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Wireless access policy for electronic communications services (WAPECS): Collision between theory and practice ☆

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ABSTRACT

One of the first practical implementations of flexible radio spectrum property rights was initiated in Europe in 2005 under the name 'Wireless Access Policy for Electronic Communication Services (WAPECS)'. WAPECS aimed to introduce more flexibility into the European spectrum management framework by allowing technology and service neutrality. Internationally, the European Conference of Postal and Telecommunications Administrations (CEPT) have been keen to introduce more flexibility into the international service allocation framework.

One of the main findings of this paper is the identification of different negative perceptions and disagreement about WAPECS among industry and regulatory stakeholders. Moreover, it is shown that concerns over WAPECS include that the flexibility associated with it may contradict with spectrum use efficiency and that the responsibility of resolving interference issues moves from the regulator to operators.

The assessment of the influence of WAPECS on the market shows that while the concept was aimed mainly towards removing the spectrum usage restriction for industry, they have not appreciated this mainly due to the high cost and uncertainty associated with flexibility. On the other hand, several positive impacts of WAPECS are revealed including removing technology designation from CEPT decisions. The paper shows also that the international Radio Regulations (RR) can, to a certain extent, accommodate WAPECS.

1. Introduction

Fifty five years ago, Coase suggested, in his seminal article 'The Federal Communications Commission', that spectrum assignments should be treated in a similar way to property rights, where market forces allocate these flexible tradable rights to users placing the highest valuations on it (Coase, 1959). In addition, Coase (1959) argued that the aim of the regulator should be to maximise the output and not to minimise the interference, and that interference should not be an issue as long as the gain from it is much more than the harm it produces. Moreover, it was suggested that interference could be resolved by delimiting users' spectrum usage rights and could be accepted by users if they were paid more than the amount by which their service was diminished.

☆ The authors are solely responsible for the opinions expressed in this article.

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Subsequently Coase generalised his argument in his Nobel Prize article 'The Problem of Social Cost' and suggested an approach towards dealing with harmful effects on others that is based on comparing the total social product yielded by alternative social arrangements (Coase, 1960). Therefore, interference caused by one user against other could be allowed if societal benefits are much more rather than in the case of delimiting interference. Coase's idea was appealing and gathered support among academics – see, for example, Coase (1998), Hazlett (1998, 2001) and Marcus (2004).

In particular, the first attempt to design spectrum property rights was in 1969 when Vany, Eckert, Meyers, O'hara, and Scott (1969) proposed a spectrum property right package called 'TAS' – time, area and spectrum. The TAS approach was influenced by Coase's concept of choosing arrangements that aim to maximise total societal benefits (Marcus, 2004). However, the proposal was abandon by the Federal Communications Commission (FCC). Following this many scholars attempted to find the optimal design for spectrum property rights (see, for example, Cave & Webb, 2003, 2012; Vries & Sieh, 2012).

However, for many decades, there have been no practical implementations for such theoretical designs until the convergence between different wireless services brought back to life the notion of spectrum property rights as suggested by Coase (1959). More specifically, there have been calls to perceive spectrum as an infrastructure asset used to deliver different applications to the end user instead of traditionally allocating spectrum exclusively for particular services (Legutko, 2008). Moreover, defining exclusive property rights to the use of the spectrum in a specific geographical area and applying technical rules to limit the interference between licensees has been suggested as part of the move towards a market-based approach of spectrum management (Baumol & Robyn, 2006). One of the first practical implementations of Coase's idea was initiated in Europe in 2005 under the name 'Wireless Access Policy for Electronic Communication Services' (WAPECS).

This paper aims to examine the issue of spectrum property rights with a focus on the WAPECS concept in terms of the perceptions of different stakeholders, its influence on the market, conformity with the international radio regulations (RR), and European attempts to align the international service allocation framework with WAPECS. The main rational for focusing on WAPECS is that it is one of the few empirical applications of spectrum property rights on a large scale. Other countries that have adopted similar concepts are geographically separated such as Australia (Cave & Webb, 2003), have a small population and geographical territory like Guatemala and El Salvador (Hazlett & Muñoz, 2006), or abandoned the concept due to implementation difficulties such as the case of 'interference temperature' in the United States (Weiser & Hatfield, 2008) and 'spectrum usage rights' (SUR) in the UK (Eurostrategies & LS-Telecom, 2007). In addition, while the concept of spectrum property rights may not be explicitly mentioned in a country's spectrum policy, it has helped to solve some interference issues without referring explicitly to the concept but rather through adopting it implicitly – for example, interference from fourth-generation base stations into radars systems and TV receivers in France (Deffains, 2013). Therefore, the concept is an important element in any spectrum management approach.

The rest of the paper is organised as follows. The following section provides a brief overview of WAPECS before Section 3 explores the methodological stance adopted. Section 4 explores perceptions regarding WAPECS, and then Section 5 assesses the influence of WAPECS on the market. Section 6 examines the influence of the RR on WAPECS, before Section 7 traces the European attempts to introduce flexibility to the international service allocation framework. Section 8 is a discussion over the different issues related to WAPECS, while conclusions are drawn in the final section.

2. Understanding WAPECS

WAPECS was the response to different calls within the European Union (EU) to reform the traditional approach to spectrum management, 'Command and Control', towards a more market driven approach (Gulyaev, 2011; Selek, 2008). The roots of these calls could be traced back to the European Commission (EC) green paper on spectrum policy which aimed to facilitate competition via flexible planning of spectrum use (European Commission, 1998). WAPECS was proposed in the context of the i2010 Information Society Initiative to ensure that spectrum is available across a wide variety of services and applications within the EU (Akalu, 2006).

WAPECS was also motivated by the perception that any communication service could be delivered through any platform and that removing restrictions associated with individual spectrum bands would promote competition between the different delivery systems (Forge, Horvitz, & Blackman, 2012). It was also thought that spectrum use liberalisation and WAPECS specifically could limit anti-competitive behaviours (Cave, 2010). There are also different issues which called for a concept such as WAPECS including the calls by the second-generation (2G) operators for more flexibility in their licenses in order to help them move towards third-generation (3G), the measures taken by regulators outside Europe towards flexibility, and convergence at the technological level (Delaere, 2007).

In 2004 the EC issued a request for opinion to the Radio Spectrum Policy Group (RSPG)[1] to develop and adopt an opinion on a coordinated EU spectrum policy approach concerning what was called at that time 'Wireless Access Platforms for Electronic Communications Services (WAPECS)'. The RSPG conducted a public consultation on WAPECS and a range of views were received from the industry (ComReg, 2005). The responses were varied, with limited agreement among those who replied as both broadcasters and mobile operators sought to protect their interests (Sutherland, 2006).

[1] RSPG advises the EC on spectrum policy issues.