

## Chapter 72

# Valuing Standard Essential Patents in the Knowledge Economy: A Comparison of F/RAND Royalty Methodologies in U.S. Courts

**Bowman Heiden**

*Chalmers University of Technology, Sweden*

### **ABSTRACT**

*This paper comparatively examined the valuation methodologies put forward and accepted in four recent FRAND cases adjudicated in the US in 2013-14 and found a link to the business models (i.e. value logics) employed by the actors and the type of standards involved. This indicates that the value of standard essential patents (SEPs) may be dependent on the market structure under which standards are developed. Additionally, valuation models based on prior license agreements seem to currently produce higher valuations of SEPs, everything else equal. However, a lack of agreement by the different courts regarding similar valuation methods indicates the value of SEPs still lacks consensus on both legal and economic grounds, especially in relation to new knowledge-based business models and norms. This suggests that policy makers (both within SSOs and government) should take pause in further defining IPR policies and adopting new patent regulations without a deeper understanding of the potential impact to both dynamic and static economic efficiency in respect to an emerging new division of innovation labor and knowledge-based business models. This is particularly relevant as the studied cases confirm that lack of empirical evidence that perceived problems such as patent holdup and royalty stacking are more than a merely contractual/transactional phenomenon that can't well be addressed on a case-by-case basis by the courts.*

DOI: 10.4018/978-1-5225-9615-8.ch072

## 1. INTRODUCTION

The convergence of computing, Internet, and telecommunications has created intense competition over intellectual property in recent years. This is due to the fact that multi-technology products, such as smartphones and tablets, include thousands of patents across a broad range of technical functions that are owned by many different actors from disparate sectors, all of which competing to receive a share of the expanding telecommunications market<sup>1</sup>. Additionally, all devices are increasingly becoming telecommunication-enabled through wireless functionality (i.e. smart devices) in what has been labeled as the Internet of Things (IoT), which in turn opens up new opportunities for telecommunication actors in non-traditional markets<sup>2</sup>. Thus technology convergence has created new innovations and markets, but also increased competition by actors with different intellectual property and business norms.

One major area of contention regards intellectual property and technology standards<sup>3</sup> in the ICT sector, in particular, the pricing of licenses for patents essential to the implementation of a technology standard (i.e. standard essential patents). As each patent essential to the standard could theoretically be used to block or delay the implementation, most standard setting organizations (SSOs) have developed IPR policies to govern the open use of patents essential to the standard on fair, reasonable and non-discriminatory (F/RAND) terms<sup>4</sup>. These policies are meant to increase the adoption and diffusion of the standard by reducing the uncertainty of patent holdup<sup>5</sup> among implementers who will make irreversible, standard-specific investments before having obtained licenses from all the actors holding standard essential patents<sup>6</sup> (SEPs). Thus F/RAND agreements can be seen as an incomplete contract designed to solve patent holdup by ensuring access to patented technology but allowing the terms to be resolved through bilateral market negotiations outside of the SSOs, which alleviates antitrust concerns.

In 2013-14, the US federal court system issued several rulings determining the royalty rate of standard essential patents (SEPs) under F/RAND commitment to standard setting organizations (SSOs). While not generating as much popular press as the smartphone wars between Apple and Samsung, these cases represent the culmination of a growing battle over the distribution of profits in the telecommunication value chain between technology owners and technology implementers fought through the context of standard essential patents and the F/RAND agreements under which they are licensed<sup>7</sup>. From a downstream manufacturing perspective, SEPs are a cost to be minimized, while for an upstream technology provider, SEPs represent the output of its R&D investments from which it looks to maximize its return. This new mode of vertical competition in the value chain has opened up for new business models and new roles for intellectual property that challenge the traditional industrial norms. This has in turn generated a growing sentiment that the patent system is broken and no longer supports innovation (e.g. Boldrin and Levine, 2012; Jaffe & Lerner, 2011; Bessen & Meurer, 2008). Thus, these court cases not only have a strong influence on the value of patents in the telecom industry, but on the efficacy of the patent system as a whole to support the emergence of a new knowledge-based business models and a new division of innovative labor in the knowledge economy.

Theoretical concerns emerged around the turn of the century over the sheer increase in the number of patents (i.e. patent thickets) and the increase in the number of different patent holders (i.e. royalty stacking), which created an influential strand of literature around what has been termed, patent holdup (e.g. Lemley & Shapiro, 2007; Farrell et al., 2007; Shapiro, 2001). Proponents of patent holdup claim that patent owners are able to command royalties greater than the value of the contribution of their patents by capturing the value of investments of specific-purpose assets by downstream actors. More specifically, in standardization contexts, holdup is interpreted as claiming the economic value of a standard as

30 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/valuing-standard-essential-patents-in-the-knowledge-economy/232866](http://www.igi-global.com/chapter/valuing-standard-essential-patents-in-the-knowledge-economy/232866)

## Related Content

---

### The Present Context of Sustainable Development in Romania

Marinela Ilie (2021). *International Journal of Sustainable Economies Management* (pp. 1-9).

[www.irma-international.org/article/the-present-context-of-sustainable-development-in-romania/288063](http://www.irma-international.org/article/the-present-context-of-sustainable-development-in-romania/288063)

### E-Organization and the Sustainable Information Society

Uwe Schneidewing (2005). *Information Systems for Sustainable Development* (pp. 146-163).

[www.irma-international.org/chapter/organization-sustainable-information-society/23454](http://www.irma-international.org/chapter/organization-sustainable-information-society/23454)

### Strategies for the Development of New Products in the Spanish Agri-Food Industry

Silverio Alarcón, Luis González Polonio and Mercedes Sánchez (2014). *E-Innovation for Sustainable Development of Rural Resources During Global Economic Crisis* (pp. 181-198).

[www.irma-international.org/chapter/strategies-for-the-development-of-new-products-in-the-spanish-agri-food-industry/82858](http://www.irma-international.org/chapter/strategies-for-the-development-of-new-products-in-the-spanish-agri-food-industry/82858)

### Bio-Farming as the Basis of Environmentally-Sustainable Arable Farming at the Time of Global Warming

Olga Pasko, Natalia Staurskaya, Alexandr Zakharchenko, Valeriy Zharnikov and Yuriy Larionov (2020).

*Handbook of Research on Agricultural Policy, Rural Development, and Entrepreneurship in Contemporary Economies* (pp. 43-70).

[www.irma-international.org/chapter/bio-farming-as-the-basis-of-environmentally-sustainable-arable-farming-at-the-time-of-global-warming/243933](http://www.irma-international.org/chapter/bio-farming-as-the-basis-of-environmentally-sustainable-arable-farming-at-the-time-of-global-warming/243933)

### Restrictive Factors for Economic Growth in Developing Countries

Bucur Ion and Bucur Cristian (2013). *International Journal of Sustainable Economies Management* (pp. 55-62).

[www.irma-international.org/article/restrictive-factors-for-economic-growth-in-developing-countries/105996](http://www.irma-international.org/article/restrictive-factors-for-economic-growth-in-developing-countries/105996)