

## Chapter 1 Introduction: Putting Patent Pools into Perspective

Patent pools are essentially agreements where different patent holders “pool” together, i.e. assemble, their respective technologies in order to license them as a unique “package” to third parties.<sup>1</sup> Nowadays, in response to the globalisation of technologies and more severe conditions of competition, resulting in a faster pace of innovation also at an international level, technology pools have increasingly gained relevance as successful cooperative IP licensing models.<sup>2</sup>

Reflecting the importance won by such practices, the purpose of this contribution is to outline the defining features and the strategic considerations underlying the establishment of patent pools, both in a legal and empirical context, in order to identify the best conditions for such cooperative practices to prosper in a competitive setting, with a view to cultivating innovation.

In this respect, attention will be brought both to the internal organizational framework adopted, with regard to the particular nature of the technologies involved, and on the legislative treatment that patent pools have been reserved in different jurisdictions, with particular attention to the EU and US systems,<sup>3</sup> in a global perspective.

In fact, there are many questions still to be answered, and correspondingly many new fields of application in which the successful implementation of patent pools still needs to be explored. However, within the scope of this research project, the present contribution hopes to shed at least some light on and raise interest in such collaborative IP mechanisms and their goal to promote technology access.

- 1 Taking the European system as our standpoint and referring to the legislative interpretation adopted by the Commission Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, Technology pools are defined as: “arrangements whereby two or more parties assemble a package of technology which is licensed not only to contributors to the pool but also to third parties”, in O.J. C 101, 27/04/2004.
- 2 For a contextual analysis picturing patent pools in a wider policy context, see also: Ullrich H., “Patent Pools – Policy and Problems”, In: Drexl J. ed.: Research Handbook on Intellectual Property and Competition Law, Cheltenham, UK, Northampton, MA, USA, Edward Elgar, 2008, p. 139 *et seq.*
- 3 The legal and empirical analysis of patent pools within the Japanese system, on the other hand, has constituted the theme of a separate dissertation by this author, pursuant to a research invitation program sponsored by the Japanese Patent Office (JPO) at the Institute of Intellectual Property (IIP) in Tokyo, between May and August 2008. In this respect, see: Armillotta M., “Japanese Guidelines on Standardization and Patent Pools Arrangements: Practical and Legal Considerations under the Current Antimonopoly Act – A Global Perspective”, Institute of Intellectual Property, Book Series, October 2008.

## **A. Promoting Patent Access through Collaborative IP Mechanisms: Encountered Problems and Desired Outcomes**

### **I. Finding a Way Through the “Patent Thicket”**

This study deals primarily with patent pools, as a type of collaborative IP model, to show how and under which conditions - bearing in mind antitrust concerns in the framework of the main western systems under consideration - collective licensing schemes could be effectively implemented to promote access to patented technologies, eventually fostering scientific and economic progress. Therefore, our practical aim is to illustrate how patent rights can be exploited to forge sustainable partnerships, extracting value from collaboration and sharing.

In these premises, in order to justify the relevance of this contribution it is important to outline the actual problem to be dealt with, as that will provide the starting platform on which to build a constructive solution, as supported and further developed at the core of this dissertation. In fact, we believe that every problem, if not isolated, but instead considered in its concrete context, can be seen as an input for improvement.

Now, the observation of our economic and social environment leads us to a factual evidence: nowadays technologies have become more and more complex. Indeed, competitive pressure for interoperability, increased functionality and improved product performance are to a great extent driven by a growing consumers' demand.<sup>4</sup> From the side of the consumers to the one of the producers, this pressure leads to an urgent need for different patents, which are typically held by multiple right holders and which are simultaneously needed in order to develop new products based on complex technologies.

Under a legal angle, we can assist in these latest years in a big “explosion” of patent awards, reflecting a more widespread recognition of the fundamental importance intellectual property rights have assumed in our “knowledge-based society”. From an international perspective, the strong increasing trend recently registered in patent applications follows the establishment of the World Trade Organization (WTO) in 1995 and the simultaneous coming into force of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),<sup>5</sup> which made a more exten-

4 The economic pressure to resolve blocking patent positions and extract value from patents is thoroughly analyzed by Haller M. and Palim M., “The Rise and Rise of Patent Pools”, *Intellectual Asset Management Magazine*, October/November 2005, Issue 14, p. 9 *et seq.*

5 The Agreement on Trade-related Aspects of Intellectual Property Rights (hereinafter TRIPS) has been concluded under the general umbrella of the WTO Agreement, establishing the World Trade Organization, adopted at Marrakech in April 1994 (hereinafter WTO). The TRIPS constitutes indeed Annex 1 C of the WTO. Within part. II of TRIPs, on the “Standards Concerning the Availability, Scope and Use of Intellectual Property Rights”, Section 5 is dedicated to “Patents”. A full version of the TRIPS is available at: [http://www.wto.org/english/tratop\\_e/trips\\_e/t\\_agm0\\_e.htm](http://www.wto.org/english/tratop_e/trips_e/t_agm0_e.htm)

sive protection of IP rights an actual, although still expensive, possibility.<sup>6</sup> Besides, the increasing stream of applicants to patent offices is also a result of the unleashed creative potential of great nations, such as China, India, Russia and also Japan, which has been long restrained under the former regimes.<sup>7</sup>

Indeed, empirical data point to a growing confidence also in Japan's and China's economies, with Japanese inventors filing more than twice as many patent applications in 2005 as their US colleagues, and with China ranking as the fourth biggest patenting nation in the world. In fact, in 2005 statistics from the World Intellectual Property Organization (WIPO) revealed a significant yearly increase in patent applications world-wide, in particular accounting for 32.9% in China, 14.8% in the Republic of Korea, 9.5% in the United States, 6.8% in Russia and 4.1% in the European Patent Office, to quote just some telling figures.<sup>8</sup>

The most extreme case is represented by China, registering, within the time-span from 1995 to 2005, a 834% increment for domestic filings and 819% for non-domestic ones. Besides, the statistics for Japan were also symptomatic: whereas the rise in residents' applications was constant at about 1% per year, the surge of filings from abroad by 69% is representative of the domestic impact pursuant to the abolishment of the former trade barriers with the outside and the corresponding opening of the Japanese market.<sup>9</sup>

Just to illustrate this figures with some concrete numbers:<sup>10</sup> Japanese inventors applied for 300,623 patents in 2005 compared to 149,936 patents filed by US applicants. China topped the 32,521 patents submitted by tech-heavy South Korea with 40,821 applications. Japan and the US are in fact the two top countries, followed by Germany, where 47,651 patents were submitted. China is fourth-ranked, followed by South Korea in fifth place. Next come Russian inventors with 17,384 submitted patents, then French inventors with 11,394 patents and the UK with 10,378 patents. Taiwan is in ninth place with 4,973 patents filed, followed by Italy with 3,724 patents.<sup>11</sup>

- 6 For an engaged discussion on the impact of TRIPS on competition, see: Drexel J., "Intellectual Property and Competition: Sketching a Competition-Oriented Reform of TRIPS", In: Bakardjieva Engelbrekt, Antonina / Ulf Bernitz, Bengt Domej, Annette Kur, Per Jonas Nordell ed.: *Festkrift Marianne Levin*. Stockholm, Norstedts Juridik, 2008, p. 261 *et seq.*
- 7 The current scenario of the rise in patent applications, and its deeper underlying economic and legal grounds, has been effectively depicted, most recently, by: Straus J., "Is There a Global Warming of Patents", *The Journal of World Intellectual Property*, vol. 11, no. 1, p. 58 *et seq.*
- 8 See: World Intellectual Property Organization (hereinafter WIPO), "Patent Report - Statistics on Worldwide Patent Activities", Geneva 2007, figure B. 3, p. 12, available at: [http://www.wipo.int/freepublications/en/patents/931/wipo\\_pub\\_931.pdf](http://www.wipo.int/freepublications/en/patents/931/wipo_pub_931.pdf)
- 9 Such figures are reported and commented in: Straus J., *supra*, fn. 7, p. 59-60.
- 10 From: "Patent fever grabs Japanese and Chinese inventors", *Managing Intellectual Property Magazine*, Weekly News - January 2006.
- 11 For a supporting analytical background, see: UNESCO Institute for Statistics (UIS), "What do Biometric Indicators Tell Us About World Scientific Output?", *UIS Bulletin on Science and Technology Statistics*, Sept. 2005, vol. 2, p. 1 *et seq.*

This “rush” to secure patent grants entails that it has become increasingly hard to innovate without infringing on prior IP rights detained by different holders, given the presence of partly overlapping patents, thereby figuratively treading on each other’s feet. This scenario has been stigmatised in the patent literature as the one of the so-called “blocking patents”, leading to the compelling metaphor of a “patent thicket”.<sup>12</sup> The ensuing problem that needs to be faced is that, as might be expected, when confronted with litigation companies or, even more, individuals are more “vulnerable”, thus being more likely to accept and conclude less favourable and, depending on the other party’s “force of persuasion”, even quite inequitable deals. This is due to the threat of the alternative of having to face litigation,<sup>13</sup> which would lead on a lengthy and costly path with an uncertain end.

Alongside the registered proliferation of IP rights, another discernable trend in IP has been the expansion of licensing activities. In this respect, it has been reported that the growth of royalties and revenues from patent licenses collected worldwide amounted to almost 80 billion US dollars in the year 2000 alone, about eight times higher than the respective figure registered in 1983.<sup>14</sup> Confirming the same tendency, substantial licensing statistics were reported also in a subsequent study based on a survey of about 500 firms that concluded licenses in the US and Canada in 2004: in total, more than 14 billion US dollars of in-licensing revenues were accounted.<sup>15</sup> As far as Europe is concerned, similarly notable figures were registered: statistical results showed that on average 10% of all patents were licensed by their holders.<sup>16</sup>

In this respect, looking at the current dynamics of our market, a wide-ranging survey conducted in 2006 with executives across Europe revealed that companies are becoming more aware of the strategic importance of their IP rights. The identified challenge for undertakings is therefore to align their business and patent licensing tactics more closely. As it has been determined, this involves the recognized need of building stronger IP portfolios in order to gain business and technological edge, by collaborating with other firms so that innovative processes may reach the market in a more piercing way.<sup>17</sup>

- 12 Shapiro C., “Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standards-Setting”, University of California at Berkeley, March 2001, available at: <http://www.haas.berkeley.edu/~shapiro/thicket.pdf>
- 13 For an interesting overview on the scenario of patent litigation in Europe, see: Straus J., “Patent Litigation in Europe - A Glimmer of Hope? Present Status and Future Perspectives”, Washington University Journal of Law and Policy, 2000, p. 403 *et seq.*
- 14 Athreye S., “Creating Competition? Globalization and the Emergence of New Technology Producers”, Research Policy, 2007, vol. 36, p. 209 *et seq.*
- 15 Razgaitis R., “US / Canadian Licensing in 2004: Survey Results”, Les Nouvelles, 2005, vol. 35, p. 145 *et seq.*
- 16 Giuri P. *et al.*, “Inventors and Invention Processes in Europe”, Survey Results, Research Policy, 2007, vol. 36, p. 1107 *et seq.*
- 17 The survey was conducted in September and October 2006 and involved overall 405 senior executives from across Europe. For details, see Tyrrell P., “The Value of Knowledge: European Firms and the Intellectual Property Challenge”, Economist Intelligence Unit White Pa-

All these data point to highly profitable “markets for technology”,<sup>18</sup> where innovations are traded, thereby opening the way for downstream dissemination of IP. Accordingly, the registered rising trends both in patent registrations and licensing activities are seen as positive indicators of innovative growth, representing driving factors of economic progress. However, the potential for such technology markets is still not fully utilized, since in industrial sectors characterized by particularly dense and scattered IP rights, resulting in “patent thickets”, inefficiencies may arise, imposing additional costs and drags on downstream product developments, thereby obstructing the way for innovation.<sup>19</sup>

Within this perspective, this contribution is dedicated to exploring strategic ways in which the encountered costs may be reduced by facilitating access to IP rights, so that markets for technologies can function more efficiently and their actual potential can be unveiled. In this respect, this research is going to focus on voluntary business schemes, operating through free market mechanisms, rather than mandatory regulatory or legal approaches, such as compulsory licensing or research exemptions. In this context, the models considered are going to encompass multiparty IP licensing strategies, such as patent pools and clearinghouses, imprinted to a collaborative, but still pragmatic spirit.

## II. The Solution Offered by Collaborative IP Mechanisms: A Brief Overview

### 1. Patent Pools

Faced with this situation which is occurring ever more often today, “prevention” is certainly better than “cure”: in this sense, entering a patent pooling agreement – where competitors, i.e. potential infringers, become contributors, i.e. business partners – at an earlier stage would prevent the “collateral effects” of a patent thicket. Indeed, the terms governing a patent pooling licensing agreement are typically beneficial to all participants, providing for free or low-cost access to all pooled technologies and a fair distribution of the third parties’ incoming licensing fees. In the end, right owners can win respective blocking positions by bringing their technologies together, while granting each other access, thereby overcoming the impasse of these

per, January 2007, also available at:

[http://graphics.eiu.com/files/ad\\_pdfs/eiu\\_EuropeIPR\\_wp.pdf](http://graphics.eiu.com/files/ad_pdfs/eiu_EuropeIPR_wp.pdf)

- 18 Arora A. *et al.*, “Licensing the Market for Technology”, *Journal of Economic Behavior and Organization*, 2003, vol. 52, p. 277 *et seq.*
- 19 For an economic study of patent pools and intellectual property clearinghouses, as systems for promoting efficient access to licensable IP and thereby enhancing a market for technology, see: Aoki R., “Promoting Access to Intellectual Property: Patent Pools, Copyright Collectives, and Clearinghouses”, *R&D Management*, March 2008, vol. 38, issue 2, p. 189 *et seq.*