ultra High Frequency (UHF) band has become free from traditional terrestrial broadcasting usage as a consequence of the switchover from analogue to digital terrestrial television. The upper part of the UHF band is usually referred to with the expression “digital dividend”, which provides a unique opportunity to accommodate the growing demand for new mobile communications services.

The tremendous growth of global mobile data traffic led the 2007 World Radiocommunication Conference (WRC-07) to allocate the upper part of the UHF band – the 790-862 MHz (800 MHz) band in ITU Region 1 (which comprises Europe) – for mobile services on a co-primary basis with terrestrial television broadcasting. Since then, Europe undertook several initiatives with the aim to harmonise the use of radio spectrum, including the 800 MHz band, across EU member states. In particular, as part of the Radio Spectrum Policy Programme (RSPP), approved in 2012, European countries agreed on clearing the 800 MHz band from terrestrial television broadcasting services by 1 January 2013, so that those frequencies could be used for mobile services (EP & the Council, 2012). However, some EU member states showed a high degree of sensitivity about how intrusive the RSPP could be in the policy area of radio spectrum, which is considered a core area of national sovereignty. It is suffice to think that fourteen EU member states asked the European Commission (EC) to grant policy derogations due to a variety of exceptional reasons, having missed the previously agreed deadline, and nine of them have actually been granted (EC, 2013a). Different paths towards the allocation of the digital dividend to mobile services, in terms of policy and regulatory interventions, have been traced by EU member states under the EU umbrella. Moreover, Europe is carrying out studies on future spectrum requirements, including the 694-790 MHz (700 MHz) band, which will be allocated to mobile services in ITU Region 1 from 2016, according to what has been stated at the 2012 World Radiocommunication Conference (WRC-12). This band is used to be referred to with the expression “second digital dividend”.

It is believed that several variables affect the process of translating European interventions on radio spectrum policy into national level. In particular, path-dependency turns out to be a critical factor, as radio spectrum policy diffusion follows a path dependent process, where the legacy of previous domestic policy and management practices exerts long standing effects at domestic level and influences national outcomes in unique ways. Thus, this paper claims that radio spectrum policy reforms at European level represent a necessary but not sufficient condition for domestic adaptation (Cowles at al., 2000: 2; Radaelli, 2000: 16). By means of a comparative study of the path towards the allocation of the digital dividend traced by Italy and the United Kingdom (UK), this paper asserts that the EU objective of harmonised spectrum usage across EU member states is subordinated to a process of transposing European initiatives into national level, which is actually country-specific. EU member states may struggle to adhere to European requirements, when deep alterations of domestic *modus operandi* are required. The discussion is framed by the so-called Europeanisation theory, pointing at the role that national institutions and prior path of historical development play as filters of European initiatives, facilitating or hindering domestic adaptation.

The paper proceeds as follow. In section 2 the Europeanisation theory is introduced; section 3 reports a comparative analysis of the digital dividend in Italy and the UK. The comparison begins with a description of the Italian case, followed by a description of the British case, and closes with a number of comparative observations. Section 4 concludes.

2. Europeanisation Theory and domestic change: conceptual considerations

Since the mid-1990s, several studies have been conducted on the so-called process of Europeanisation, with the aim to understand how European institutions and policies determine national changes by transferring supranational norms into domestic structures (e.g. Knill, 2001: 12; Bache & Marshall, 2004: 2). It must be clarified that, although Europeanisation is a two-way process, as there are top-down and bottom-up influences between EU and EU member states, the focus here is on the top-down effects of Europeanisation on domestic institutions. Moreover, this study only takes into consideration the effects of Europeanisation within the EU, without, however, denying the existence of cross-border influences (Cowles et al., 2000).

A basic concept underlying the process of Europeanisation is that of institution. Institutions are defined as systems of rules in a society: human beings are used to organise human interactions, in particular in case of repetitive actions, by introducing standard ways of doing things (Ostrom, 2005; North, 1990). Historical development reinforces their path irrespective of their superior or inferior potential compared to other alternatives (Arthur, 1989: 128; David, 1994: 209). It is possible to distinguish between formal (including political and social systems), and informal (e.g. routines, customs, traditions, conventions) institutions, which together constitute the institutional framework of a society (Nelson & Winter, 2002: 30).

In the process of diffusion of policy ideas, institutions work as filters, letting some new policy ideas access the policy-making arena, while others are excluded. Policy ideas that permeate national policy-making process are then translated into national practices in unique ways, according to prevailing national institutions (Campbell, 2002: 30). Diffusion is more rapid when a match exists between supranational and domestic norms (Checkel, 1999: 87). This is because societies are unlikely to show opposition against institutional changes which are consistent with their constitutive principles (Cowles et al., 2001). On the contrary, in case of inconsistency, domestic structures tend to stick in a prolonged stability, as once an institutional arrangement is set up, network externalities, coordination effects, sunk costs, lock-in effects and mutual expectations reinforce its roots (Campbell 2002: 31; North, 1990: 99; Pierson, 1993: 607-608).

Cowles et al. (2001: 1) describe Europeanisation as a process of “domestic adaptation with national colours” to give a sign that domestic change due to internalisation of European developments is a country-specific process. EU member states do not passively let changes happen, instead, they shape them in order to maintain control over outcomes. On this point, March and Olsen (1989: 34) state “[t]he most standard institutional response to novelty is to find a familiar routine in the existing repertoire of routines and practices”. In short, the persistence of existing institutional patterns reveals the path dependent nature of policy-making (Cowles et al., 2001: 3; Harmsen, 1999: 86; Bache & Marshall, 2004: 3; Borzel, 1999: 577). David (1994: 206) portrays the concept of path dependence saying that “the hand of the past [...] exert[s] a continuing influence upon the shape of the present”. Institutional change is rarely radical, instantaneous and costless. Usually what one can see is an incremental evolution of existing domestic frameworks (Nelson & Winter, 2002: 30).

Cowles et al. (2001: 6) propose the concept of “goodness of fit” in order to understand domestic change due to adaptational pressures from European institutions. The goodness of fit refers to the degree of compliance, between European and domestic institutions. In case of perfect adherence, EU member states are subject to minimal or absent pressures for change. Instead, adaptational pressures gradually increase as the degree of fit between European and domestic institutions decreases (Cowles et al., 2001: 6; Radaelli, 2000: 15). It is clear that adaptational pressures vary among EU member

states, as each EU country has its own political, cultural, economic and social environment (North, 1990). Imposing a common set of rules on the same policy area of EU member states with different institutional structures will probably lead to divergent outcomes (North, 1990: 101). The same European policy might produce fundamental reforms on one EU country but have no impact at all in others. Moreover, policy structures are issue-area specific and they might vary quite substantially across policy sectors in a given domestic structure. It might be observed considerable regulatory adjustments to some European policies while nothing at all happens on other areas of Europeanisation within the same EU country (Knill & Lehmkuhl, 2002: 256; Cowles et al., 2001: 8; Olsen, 2002: 933).

Europeanisation studies reveal considerable variation in the impact of EU institutions and policies on EU member states. National patterns of adjustment to the Europeanisation process differ in function with differing institutional starting points, for this reason the homogenisation or harmonisation of domestic practices across Europe is often considered an unrealistic expectation (Cowles et al., 2001: 221; Harmsen, 1999: 86; Bache & Marshall, 2004: 3). A sort of in-built resistance to change exists to different degrees across EU countries which can be overcome only by strong EU pressures on national administrations (Bache & Marshall, 2004: 3).

3. Path dependence of radio spectrum policy on digital dividend in Italy and the UK

Current trends show a greater centralisation of radio spectrum decision-making, moving from national to regional level, in particular in Europe (Pearson & Marks, 2012). Although radio spectrum management chiefly remains a responsibility of national Spectrum Management Authorities (SMAs), European institutions have acquired greater control over spectrum and are calling for harmonisation of radio spectrum use across EU member states. This means that SMAs are still responsible for the use of radio frequencies in their respective territories, but their interventions are bounded by European requirements. Moreover, European institutions are encouraging EU member states to pursue with effort Community policy priorities and objectives related to radio spectrum for the establishment of pan-European services and markets.

The adoption of the RSPP is the first step towards the establishment of a Community framework for radio spectrum through which promoting strategic planning and harmonisation of spectrum use at European level. As part of the RSPP, EU member states were asked to allocate the 800 MHz band to mobile services from 1 January 2013, after the WRC-07 decision (EP and the Council, 2012). Moreover, Europe is carrying out studies on future spectrum requirements, including the 694-790 MHz (700 MHz) band, which will be allocated to mobile services in ITU Region 1 (which includes Europe) from 2016, according to what has been stated at the WRC-12. This band is used to be referred to with the expression “second digital dividend”.

Recognising the burden of this new allocation in terms of spectrum policy reforms, the EU issued a mandate to CEPT with the aim to develop a set of common and minimal conditions for the use of the 700 MHz band by mobile services (EC, 2013b). The Radio Spectrum Policy Group (2013) states that reallocating the 700 MHz band for mobile service in ITU Region 1 will be significantly more disruptive to terrestrial broadcasters than it is in the 800 MHz band. In fact, terrestrial broadcasters would lose 96 MHz from a total of 320 MHz – 30% of the total remaining UHF television spectrum. Moreover, the second digital dividend is heavily used in Europe not only for terrestrial television broadcasting, but also for PMSE technologies, such as wireless microphones and other applications used in theatres, sporting and media events. Europe is facing a unique challenge as legacy spectrum use varies greatly from country to country. Harmonised use of the first and second digital dividend for

mobile services requires overcoming extensive lack of coherence in spectrum usage across EU member states.

In this section, the attempt is to understand whether and to what extent existing domestic structure and past decisions regarding radio spectrum may prevent the process of EU harmonisation of spectrum use to be accomplished. The discussion is shaped by the concept of goodness of fit between European and domestic institutions, applied to the policy area of radio spectrum.

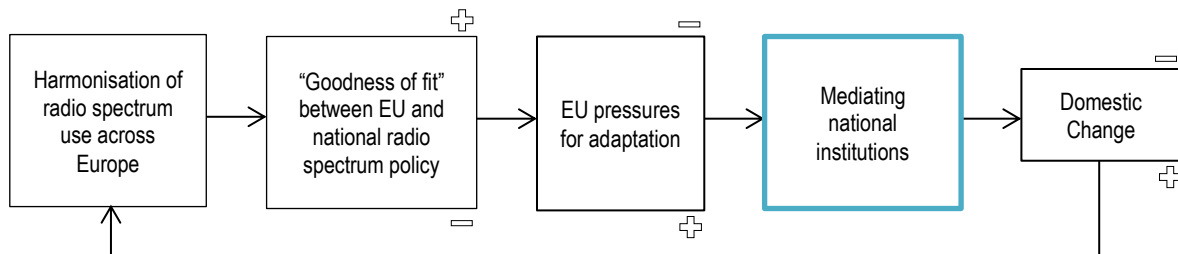


Figure 1. Europeanisation and domestic change in the area of radio spectrum policy
Source: adapted from Cowles et al. (2001) p. 6.

In the process of Europeanisation of radio spectrum policy, the main role is played by national institutions, which mediate EU pressures for domestic adaptation. They may actually prohibit or slow down institutional adaptation in the case of great misfit between European radio spectrum policy developments on one hand, and existing national policies and practices on the other hand. The expression national institutions include both formal institutions, such as political system and regulatory bodies, and informal institutions, such as values and beliefs.

By means of a comparative analysis of how Italy and the UK have been dealing with the digital dividend issue, while facing the same EU pressures for spectrum harmonisation, this paper asserts that the EU objective of a harmonised spectrum usage across all EU member states is challenged by the existence of cross-national variation in the mechanism through which European policies are embedded into domestic practices. Moreover, the legacy of previous policies and regulations exerts long standing effects at national level, which may obstacle the implementation of radical reforms.

In the remainder of this paper, after a brief illustration of the reasoning behind the choice of Italy and the UK for the comparative analysis, the comparison begins with a discussion of the Italian case, followed by a discussion of the British case, and concludes with a number of comparative observations.

3.1 The digital dividend in Italy and the UK

Before analysing the strategies adopted by Italy and the UK to deal with the allocation of the digital dividend, it is useful to provide a set of differences and similarities of the two cases. Firstly, they present substantial differences in the domestic institutional structure and political culture. Italy is a parliamentary republic, while the UK is a constitutional monarchy and parliamentary democracy. In recent years, Italy has been experiencing a situation of great government instability and unsatisfactory public administration, which may hinder attempts of policy change. On the contrary, the UK shows a more solid and stable political system (e.g. Johnston, 2008), and coherent policy processes, which may facilitate the introduction of policy reforms (Radaelli 1997: 556).

With specific regard to radio spectrum policy, Italy and the UK are selected for the comparative study because they have shown different approaches to the digital dividend issue, the former often being in the EU spotlight because of its self-sufficient attitude towards EU requirements, while the latter being at the forefront in identifying and releasing frequencies to be used by services other than television

broadcasting. However, it is worth noting that although Italy has showed a clear tendency to safeguard its legacy broadcasting allocation, the UK itself, “notwithstanding [the] international developments [regarding the digital dividend] decided to press ahead with its recommendations” (Aetha, 2011: 6) for a while. In fact, Ofcom revised its plans to incorporate the 800 MHz band into the UK digital dividend only when EU pressures became unbearable. Moreover, both Italy and the UK rely heavily on terrestrial broadcasting to receive broadcasting television services, first using analogue and then digital technologies. Television services have traditionally been universally available in those countries, which have also been pioneers in introducing DTT services.

As regards the regulatory body, in both countries a convergent and independent entity has been established for the regulation of communications industries. In Italy, the Communications Regulatory Authority – *Autorità per le Garanzie nelle Comunicazioni* (Agcom) – is established by Law No. 249 of 31 July 1997. Agcom replaced the former Radio and Publishing Guarantor, responsible for overseeing television and radio broadcasting, and the press, which showed lack of formal independence from the Parliament and the Government (Tighettini et al., 2013). The Parliament establishes its powers, defines its statutes and elects its members. Concerning radio spectrum policy and management, Agcom shares responsibilities with the Ministry of Economic Development. Indeed, the Ministry of Economic Development is responsible for the spectrum allocation (national frequency allocation table), while Agcom is in charge of the spectrum assignment process (both in telecommunications and broadcasting sectors). Moreover, the Ministry of Economic Development issues authorisations and rights of use of the spectrum, while Agcom sets up the rules for spectrum access, such as number of rights of use and geographical limitations (Martino, 2011a).

In the UK, the Office of Communications (Ofcom) is established by the Office of Communications Act 2002 and operates under the Communications Act 2003, which describes rights and obligations, responsibilities and missions upon Ofcom (Ofcom, What is Ofcom?). Ofcom is the result of the merger of five previous regulators (the Broadcasting Standards Commission, the Independent Television Commission, the Office for Telecommunications, the Radio Authority and the Radiocommunications Agency). Although independent of Government, Ofcom cooperates with the Department for Culture, Media and Sport and with the Department for Business, Innovation and Skills (politics.co.uk, 2012).

The UK regulator is recognised for its independent and autonomous actions, highly coordinated with the European level. The interplay between the authority and stakeholders is generally perceived as necessary in order to make broadly agreed decisions for the achievement of long-term objectives. In fact, Ofcom approach to the digital switchover and the digital dividend has been characterised by several studies and public consultations with the aim to reach consensus among stakeholders. On the contrary, Agcom has been criticised for a certain degree of dependence from political power and lack of transparency in its decisions (Di Corinto & Gilioli, 2010). Moreover, in spite of active involvement by European regulators, the Italian authority has often acted separately, in particular with regard to the evolution of the Italian television industry.

In the following two sub-sections the two cases of Italy and the UK are described. Each sub-section is divided into three parts: the first one is on the digital switchover, which reports important facts necessary to understand the second and the third sections on the first and second digital dividend, respectively. Main characteristics of the two domestic structures and events of greatest relevance to the digital dividend issue, are emphasised. They are then included in summary tables.

3.2 The Case of Italy

3.2.1 Digital Switchover

Since the 1980s, the Italian television market has been characterised by a duopoly consisting of the state terrestrial broadcaster Radiotelevisione Italiana (RAI) and the private terrestrial broadcaster Mediaset (Occhino & Cywiak, 2005). First attempts to transmit digital television via cable and satellite go back to 1994 and 1996, respectively, but they registered limited penetration (Colombo, 2005). The situation starts gradually changing only when the satellite TV provider Sky Italia enters the Italian television market in 2003, which has been increasing in viewing and shares only in recent years (Fondazione Rosselli, 2011).

DTT is introduced in Italy with the adoption of the Decree-Law No. 5 of 20 January 2001, amended by Law No. 66 of 20 March 2001 (and related Regulation No. 431/01/CONS), which provides for the switch-off of analogue networks and the switchover to digital terrestrial transmissions by 2006 (EC, 2004). DTT starts to be used in December 2003, when Mediaset begins broadcasting its services over a multiplex with five channels. RAI follows soon after on 3 January 2004 with transmissions over two multiplex (Colapinto & Papandrea, 2007). It is worth noting the presence of a conflict of interests when Silvio Berlusconi was Prime Minister, his family holding company Fininvest being the controller of Mediaset (Hibberd, 2008).

In the matter of the high concentration in the Italian television market, on 3 May 2004, Law No. 112, known as the Gasparri Law, is adopted, followed by the Consolidated Broadcasting Act of 2005, which was supposed to provide means for promoting pluralism (Haraszti, 2005). However, instead of opening up the market to other operators, the Gasparri Law helps preserve the old media concentration in a new legal framework, giving Silvio Berlusconi a solid legal basis to expand his media holdings (Blatmann, 2003). This situation gives rise to suspicious concerns about the impartiality of the Government regarding television broadcasting regulations (Mazzoleni et al., 2001). Besides that, the EC finds the Gasparri Law not compliant with the EU competition rules, as it precludes operators which are not active in analogue transmissions from experimenting with digital transmissions and from creating their own digital networks, to the benefit of existing analogue broadcasters (Hibberd, 2008). Thus, in July 2006, the EC decides to send a letter of formal notice to Italy requesting explanatory information regarding the Gasparri Law. That letter is the first step of the infringement proceeding under Article 226 of the EC Treaty started in December 2007 (EC, 2006).

In order to cope with this issue, Law No. 101 of 6 June 2008 is adopted, which introduces changes in the authorisation procedures for the assignment of licences compliant with European requirements regarding the goal of promoting pluralism (Italian Parliament, 2008). On 18 July 2007, the EC follows up that letter with a reasoned opinion containing further criticisms, in particular of the plan for the digital switchover (Agcom, 2009a). Thus, in Resolution No. 181/09/CONS of 7 April 2009, Agcom sets new rules for the full digitalisation of national terrestrial television in Italy, which meet EU expectations (Telecom Italia, 2011). The Gasparri Law confirms 2006 as the deadline for the full transfer to DTT, as proposed by Agcom. As a matter of fact, there is little possibility to meet this deadline for many reasons, including the early stage of government planning and the difficulty of coordinating hundreds of local broadcasters. In fact, unlike other EU countries, in Italy channel occupancy was very close to spectrum saturation, due to proliferation of local private stations. How to free up spectrum to allow for the launch of DTT was a problem with no immediate solution (D'Arma, 2007)

Eventually, with decree of the Ministry of Economic Development of 10 September 2008 No. 33827, in accordance with Law No. 101/08, the calendar for the switch-off from analogue to digital television is defined, postponing the deadline of the transition until 2012, in line with European recommendations (Agcom, 2009b). The Ministerial Decree divides the national territory into 16 technical macro-areas, largely coinciding with regions (Barbadoro, 2011). The process starts in Sardinia in July 2008 and is completed on 4 July 2012 with the shutdown of the last analogue transmitters in Sicily. The transition involves 10 national channels, more than 550 local channels and over 24.200 transmissions sites (FRT, 2012). In addition, the introduction of DTT has led to an increase of terrestrial television channels from 10 to about 75 (Telecompaper, 2012).

3.2.2 First digital dividend

On 15 June 2010, with Resolution No. 300/10/CONS, Agcom approves the new National Digital Frequency Assignment Plan, in accordance with the GE06 (Geneva-2006) Agreement. On the basis of this Plan, the 800 MHz band is assigned to local broadcasters. Thus, for some time, Italy supports the idea of returning the spectrum to broadcasters after analogue switchover, although the outcome of the WRC-07 to allocate the 800 MHz band for mobile services on a co-primary basis with terrestrial television broadcasting prompted national actions all over the world to re-farm UHF frequencies for mobile services. Complex negotiations are actually carried out to this end with the French and Austrian regulators, in order to minimise potential harmful interferences between Italy's legacy broadcasting allocation and the new digital dividend allocations to mobile services in neighbouring countries (FRT, 2010).

The Italian position shifts only when it was not possible to stick on it anymore, given strong pressures of the EC for harmonised usage of radio spectrum and the general worldwide orientation for a mobile allocation (GSMA, 2012a). Thus, on 13 December 2010, Law No. 220, known as "Stability Law for 2011", is adopted. It states, among other things, that the 800 MHz band has to be allocated to mobile services since 1 January 2013, aligning Italian strategy with the overall European orientation and other EU Member States' plans (Barbadoro, 2011). It is also taken the decision to launch a public auction to assign those frequencies.

On 18 May 2011 Resolution No. 282/11/CONS is adopted, integrated by Resolution No. 370/11/CONS of 23 June 2011 afterwards. It concerns procedures and rules for assignment and use of frequencies available for broadband communications services in the 800 MHz, 1800 MHz, 2.1 GHz and 2.6 GHz bands (FRT, 2011a). Thus, Agcom, within 15 days from the adoption of the Stability Law, holds a multiband auction of 255 MHz of spectrum, based on simultaneous multiple rounds (EC, 2012). With regard to the 800 MHz band, Italy follows the frequency arrangement outlined in the European Decision No. 2010/267/EC of 6 May 2010. The auction officially starts on 30 August 2011, when the Ministry of Economic Development discloses the starting bids in a public session. Initial bids amount to €2.3 billion. The confirmed qualified bidders in the auction are the four incumbent mobile operators (although five companies submitted applications): Telecom Italia (TIM), Vodafone Italia, Wind and H3G. The structure of the auction, with a series of bidding rounds, allows the participants to raise their bids by a minimum of 3% (Watson, 2011). On 29 September 2011, after 469 bidding rounds lasting 22 days, the 4G auction is concluded. The assignment results and total payments for each operator are shown in the table below:

Table 1. Spectrum blocks gained by operator and relative payment

	TIM	Vodafone	Wind	H3G	Total
800 MHz	2 x 10	2 x 10	2 x 10		2 x 30
1800 MHz	2 x 5	2 x 5		2 x 5	2 x 15
2.6 GHz	2 x 15	2 x 15	2 x 20	2 x 10	2 x 60
2.6 GHz TDD				30	30
Total MHz	60	60	60	60	240
Total €	1.260.320.000	1.259.680.000	1.119.920.000	305.375.100	3.945.295.100

Source: Italian Ministry of Economic Development (2011a).

Over €3.9 billion has been raised, more than double the reserve price of €1.7 billion, significantly exceeding Italy's expectations. Italy has been one of the first European countries to proceed with the auction of the 800 MHz band, following those of Germany, Sweden and Spain (Martino, 2011b). In spite of an initial resistance to be compliant to EU rules, eventually the process has been completed ahead of schedule and has been a great attainment, which puts Italy at the forefront in Europe (Watson, 2011; GSMA, 2012b; Italian Ministry of Economic Development, 2011b).

3.2.3 Second digital dividend

On 8 July 2012, under the government of Prime Minister Silvio Berlusconi, the final procedure for assigning the 700 MHz band, together with other frequency bands, is published in No. 80 of the Official Gazette (Resolution No. 497/10/CONS). A beauty contest is planned to assign six national DTT multiplexes free of charge to TV broadcasters (Agcom, 2010 & 2011). The choice of a beauty contest is seen as the right means to foster pluralism in the Italian television market and bring an end to the infringement proceeding set by EU (Mele, 2011).

Eight out of the ten operators that submit applications before the 6 September 2011 deadline are accepted. They are Canale Italia srl, Telecom Italia Media Broadcasting srl, Elettronica Industriale spa (part of Mediaset group), Sky Italia Network srl, Prima Tv spa, Europa Way srl, 3lettronica Industriale spa and Radiotelevisione Italiana spa. Tivùitalia e Dbox are excluded (FRT, 2011b). Later on, Sky Italia announces its decision to withdraw the request of participating to the contest, stating that the procedure is too slow to allow the participants to plan their investments in the long term. Moreover, it considers the rules of the procedure as unfair, arguing that they favour incumbent operators (Balestrieri, 2011). The next administration of Prime Minister Mario Monti criticises the beauty contest procedure for benefitting incumbent broadcasters and the decision to assign without charge a valuable public resource such as radio spectrum (TM News, 2012). Therefore, the new administration suspends the assignment process via beauty contest shortly before its finalisation, which is eventually annulled. Agcom is asked to come up with auction rules to assign those frequencies.

The decision to auction the spectrum is also driven by the WRC-12 decision for a co-primary allocation of the 700 MHz band to mobile services along with television broadcasting starting from 2016, and the related need to avoid rigid assignments that might affect any future use of the 700 MHz band. In this regard, Italy considers worthwhile to associate rights of use lasting 5 years to the 700 MHz frequencies, while rights of use of 20 years are attached to the other frequencies. An additional factor is the unending infringement proceeding opened by the EC in 2006, Italy being strongly criticised for its tendency to protect broadcasting incumbents' interests, to the detriment of a competitive environment (Corriere delle Comunicazioni.it, 2013). On 31 October 2012 the EC sends a

letter to Agcom defining the requirements Italy has to comply with in order to put an end to the infringement procedure and to open the relatively closed structure of Italian television broadcasting sector for new entrants and smaller existing operators. Among other measures, Italy is asked to lay down rules for an auction procedure (Agcom, 2012a).

The rules for the auction of the frequencies ex beauty contest have been unanimously approved and contained in Resolution No. 277/13/CONS (Agcom, 2013a). With the aim to secure a more efficient use of radio spectrum and to leave room for future developments of mobile services in accordance with international agreements, Agcom decides not to auction three out of the six multiplexes embraced by the previous beauty contest procedure. These multiplexes are those included in the 700 MHz band. The broad goal Agcom wants to achieve consists of defining a roadmap to re-farm the 700 MHz band towards the mobile services. As a result of this decision, the Italian television frequency plan will be adjusted on 22 (instead of the previous 25) national television channels. Unlike the 800 MHz band auction, in this case not only local but also national broadcasters will suffer from a reduction in the amount of spectrum available for their services. In response to the necessity to enhance competition and pluralism in the television market, as requested by the EC, the measures adopted regarding the auction allow only new entrants and small operators to participate in the process. Operators that have three or more multiplexes, like RAI and Mediaset, are excluded. For this and other reasons both the incumbent operators are showing their opposition against the auction rules and have started legal actions right after Agcom published the draft of the procedure (Agcom, 2013b).

3.3 The case of the United Kingdom

3.3.1 Digital Switchover

In the UK, the Government White Paper on DTT is released as early as August 1995 and its proposals for the introduction of DTT services are incorporated into the Broadcasting Act of July 1996 (D'Arma, 2007). The Act provides for the establishment of six national DTT multiplexes (Colapinto & Papandrea, 2007). DTT is formally launched on 15 November 1998. In September 1999 the UK Government announces for the first time its ambition to switch off the traditional analogue terrestrial television services and replace them fully with DTT between 2006 and 2010 (Cave, 2006a).

As early as January 2003, the UK Government declares it would reserve 256 MHz (32 channels) of the 368 MHz (49 channels) used by terrestrial television for the operators of the six existing DTT multiplexes, expanding coverage and capacity of terrestrial broadcasting (Ofcom, 2007a), and releases a digital dividend of 112 MHz for new uses, including the provision of mobile services (Ofcom, 2009a). Given the impossibility to meet the previous deadline for several reasons, including potential delays caused by the upcoming 2006 Regional Radiocommunication Conference (RRC-06) for the planning of a digital broadcasting frequencies scheme (Ofcom, 2004), on 15 September 2005, the Secretary of State for Culture, Media and Sport states that the digital switchover would take place between 2008 and 2012 (Berman et al., 2006).

A Digital TV Action Plan is carried out (BBC News, 2009a), which envisages a transition process from analogue to digital terrestrial broadcasting on a regionally phased basis starting with the England and Scotland Borders in 2008 and completing in Northern Ireland in 2012. On 21 September 2011 more than half of UK homes has switched to DTT and on 24 October 2012 the last remaining analogue channels are turned off in Northern Ireland, marking the completion of the UK's five-year switchover programme. UK broadcasting services turn out to be totally digitalised, with 98.5% of homes receiving multi-channel DTT (digitaluk, 2012), marking the end of more than 70 years of analogue broadcasting, started with the first public television broadcasting service launched in 1936. The UK has seen the replacement of five national analogue TV channels with over 70 digital channels

(Ofcom, 2012a). The UK is one of the countries with the highest digital television penetration worldwide. By the end of 2012, 98% of households start to receive digital television over any platforms. However, 75% of households actually rely on digital terrestrial broadcasting. These data highlights the role DTT platform will continue to play for television viewers in the UK at least in the middle-term, even though it might change in a more distant future.

3.3.2 First digital dividend

The UK has been at the forefront within Europe in identifying and releasing a digital dividend to be used by services other than television broadcasting. In 2003, the UK identifies 14 frequency channels of 8 MHz each, making a total of 112 MHz in the UHF bands to be cleared from analogue terrestrial television and made available for new uses (Aetha, 2011). Ofcom also states that the interleaved capacity (white spaces) available within the 256 MHz reserved for the six DTT multiplexes can be used for additional services such as wireless microphones. The plan comprises two spectrum bands: a smaller upper band of 48 MHz at 806-854 MHz (channels 63-68) and a larger lower band of 64 MHz at 550-630 MHz (channels 31-35, 37 and 39-40) (Ofcom, 2007a).

Since 2003, Ofcom has been working on the size of the UK digital dividend, clearing channel 36 from aeronautical radar during 2009 and channel 38 from radioastronomy during 2012, releasing additional 16 MHz. Eventually, the UK obtains a digital dividend of 128 MHz of high quality spectrum by the end of 2012 (Ofcom, 2009b).

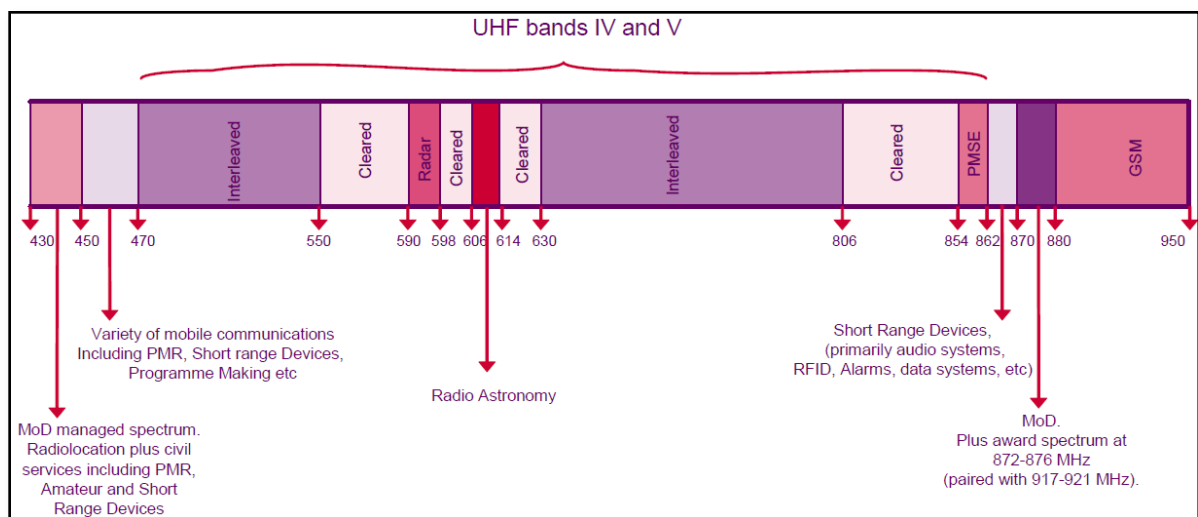


Figure 2. The digital dividend and adjacent spectrum use between 430 and 950 MHz

Source: Ofcom (2007a).

While the initial plan was to safeguard some frequencies in the 800 MHz band for wireless microphone and DTT services, in 2009 the UK decides to free up the whole 800 MHz band for mobile services. This decision is due to two main reasons. On the one hand, the UK is aware of the fact that European institutions are carrying out studies on allocating the 800 MHz band for mobile communications services and are putting pressure on EU member states to harmonise the use of radio spectrum. On the other hand, Ofcom recognises that increasing by 24 MHz the digital dividend and aligning its strategy with the European approach would bring much more advantages for the UK economy (GSMA, 2012a).

By conducting a costs-benefits analysis of including the 800MHz band in the UK digital dividend, Ofcom states that substantial net benefits, estimated at £2-3 billion in net present value (NPV) over

twenty years, could be gained because better wireless services could be provided, particularly mobile broadband services, by making the same spectrum available as other EU countries. Moreover, aligning the spectrum would generate benefits from international economies of scale in equipment manufacturing which lead to lower cost services for consumers and from greater freedom in the use of mobile services in UK and across Europe (Ofcom, 2009b). The decision to release the 800 MHz band was obviously welcomed by mobile operators, but had troublesome consequences for television broadcasters and PMSE operators which were using that band.

Eventually, on 30 June 2009 Ofcom announces the intention to revise its plans to incorporate the 800 MHz band in the UK digital dividend (Ofcom, 2009a). For this reason, the UK is forced to undertake a significant and costly spectrum re-planning, which leads to a late adoption of the EU strategy (Aetha, 2011). Although the UK has been a pioneer in clearing spectrum from terrestrial television broadcasting, it has been the 8th European country to announce the release of the 800 MHz band as part of the digital dividend, after Sweden (19 December 2007), Finland (19 June 2008), France (20 October 2008), Switzerland (13 November 2008), Spain (2 June 2009), Germany (12 June 2009) and Denmark (22 June 2009) (Conway, 2010).

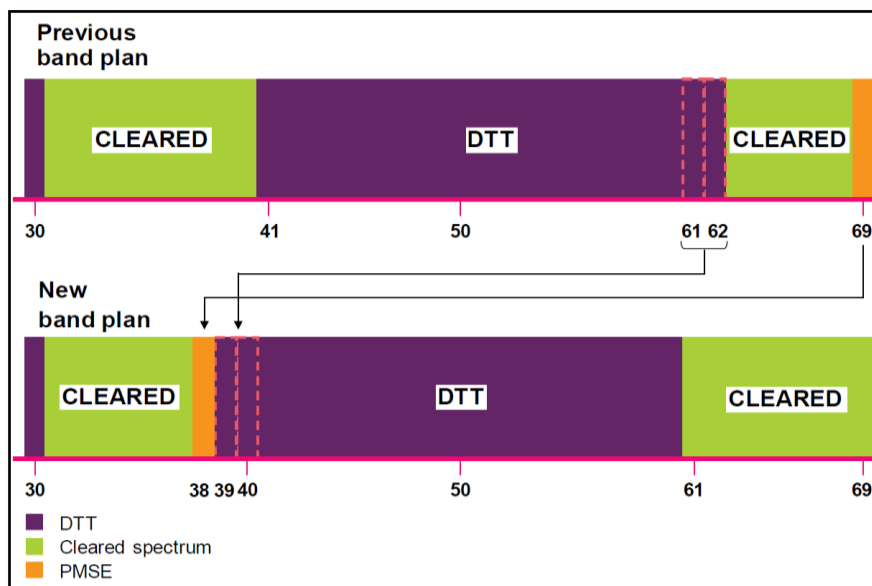


Figure 3. Changing the configuration of the UK's digital dividend
Source: Ofcom (2009b).

As shown in the picture above, that decision implies the clearance of channels 61 and 62, previously planned to be used by DTT (moved to channel 39 and 40) and channel 69, previously allocated to PMSE (moved to channel 38). Eventually, the UK digital dividend comprises both the 600 MHz band (500-606 MHz - channels 31-37) and the 800 MHz band (790-862 MHz – channels 61-69). The UK government confirms its commitment to fund the costs of clearing these channels, estimated to be first £85-185 million and then £115-250 million in NPV for channel 61 and 62 and £5-18 million in NPV for channel 69, considering these costs as modest compared to the expected benefits (Laflin, 2009). The 800 MHz band becomes totally available by the end of July 2013 as channel 69 was cleared from PMSE at the end of 2012 and the clearance of channels 61 and 62 was completed on 31 July 2013. The UK achieves its objective ahead of schedule (five months earlier than the original plan) and under budget (digitaluk, 2013). With regard to the renewed digital dividend plan including the 800 MHz band, the UK starts bilateral and multilateral negotiations with neighbouring countries, in order to ensure that new allocations are granted international recognition and protection. Some changes have to be agreed and introduced in the GE06 Plan on the use of the UHF band, which has been designed to

optimise the use of these frequencies for television broadcasting (Ofcom, 2009a). In particular, the UK concludes bilateral agreements with France and Ireland and with Belgium and the Netherlands (Ofcom, UK Digital Terrestrial Television).

The auction process for the award of licences for the use of both the 800 MHz band and the 2.6 GHz band (2500-2690 MHz) for mobile services is initially scheduled to take place early in 2012, however, some political, regulatory and policy difficulties have caused delays. Ofcom had to deal with the dissolution of Parliament in 2010 and the unexpected merger between Orange and T-Mobile in the same year, which raised concerns at European level in terms of negative impacts on competition. With regard to radio spectrum, giving that a large amount of spectrum would have been concentrated in the hands of a single operator, Everything Everywhere (EE), after the merger operation, the EC eventually asked Orange and T-Mobile to divest some of their spectrum frequencies in the 1800 MHz, called “Divestment Spectrum”, which indirectly affected the structure of the auction procedure (EC, 2010). Moreover, significant disagreements between Ofcom and mobile operators contributed to hold up the auction procedure. For instance, H3G claimed that the auction plan would have pushed him out of market, being unable to compete with other big players without any regulatory protection (Fai & Chu, 2013). Ofcom has also proposed to allow EE to use its 1800 MHz 3G licence with 4G technology, in an attempt to speed up the rolling out of LTE services. However, this has unleashed the reaction of other mobile players, such as Vodafone and O2, which claimed that decision would have given EE a competitive advantage, having the opportunity to provide LTE services before any other mobile operators, which would have been able to provide the same services only after the forthcoming auction (Liston, 2012; Easter, 2012). EE had also threatened legal action against Ofcom, if its competitors would have tried to hamper its plan to provide LTE services on the 1800 MHz band (Easter, 2012). In addition, EE menaced to sue the UK Government if it would have pulled back the duty on Vodafone and O2 to clear some frequencies in the 900 MHz band in order to acquire the right to participate in the digital dividend auction (IHS, 2010). Eventually, thanks to the UK Government intervention, a deal has been reached whereby formal legal actions against Ofcom have been avoided (Fai & Chu, 2013). The UK Government, Ofcom and the mobile operators were all blaming each other for the delays that affected the auction procedure (Liston, 2012: 3). Thus, after a first Consultation in March 2011, which has unleashed harsh responses, Ofcom announces a further Consultation starting in January 2012 (Liston, 2013; BBC News, 2011).

Eventually, Ofcom publishes a Statement on 24 July 2012 containing the auction terms (Ofcom, 2012b). Licences to use the 800 MHz and 2.6 GHz bands for mobile broadband services are granted on 1 March 2013, following the auction that started on 23 January 2013 (Ofcom, 800 MHz & 2.6 GHz Combined Award). On 20 February 2013, after five years of planning and more than 50 rounds of bidding during five-weeks, the auction process is concluded. Seven bidders take part and five of them win licences to operate in the 800MHz and 2.6 GHz bands: EE Ltd, Hutchison 3G UK Ltd, Niche Spectrum Ventures Ltd (a subsidiary of BT Group plc), Telefónica UK Ltd and Vodafone Ltd. MLL Telecom and Hong Kong-based HKT are unsuccessful. Almost £2.34 billion has been raised. This is £1.00 billion more than the reserve price, but £1.20 billion less than what was predicted by the government (£3.5 billion) (Ovum, 2013).

Table 2. UK 4G auction results

Licensee	Frequencies assigned	Base price	Additional prices	Licence fee paid
Everything Everywhere Limited	796 to 801 MHz and 837 to 842 MHz	£588,876,000	£0	£588,876,000
	2535 to 2570 MHz and 2655 to 2690 MHz		£0	
Hutchison 3G UK Limited	791 to 796 MHz and 832 to 837 MHz	£225,000,000	£0	£225,000,000
Niche Spectrum Ventures Limited	2520 to 2535 MHz and 2640 to 2655 MHz	£186,476,000	£15,061,179	£201,537,179
	2595 to 2620 MHz		£0	
Telefónica UK Limited	811 to 821 MHz and 852 to 862 MHz	£550,000,000	N/A	£550,000,000
Vodafone Limited	801 to 811 MHz and 842 to 852 MHz	£790,761,000	£8,060,020	£802,860,143
	2500 to 2520 MHz and 2620 to 2640 MHz		£4,039,123	
	2570 to 2595 MHz		£0	

Source: Ofcom, 4G auction results

3.3.3 Second digital dividend

Although the UK has been the first EU member state to consider the opportunity to use the spectrum freed-up by the digital switchover for new services other than television broadcasting, it took long time before the first digital dividend auction procedure was completed, in the first quarter of 2013, the UK lagging behind other EU member states in terms of roll-out and take-up of LTE services. Ofcom has been sharply criticised for the several delays that occurred; for this reason it starts soon working on the second digital dividend, which is currently used by DTT and other services on an interleaved basis.

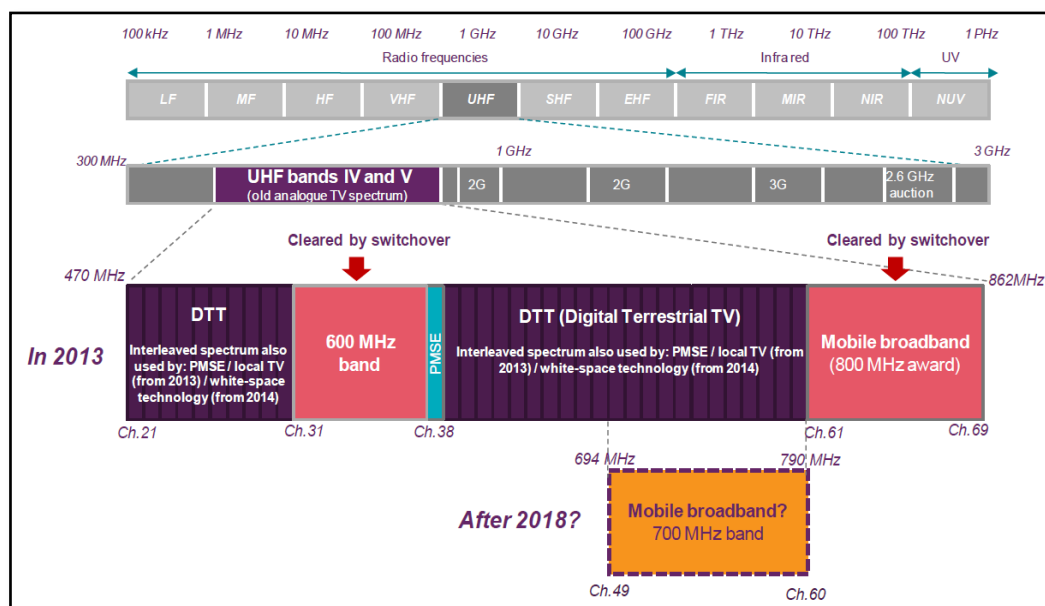


Figure 4. UHF bands IV and V and the 700 MHz band

Source: Ofcom (2012c)

Ofcom believes that the DTT platform will remain attractive over the next decade so DTT services need to be safeguarded, while enabling the use of the 700 MHz band for mobile services (Ofcom, 2012c). The idea is to move the DTT services on the 600 MHz band and to allocate the 700 MHz band to mobile broadband services, which might become available by 2018 (Ovum, 2012). The 600 MHz band has been freed up by the switch from analogue to digital television, along with the 800 MHz band (Ofcom, 2010). In 2009 and 2011, some studies conducted by Arqiva, a communications

infrastructure and media services company leader in the UK, illustrate how the 600 MHz band could be used to provide two DTT multiplexes (Ofcom, 2013).

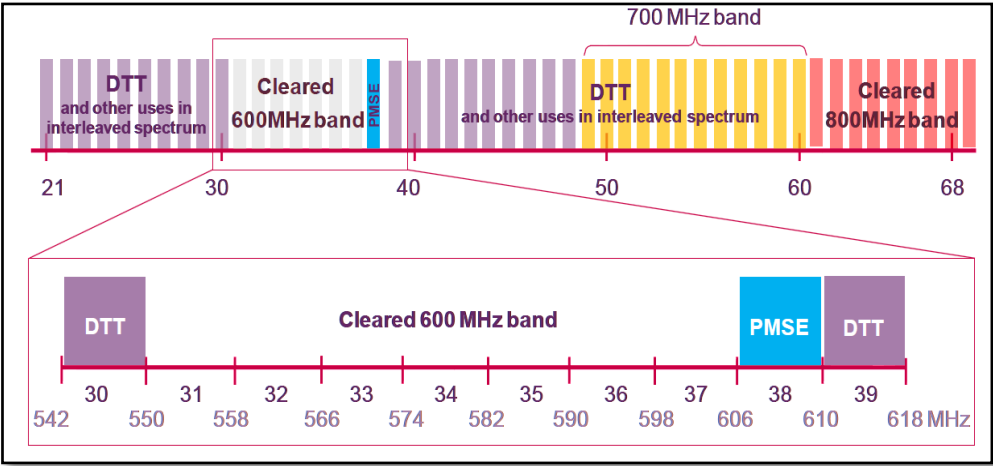


Figure 5. The available spectrum
Source: Ofcom (2013).

In the Statement published on 16 November 2012, Ofcom clearly displays its dual long term strategic objectives to release the 700 MHz band for mobile broadband, while protecting the provision of DTT, accommodating DTT in the 600 MHz band, for interim use (Ofcom, 2012c). A Consultation is published on 6 February 2012, in which Ofcom sets out its proposal for the award of a licence to establish temporary DTT multiplexes in the 600 MHz spectrum band. This band comprises seven channels of 8 MHz each (channel 31 to 37), but channel 36 (590-598 MHz) is excluded from this award, given a proposed Europe-wide signal propagation study on a temporary basis. The period over which the 600 MHz band can be used on an interim basis is five years, from 2013 to 2018. Ofcom is aware of the fact that this is a very short period, but it is considered appropriate in light of the current spectrum requirements. There would probably be constraints regarding the use of the 600 MHz band, as problems may arise at international and local level. Firstly, in most European countries the 600 MHz band is used for television broadcasting, so there will be relatively high possibility of cross-border interference. At the national level, potential interference may arise with services occupying the neighbouring bands, meaning DTT and PMSE, as shown in the above picture. However mechanisms to coordinate PMSE operations with DTT transmissions are well-established in other parts of the UHF bands, so coexistence problems may be easily solved (Ofcom, 2013a).

The proposal of moving DTT down to the 600 MHz band from the 700 MHz band, which will be free up for mobile services, shows the UK commitment to support and be part of the international process, as WRC-12 results and the objectives of the upcoming 2015 World Radiocommunications Conference (WRC-15) are oriented towards the harmonisation of the 700 MHz band for the mobile services (Walden, 2012). In this respect, as part of WRC-15 preparation process, Ofcom is currently carrying out studies on the future spectrum requirements for mobile broadband applications (Ofcom, 2013a).

Here below, three summary tables follow. They gather the main institutional characteristics of Italy and the UK and the historical events of greatest relevance to the digital dividend issue. The aim is to emphasise the differences between the two cases.

Table 3. Summary Tables

Digital Switchover

	Italy	The UK
TELEVISION MARKET	The Italian television market is characterised by a duopoly. It is extremely closed and broadcasting incumbents' interests have often been safeguarded to the detriment of a competitive environment. There is an extensive presence of local broadcasters, favoured by a scarce regulation of radio spectrum use.	The UK Government and Ofcom have generally shown a certain degree of attention towards preserving a competitive landscape in the television market (see e.g. MAVISE website). In contrast to Italy, the UK does not have a well-developed regional television sector (García Leiva, 2008).
TERRESTRIAL TELEVISION SERVICES	Both Italy and the UK rely heavily on terrestrial broadcasting to receive broadcasting television services, first using analogue and then digital technologies. Both are pioneers in introducing DTT services.	
TELECOMS REGULATORY BODY	Agcom has been criticised for a certain degree of dependence from political power and lack of transparency in its decisions. A conflict of interests was present when Silvio Berlusconi was Prime Minister. Moreover, in spite of active involvement by European regulators, Italian authority has often acted separately, in particular with regard to the evolution of the Italian television industry.	Ofcom is recognised for its independent and autonomous actions, highly coordinated with the European level. The interplay between the authority and stakeholders is perceived as necessary in order to make broadly agreed decisions for the achievement of long-term objectives. The Ofcom approach to the digital switchover and the digital dividend has been characterised by several studies and public consultations with the aim to reach consensus among stakeholders.
DTT	DTT formally introduced in 2001 DTT transmissions launched in 2003	DTT formally introduced in 1996 DTT transmissions launched in 1998
DIGITAL SWITCHOVER DELAYS	Digital switchover 2008-2012 (initial deadline 2006) Proliferation of local private stations has led to an extremely chaotic situation which is one of the main obstacles that slowed the adoption of DTT. Moreover, the infringement proceeding started in 2006 delayed the digital switchover process.	Digital switchover 2008-2012 (initial deadline 2010) The UK digital switchover suffered from delays due to the impact of disagreements among sector players, political matters and unexpected events. For example in 2010 delays are caused by a change of government. Moreover, the upcoming RRC-06 for the planning of a digital broadcasting frequencies scheme is considered another cause of delay.
FOCUS EU PRESSURES ON ITALY	While Community authorities have repeatedly acted against extension of market power by incumbent analogue operators into the digital television market, the initial Italian plan for the analogue to digital transition process is planned in a way that assigns privileged roles to RAI and Mediaset, the two companies that have dominated the Italian television landscape for decades. Regulatory attempts to enhance competition and break the existing duopoly are circumvented by implementation delays and lax enforcement (Brown & Picard, 2008). European institutions exerted great pressure on Agcom in order for new rules for the full digitalisation of national terrestrial television to be settled, in line with EC's expectations. This facts show how political institutions might be "sticky" on their beliefs and may hinder the process of institutional and policy reform (Pierson: 1996 143).	

First Digital Dividend

	Italy	The UK
DOMESTIC SETTING	For some time Italy supports the idea of returning spectrum to broadcasters after analogue switchover, even though WRC-07 decision to allocate the 800 MHz band to mobile services prompted national actions all over the world to re-farm UHF frequencies for mobile services.	The UK was at the forefront in identifying and releasing frequencies to be used by services other than television broadcasting, such as mobile services. Since 2003, Ofcom has been working on the size of the UK digital dividend, clearing a digital dividend of 128 MHz of high quality spectrum by the end of 2012.
AUCTION PROCEDURE	<p>Auction procedure concluded in 2011</p> <p>There is no tradition of auctioning procedures in Italy. However, the Italian auction has been completed ahead of schedule. Italy has been one of the first EU countries to proceed with the auction of the 800 MHz band, and this can be considered a great success.</p>	<p>Auction procedure concluded in 2013</p> <p>Since the beginning, a clear strategy is defined regarding the digital dividend, in particular in respect to the way in which this spectrum has to be awarded. However, it took long time before the auction procedure was completed, in the first quarter of 2013, the UK lagging behind many other EU member states in terms of roll-out and take-up of LTE services.</p>
FOCUS EU PRESSURES ON ITALY	In Italy, decisions regarding the digital switchover, the allocation of the digital dividend and finally the assignment of frequencies have been often conditioned by political aims and short-term objectives. As Pierson (1996: 11) states: “[m]any of the implications of political decisions only play out in the long-run. This is especially true for those implications related to complex interventions or major institutional reforms. Yet political decision-makers are usually most interested in the short-term consequences of their actions; long-term effects are likely to be heavily discounted”. In addition, it can be seen how “political actors are more likely to favour policy interpretations that best conform to their [...] political beliefs” (Campbell, 2002). In this respect a clear example is the initial decision of re-assigning the 800 MHz to television broadcasters, instead of making commitment to define a long-term strategy to allow for the allocation of the 800 MHz band to mobile services. The Stability Law for 2011 is eventually adopted to launch a public auction to allocate the 800 MHz band for mobile services under strong pressure of the EC for harmonised usage of radio spectrum.	
FOCUS EU PRESSURES ON UK	Although Ofcom was aware of the fact that its strategy was not in line with the European harmonisation approach, it "decided to press ahead with its recommendations" until it "has had to cooperate" (BBC News, 2009b). The original mismatch with the European harmonisation strategy has slowed down the process of clearing the 800 MHz band. The UK revises its plans to incorporate the 800 MHz band in its digital dividend mainly because of the EU pressure to harmonise the use of radio spectrum, which became unbearable, together with the acknowledgement of the economic benefits that would have been gained. The UK showed a certain degree of resistance to change.	

Second Digital Dividend

DOMESTIC SETTING	Italy	The UK
	The initial plan is to assign the 700 MHz band free of charge to national TV broadcasters by means of a beauty contest. Sky Italia withdraws the request of participating to the contest, arguing that the rules of the procedure favour incumbent operators.	Ofcom's dual long term strategy is to release the 700 MHz band for mobile broadband, while protecting the provision of DTT, which will be accommodated in the 600 MHz band, for interim use. The proposal of moving DTT down to the 600 MHz band from the 700 MHz band shows the UK commitment to support and be part of the international process, given the WRC's orientation towards the harmonisation of the 700 MHz band for the mobile services.
POTENTIAL DELAYS AUCTION	In response to the necessity to enhance competition and pluralism in the television market, the measures adopted regarding the auction allow only new entrants and small operators to participate in the process. Operators that have three or more multiplexes, like RAI and Mediaset, are excluded. For this and other reasons both the incumbent operators are showing their opposition against the auction rules and have started legal actions.	There are conflicting opinions among broadcasters regarding Ofcom's strategy: some of them seem to agree with moving from the 700 MHz to the 600 MHz band, looking at this possible re-allocation as a crucial change needed to keep pace with the development of the ICT sector (Telep, 2013). However, the BBC, for instance, asserts that the current mobile consumption does not require additional spectrum to be released for mobile services, whose deployment on the 800 MHz band has not even started.
FOCUS EU PRESSURES ON ITALY	Italy is scolded by Europe, which recommends the adoption of an auction procedure for the assignment of the 700 MHz band, in the context of the unending infringement proceeding.	
FOCUS ON EUROPE	The issue of the 700 MHz re-allocation is still on-going. It is considered one of the toughest challenges in the spectrum management field of recent years, which will have disruptive effects on radio spectrum usage and technological development trends. Europe will have to face many obstacles in pursuing its objective of a harmonised spectrum usage across its territory. As the cases of the UK and Italy can show, existing domestic institutional variables shape domestic responses to European pressures for spectrum harmonisation in unique ways.	

4. Conclusions

Italy and the UK have exhibited different patterns of adaptation while facing the same EU pressures for spectrum harmonisation. This is due to the fact that national administrations develop adaptational mechanisms on the basis of existing country-specific institutional settings. As already reported before: “the most standard institutional response to novelty is to find a familiar routine in the existing repertoire of routines and practices” (March and Olsen, 1989: 34). Radio spectrum policy is path dependent. The strategies implemented by Italy and the UK and the events, which have marked their process of spectrum policy adaptation, reflect prior path of policy development and institutional culture.

Together with the “goodness of fit” between European and domestic institutions, timing is an important variable: change is more likely not only when there exists a high level of similarity between European and domestic institutions, but also when a member state is already in a reform process

consistent with EU requirements (Radaelli, 2000: 16-17). This is the reason why European institutions had to exert greater pressure on Italy which was more oriented towards a spectrum allocation to terrestrial television broadcasting. On the contrary, the UK was considering the opportunity to use the spectrum freed-up by the digital switchover for new services other than television broadcasting before the EU became active on this area.

However, notwithstanding a certain degree of “goodness of fit” between the UK goal of clearing spectrum for mobile services and the subsequent digital dividend European strategy, Ofcom revised its plans to incorporate the 800 MHz band into the UK digital dividend only when the EU pressures became unbearable. Each country has a sort of in-built resistance to change and the legacy of previous policies and regulations exerts long standing effects, which make institutional adaptation more demanding.

By exploring the case of the digital dividend in Italy and the UK, this paper aims at increasing awareness of the role that national institutions play as filters of European policies, facilitating or hindering institutional adaptation. The impact of EU pressures for spectrum harmonisation on EU member states is mediated by existing domestic institutional structures and prior paths of policy development. Cowles et al. (2001: 18) point out that “[m]any domestic institutions facing adaptational pressures from Europeanization have been around much longer than the EU”. A strong commitment is necessary from European institutions in order to wash cross-country differences away and fulfil its objective of harmonised spectrum use across Europe.

Thus, the main purpose of this study is to encourage European policy-makers to formulate radio spectrum policies and goals, taking into great account this mediating effect, which varies across EU member states and leads to different outcomes (Börzel, 1999). European institutions have to be aware of the fact that differentiated rather than converging responses to Europeanisation are more likely to happen (Pierson, 1996: 148; Olsen: 2002) and this is far true for radio spectrum policy. It is noteworthy that established national patterns are resistant to change, but also flexible enough to adapt to European policy developments (Olsen: 2002). This means that the goal of harmonised radio spectrum use across Europe can be achieved, but all the variables at stake need to be considered in the formulation of appropriate strategic actions, such as existing domestic policies and practices and national economic and social needs.

On September 2013, the EC put forward the Connected Continent legislative package laying down measures for the establishment of a European single market for electronic communications. The reform package has a very wide scope, as it seeks to reform the entire EU telecommunications sector and it would require deep and long-lasting efforts from industry players, consumers, national authorities and other stakeholders involved in this significant change of policy orientation. Among other things, the EC aims to partly modify the existing regulatory system of radio spectrum, introducing new common rules on national procedures, pertaining, for instance, radio spectrum authorisation procedures, promoting the harmonisation of radio spectrum management across EU member states and restricting national prerogatives on radio spectrum decisions (EC, 2013c). Several obstacles may challenge the successful accomplishment of the proposed reforms, including the legacy of previous regulation, potential incompatibility with the subsidiarity principle and the extremely patchy use of radio spectrum across EU member states. It might be interesting to analyse the Connected Continent legislative proposal through the lens of the Europeanisation theory to ascertain whether and to what extent national institutions and prior path of policy development will facilitate or hinder domestic adaptation to the new proposed legislative package.

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