

Chapter XVII

Patents and Standards in the ICT Sector: Are Submarine Patents a Substantive Problem or a Red Herring?

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ABSTRACT

Multiple cases have been reported in which patents have posed dilemmas in the context of cooperative standard setting. Problems have come to the fore with regard to GSM, WCDMA, and CDMA standards, for example. Furthermore, JPEG and HTML standards, as well as VL-bus and SDRAM technologies, have faced patent-related difficulties. Nevertheless, it could be argued that complications have arisen in only a small fraction of standardization efforts, and that patents do not therefore constitute a real quandary. This article assesses the extent and the causes of the patent dilemma in the ICT sector through a brief analysis of how ICT companies' patent strategies and technology-licensing practices relate to standard setting and by exemplifying and quantifying the problem on the basis of relevant articles, academic research papers, court cases and on-line discussions. Particular attention is paid to so-called submarine patents, which bear most significance with respect to the prevailing policy concern regarding the efficacy of the patent system.

INTRODUCTION

Background

Our society is filled with various types of standards, commonly agreed ways of doing things.

Standards may be sociocultural, political, economic, or technical. Language is a standard, the metric system is a standard, and so is our social etiquette (Cunningham, 2005). Technical standards could be defined as any set of technical specifications that either provide or are intended

to provide a common design for a product or a process. They range from a loose set of product characterizations to detailed and exact specifications for technical interfaces. Some of them control product interoperability, some ensure quality or safety, and some are so-called measurement standards (Grindley, 2002).

Particularly interoperability/compatibility standards are paramount in industries such as information and communications technology (ICT) that are dependent on interconnectivity. In fact, the telecommunications industry has relied on them throughout its history. These standards define the format for the interface, allowing different core products, often from different manufacturers, to use the same complementary goods and services, or to be connected together as networks (Grindley, 2002; Teece, 2000). Thus, interoperability standards enable gadgets to work together and thereby they further the goal of increased communicative potential. This follows that their use may also lead to financial benefits due to so-called network externalities (Cunningham, 2005; Shurmer & Lea, 1995). These strong network effects are present when a product or a service becomes more valuable to users as more people use it. Examples of products that benefit from network effects include e-mail, Internet access, fax machines, and modems (Shapiro & Varian, 1999).

A further economic effect of interoperability standards is that they reduce the switching costs from one supplier to another by preventing producers and consumers from being locked into a proprietary system. Standards, however, do not totally eliminate switching costs. When producers and users become committed to a particular system or standard, and the longer they stay with it, the more expensive and difficult it is for them to switch to another that is comparable (Blind, 2004). Consequently, due to these strong economic effects, control of the outcome of standard setting may yield significant economic advantage on the sale of both core and related products (Hjelm,

2000). Patents that provide their holders with a defined right to prevent others from making, using and selling an invention can be used to gain that leverage or to control the adoption of a standard. Therefore, potential conflicts between patent rights and the need for standardization affect the ICT industry and the consumers at large, and these economic effects need to be bared in mind when examining the deficiencies of prevailing standard-setting procedures and the legal framework.

This article studies the patent-related dilemmas that may arise both in the course of standard setting and after the standard has been established. Potential conflicts and their causes are identified and exemplified on specific case studies, and the study of Blind, Bierhals, Thumm, Hossain, Sillwood, Iverser, et al. (2002) is used to quantify the problems further. The aim is to find out whether the problem with patents, particularly with so-called submarine patents, is substantial, or whether it is only a minor concern that has attracted undeserved attention. Term “submarine patent” is used here for patent applications and patents that may yield significant economic power because they “read on” a standard and come to the fore after it has been established.

Standardization and Patents in General

Standards can be established in many ways: the markets determine *de facto* standards, and organized standards bodies agree upon *de jure* standards. These bodies could be said to include government legislators, official standards organizations, various industry committees, and consortia. Unlike *de facto* standards, *de jure* standards are usually established in advance and are later implemented by multiple vendors (Grindley, 2002; Messerschmitt & Szyperski, 2003; Mueller 2001).

Standards emerge from all the sources in the ICT sector listed previously. The Internet Society

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