

# Are Open Innovation companies challenged by Patent and Competition Laws?

Seyed Kamran Bagheri

## Introduction

The notion of Open Innovation, as coined by Henry Chesbrough, points to the emergence of a new era in which valuable ideas can originate from the inside or outside of companies and can go to market from inside or outside of companies as well. This can mean the erosion of the Closed Innovation paradigm, which asks for trusting and sufficiently funding the world-class research talents, and waiting for them to come up with new innovations that will somehow find a path to the market<sup>1</sup>. This paradigm also urges firms to be strongly self-reliant, because one cannot be sure of the quality, availability and capability of others' ideas<sup>2</sup>.

Open Innovation companies should place external ideas and external paths to market on the same level of importance as that of internal ideas and paths to market during the Closed Innovation era. In the new situation, companies must be prepared to leverage distributed pools of innovative ideas, instead of ignoring them and focusing on the outputs of their internal Research and Development (R&D). In addition, companies should not warehouse their technologies until their own businesses can make use of them<sup>3</sup>.

The Open Innovation paradigm assumes that there is an increasing supply of potentially useful ideas outside the firm. However, without a proper appropriability regime, inventors can become less interested in sharing such ideas with others, which in turn gravely reduces the potentials of such a supply. It has been argued that innovators, if confronted by weak intellectual property (IP) protection, would be forced to expand their activities through vertical integration and bring innovative products or services into market by themselves, hoping to prevent low-cost imitators from capturing all the profits from their innovations<sup>4</sup>. Nevertheless, there are exceptional cases, as exemplified by firms investing on Open Source Software, in which the innovators have not

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<sup>1</sup> H. CHESBROUGH, *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Boston: Harvard Business School Press, 2003.

<sup>2</sup> H. CHESBROUGH, *Managing open innovation*, *Research-Technology Management*, 23-26 (January-February), 2004.

<sup>3</sup> H. CHESBROUGH, *supra*, note 1.

<sup>4</sup> D. TEECE, *Profiting from technological innovation: implications for integration, collaboration, licensing and public policy*, in *Research Policy* 1986, 15/6, 285-305.

pursued exclusivity over their IPs, and have rather indirectly generated returns through spillovers or sale of related goods and products<sup>5</sup>.

Following such vertical integration, due to the lack of appropriability, clearly leads to traditional Closed Innovation practices. Furthermore, a good level of legal protection, at least in theory, ensures innovators of the security of their potential profit and enables them to select their boundaries simply based on their ability to identify problems and respond to them in an innovative way. It means moving away from do-it-all-yourself approaches and choosing external paths to market for ideas and technologies developed in house. Therefore, it can be said that the emergence and growing interest in Open Innovation practices is, to some extent, the result of the presence of an appropriation system and also a sign of its growing strength.

The formal appropriability depends very much on IP rights, which in turn act as an underlying factor in the growing significance of open innovation paradigm. The critical role of IP rights and the fact that Open Innovation companies should act as active buyers and sellers of IPs<sup>6</sup> have caused scholars to pay a great deal of attention to the role of IP in the Open Innovation companies. In fact, even in the first book written on and also entitled “Open Innovation”, in 2003, IP was considered as a core issue that has been dealt with in detail within different chapters. However, most of the research done so far is focused on the way Open Innovation companies should manage their IP portfolio as an integral part of the company’s technology strategy. In other words, they have been asked to manage IP at a strategic level within the company. Also, the link between IP and Open Innovation Companies’ business model has been well addressed by researchers arguing that the companies should manage IP to enhance their business models and should also look for new business models for inventions that don’t fit into their present models. Most of the prior research has also been focused on patents because they are the leading source of trade in IP and many of the issues in managing patents will also apply to the management of other types of IP.

Nevertheless, the intersection of Patent and Competition laws and Open Innovation paradigm has not received enough attention from scholars. Especially, the effects of general trends in patent law on the adoption of Open Innovation practices, and vice versa are still untouched. One of the most important researches in the field has been done by West<sup>7</sup> who investigated the fundamental

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<sup>5</sup> J. WEST and S. GALLAGHER, *Challenges of Open Innovation: The Paradox of Firm Investment in Open Source Software*, R&D Management, 36, 3, 2006, pp. 315-328.

<sup>6</sup> H. CHESBROUGH, *supra*, note 1, p. 155.

<sup>7</sup> J. WEST, *Does Appropriability Enable or Retard Open Innovation?* in H. CHESBROUGH, W. VANHAVERBEKE and J. WEST, eds., *Open Innovation: Researching a New Paradigm*. Oxford: Oxford University Press, 2006, pp. 109-133.

relations between Open Innovation and “appropriability” mostly from a managerial, and not legal, perspective.

In the following, the growing trend toward Open Innovation will be looked at from a patent and competition laws point of view and the potential challenging areas will be explored under four separate titles. Part I of the article, looks into the hot topic of “optimal scope of patent protection”, the effect of which on the growing demand for open innovation solutions will be examined. In Part II, the concept of “Patent Trolls” will be reviewed and the general attitudes against them among the legal authorities will be explored by looking into the emerging IP-Based Business Models and also Secondary Innovation Markets in Open Innovation context. Part III, takes a look at the “territorial” nature of patent rights and its consequences on Open Innovation companies. Part IV then considers the outward movement of technology from Open Innovation companies, in the form of cross-licensing, patent pooling or simple license-out arrangements, in the light of the limitations posed thereon, from “Competition Law” authorities. In doing so, I will try to identify the potential challenge areas and briefly examine the policy implications thereof. However, pinpointing the possible solutions falls outside the scope of this paper.

## **I. An optimal scope of patent protection**

Determination of a proper patent scope has been the subject of policy debates for a long time<sup>8</sup>. The range of exclusivity given to the patentee is defined by the patent scope, which has two basic components- namely the literal and equivalent scopes. The claims include a textual description of a patent’s boundaries, which establish the literal scope of protection afforded to the patentee. The exact coverage of this literal claim scope is determined by interpreting the claim language in the court. Therefore, literal infringement is the unauthorized practice of the subject matter contained within the fence defined by the claim language. The scope of protection granted to a patent, however, goes beyond the literal boundaries defined by the claim language. Patents also give their owner exclusivity over equivalents to the claimed invention. This extra protection is added by the judicially created “doctrine of equivalents.” A patent can, therefore, be infringed in two ways—literally or under the doctrine of equivalents. Much of the debates on proper patent scope are, therefore, about the reach of equivalent scope of patent claims<sup>9</sup> that can even give the patent

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<sup>8</sup> see, e.g. R. J. GILBERT and C. SHIPARO, *Optimal Patent Length and Breadth*, RAND Journal of Economics 21, no. 1, Spring 2001, pp. 106-112; and P. KLEMPERER, *How broad should the scope of Patent Protection be?*, RAND Journal of Economics, Spring 1990, pp. 113-130; J. LEMER, *The importance of Patent Scope: An empirical analysis*, RAND Journal of Economics 25, no. 2, Summer 1994, pp. 319-333; R. MERGERS and R. NELSON, *On the complex economics of Patent Scope*, Columbia Law Review 90, 1990, pp. 844-45.

<sup>9</sup> R. COOTER and T. ULEN, *Law and Economics*, Second edition, Addison-Wesley publication, 1996, pp. 120-121

holder exclusivity over implementations of her invention with later-developed technologies<sup>10</sup>. In the following discussion, the arguments in favor of and against establishing a broader patent scope or stronger patent protection and their effects on Open Innovation practices are examined.

**a) Calls for narrower patent scopes**

The move toward more open practices is to some extent due to the increasing cumulative and distributed nature of innovation. In other words, in almost all industries, new technologies are modifications of or improvements to current technologies. Therefore, most of technical advancements are taking place through incremental, cumulative steps.<sup>11</sup> Some scholars argue that patent scopes should be narrowed in the face of networked and cumulative technologies. They base their arguments on two different grounds. The first one<sup>12</sup> is related to the incentive function of a patent system. The theory behind this, which is usually referred to as “incentive to invent” theory, holds that—due to the public goods nature of information—without the prospect of a property right, inventors would be unable to recoup their research and development costs because third parties could simply copy the invention and compete with the inventor who is at a disadvantage due to the need to recover fixed costs<sup>13</sup>.

Having this in mind, we can conclude that the ability of a patent holder to capture future modification of his invention due to a broader interpretation of his patent scope, via the doctrine of equivalents, can deter the potential improver. This means that the broader protection creates a disincentive to develop or use new technologies in combination with already existing technologies<sup>14</sup>. The potential follow-on inventors are deterred because they fear being captured in an already patented invention’s range of equivalents. There are plenty of court decisions, e.g. *Warner-Jenkinson*<sup>15</sup>, which show that patent claims in the light of the equivalents doctrine can capture follow-on or so-called “After-arising” technologies<sup>16</sup>

Thus, the first group of scholars who argue in favor of a narrower patent scope, insist on its role in stimulating research of a complementary and cumulative nature, which is perfectly in line with the requirements of Open Innovation.

The counter argument refers to the long term effects of broader patent scopes on fundamental research. Approving of a narrower scope of patent protection implies that the social value of

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<sup>10</sup> C. A. COTROPIA, *After-arising technologies and tailoring patent scope*, NYU annual survey of American Law, Vol. 61: 151, 2005, pp. 151- 202

<sup>11</sup> C. A. COTROPIA, *supra*, note 10

<sup>12</sup> See R. P. MERGERS & R. R. NELSON, *On the Complex Economics of Patent Scope*, Columbia Law Review, 1990

<sup>13</sup> C.A. NARD, *The Law of Patents*, Aspen Publishers, 2008, p. 29.

<sup>14</sup> C. A. COTROPIA, *supra*, note 10

<sup>15</sup> *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 37, 1997

<sup>16</sup> Technologies developed after the filing date of the original patent.

investment on developing applications exceeds the social value of investment on fundamental research<sup>17</sup>. This means a less and less flow of investment into basic and fundamental research. Putting this into a context where there is a declining government funding for scientific research; universities move toward doing more applied research to cope with the new situation; and also the industry's decreasing interest in underwriting the bulk of the costs of early-stage research on its own are already serious concerns, makes some scholars worry about diminishing pool of available basic research to support long-term growth of Open Innovation companies.

Therefore, any attempts on narrowing patent scopes should be supported by effective governmental policies to increase the production and dissemination of basic research. Otherwise, in the long-term, this will act against its original purpose of facilitating cumulative innovation and reinforcing the move toward more Open Innovation practices.

The second ground for arguments in favor of narrowing down patent scopes is related to the network nature of innovation process and transaction costs (i.e., the costs associated with identifying owners of patents, negotiating licensing terms, etc.) of cumulative innovation producers. Since contemporary innovation is a network process and most of new ideas are the result of the recombination of elements from various firms and in various industries, producing innovative products is often beyond the capability of the lone inventor, even with the benefit of the patent monopoly<sup>18</sup>. This, in turn, refers to fragmented property rights related to new and innovative products and to substantial coordination problems and blocks rising thereupon<sup>19</sup>. That is the reason why some scholars argue that if this situation coexists with a broader patent scope, this may lead to higher transaction costs for producing cumulative innovation; since firms are forced to separately negotiate licenses with the owner of each potentially blocking patent<sup>20</sup>. Therefore a narrower claim scope is particularly useful in lowering transaction costs<sup>21</sup> in favor of cumulative innovation as a dominant phenomenon in the Open Innovation companies.

#### **b) Call for broader patent scopes**

There are scholars who point to yet another aspect of Open Innovation transactions and call for broader patent protection. They argue that Open Innovation works best when parties exchange know-how, since technology buyers who attempt to assimilate an unfamiliar technology will require access to the innovator's skill and experience; which are not perfectly codifiable and usually a great deal of them remains as tacit knowledge. However, a technology transfer process

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<sup>17</sup> R. COOTER and T. ULEN, *supra*, note 9, p. 120-121

<sup>18</sup> J. DUBIANSKY, *The Role of Patents in Fostering Open Innovation*, bepress Legal Series, Paper 1156, 2006.

<sup>19</sup> M. GLADER, *Innovation Markets and Competition Analysis: EU Competition Law and US Antitrust Law*, Edward Elgar Publishing, Massachusetts, 2006, p. 48.

<sup>20</sup> N.T. GALLINI, *The Economics of Patents: Lessons from Recent U.S. Patent Reform*, *Journal of Economic Perspectives*, 2002, 16/2: 131-154.

<sup>21</sup> C.A. NARD, *supra*, note 13, p. 65.

incorporating the exchange of tacit knowledge can be very difficult. Reaching to technology transfer agreements which also satisfy the need for know-how transfer is difficult; since they are hard to specify ex-ante, and difficult to enforce ex-post. Tacit knowledge is hard to measure, making inadequate disclosure and misappropriation difficult to police. These problems are becoming more serious by the fact that, in Open Innovation, the licensor is usually dealing with an established producer who possesses a majority of the requisite complementary assets and enjoys the majority of the bargaining power<sup>22</sup>.

Some scholars have proposed a contractual solution that uses the thread of patent-based injunction as a hostage-taking mechanism. Licensors can use the additional bargaining power afforded by patent protection to overcome opportunism of the licensee. They refer to the much stronger protection afforded by patent law as compared to trade secret law and support their model with empirical studies of Indian technology importation deals<sup>23</sup>.

This model has implications for patent policy. It argues that patent protection plays a crucial role in the success of know-how licensing. It is believed that in an Open Innovation context, patents can be used to facilitate the tacit knowledge flows necessary for breakthrough innovation. According to the teachings of this model, the broader the patent scope, the better it is in this new context. This is because patent breadth is considered as a measure of the distance to which the innovator may disseminate his innovation.

The call for a broader patent protection based on the above-mentioned model has encountered criticisms from the legal construction point of view, since it seeks to take advantage of the exclusivity power offered by the patent law to protect the know-how which does not qualify for patent protection and accordingly compel higher royalties on the associated know-how.

Although the U.S. Supreme Court has not yet ruled on the legality of hybrid patent-trade secret licenses prepared according to the above mentioned model, several circuit courts have. Such licenses are generally permitted when they are coextant with the temporal scope of the patent right. However, when a hybrid license extends royalty payments after the invalidation or expiration of the supporting patents, it is generally considered as being illegal<sup>24</sup>. Therefore, the legal uncertainty associated with broader patent scopes and the resulting limitations imposed in practicing unpatented ideas in the public domain, at least in theory, should make any real change toward stronger patent protection based on this model quite unlikely.

While a proper patent scope has been the subject of many policy debates for a long time, there has been little systematic empirical analysis of its impact on the Open Innovation practices. What

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<sup>22</sup> J. DUBIANSKY, *supra*, note 18

<sup>23</sup> ARORA, A. FOSFURI and A. GAMBARDELLA, *Markets for Technology and Their Implications for Corporate Strategy*, 2000, Available at <http://ssrn.com/abstract=204848>, p. 114-141

<sup>24</sup> J. DUBIANSKY, *supra*, note 18, p. 42.

can be said based on the points raised above is that although an appropriation system is the prerequisite of any departure from a do-it-all-yourself approach and adopting Open Innovation principles, overprotection limits networked and cumulative innovation and negatively affects Open Innovation companies, although it may facilitate better tacit know-how transfer. Thus, the general trend toward a stronger legal protection for patents over the last two decades<sup>25</sup> cannot be interpreted as conducive to Open Innovation practices. The patent and innovation policies, hence, should shift their focus from tailoring the size of incentives offered to motivating beneficial innovative behaviors in the Open Innovation context. In other words, they should focus on “growing the pie” rather than “slicing it”, since strong appropriability can make it easier for firms to identify the value capture, but not value creation<sup>26</sup>, which is the fundamental principle of the Open Innovation mentality.

## II. Patent Trolls and IP-Based Business Models

The term “Patent Trolls” was coined by Peter Detkin, from Intel Corp., to refer to companies “that try to make a lot of money off a patent that they are not practicing and have no intention of practicing and in most cases never practiced”<sup>27</sup> or in the words of a US district court judge<sup>28</sup>: patentees who “use patents not as a basis for producing and selling goods but, instead, . . . [as a] bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent.” Critics point out that patent trolls raise the level of royalties and licenses forced on a manufacturer or supplier. This increases production costs, both because of more intensive monitoring of patents databases (to avoid infringements) and of higher due payments<sup>29</sup>. They also enjoy an upper hand in patent disputes largely due to their immunity from counterclaims. Courts and competition agencies have focused on these “non-practicing” patent holders as the source of anticompetitive exclusion and hold up problems<sup>30</sup>. Accordingly, “non-practicing” patent holders or so-called patent trolls are facing increasing unfriendly treatment in different jurisdictions. This, for instance, can take the form of not granting injunctive relief upon a finding of infringement for patentees whom have been categorized as patent trolls and allowing an infringer to use an invention against the patentee’s wishes<sup>31</sup> or rolling-back the liberal provisions

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<sup>25</sup> W. M. COHEN and S. A. MERRIL, *Patents in the knowledge-based economy*, The National Academies Press, Washington D.C., 2003, pp. 14.

<sup>26</sup> J. WEST, *supra*, note 7, p. 109-133.

<sup>27</sup> A. MURRAY, *War on ‘Patent Trolls’ May Be Wrong Battle*, The Wall Street Journal, March 22, 2006.

<sup>28</sup> C.A. NARD, *supra*, note, p. 837

<sup>29</sup> EUROPEAN COMMISSION, *Intellectual Property Rights for ICT-Producing SMEs*, a Sectoral e-Business Watch Study by IDC EMEA Government Insights, Impact Study No. 08 / 2008

<sup>30</sup> D. GERADIN, A. LAYNE-FARRAR and A. J. PADILLA, *Elves or Trolls? The Role of Non-Practicing Patent Owners in the Innovation Economy*, Research Symposium on Property Rights, Economics and Innovation, November 14, 2008, available at: [http://www.law.northwestern.edu/searlecenter/papers/Geradin\\_elves\\_and\\_trolls.pdf](http://www.law.northwestern.edu/searlecenter/papers/Geradin_elves_and_trolls.pdf)

<sup>31</sup> C.A. NARD, *supra*, note 13, p. 837

regarding the venue for a patent action<sup>32</sup>. Therefore, one can conclude that there is a clear trend in the legal world toward being stricter on patent trolls by limiting their legally acquired rights.

From an Innovation management point of view, however, this conclusion may not be supported. The Open Innovation concept, as discussed earlier, is more than just being open to external ideas or licensing out more of your own ideas. It is also about being innovative in the business model, the way one creates value and captures a portion of that value for himself<sup>33</sup>. In this new era, companies have emerged that have built their own business models around IP, often to enable others to create value with that IP, or to capture value from those that may infringe on that IP. It seems clear that new IP-based business models, some of which are illustrated by Chesbrough<sup>34</sup>, are growing in importance. However, many of these emerging business models, including the business model adopted by Intellectual Ventures<sup>35</sup>, might fit well into the definition of patent troll as soon as they try to enforce their legally-acquired rights.

In Open Innovation context, a new form of a division in labor or specialization has been emerged, i.e. some non-integrated “upstream” companies specialize in creating or offering new technologies and other “downstream” companies specialize in developing new products. The important factor contributed to this specialization is the emergence of so called “Technology Markets”<sup>36</sup> or “Secondary Innovation Markets” in which, “ideas and technologies are developed by sellers and sold to buyers who take those ideas and sell them to consumers”<sup>37</sup>. Therefore, one can expect more inventors to focus more narrowly on developing technologies rather than their possible application, and relying on secondary innovation markets to appropriate the returns to their innovative efforts<sup>38</sup>.

Taking this into account, one can clearly expect that more innovative companies, or even individuals, concentrate on their core competency and do not bother themselves with the burden of putting their inventive outputs into practice, knowing that there is a market where they can offer their patent-protected inventive output as such to downstream players. The other fact that reinforces this trend is the growing number of big downstream companies that post their problems on special websites, sometimes belonging to the same secondary markets, looking for

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<sup>32</sup> J. H. WALLACE, *Are Patent “Trolls” Wrongly Named and Maligned? Do They Have a Future?*, AIPLA Annual Meeting, Washington DC, October 18, 2007, available at: [http://www.aipla.org/Content/ContentGroups/Speaker\\_Papers/Annual\\_Meeting\\_Speaker\\_Papers/200717/Wallace-paper.pdf](http://www.aipla.org/Content/ContentGroups/Speaker_Papers/Annual_Meeting_Speaker_Papers/200717/Wallace-paper.pdf)

<sup>33</sup> H. CHESBROUGH, *Open Business Models: How to Thrive in the New Innovation Landscape*, Boston: Harvard Business School Press, 2006.

<sup>34</sup> *Ibid.*, pp. xvi.

<sup>35</sup> A. MURRAY, *supra*, note 27

<sup>36</sup> ARORA, A. FOSFURI and A. GAMBARDELLA, *supra*, note 23

<sup>37</sup> H. CHESBROUGH, *supra*, note 1, p. 55

<sup>38</sup> ARORA, A. FOSFURI and A. GAMBARDELLA, *supra*, note 23

potential problem solvers to come up with the right answers. This makes the innovative companies working on the same area very sure from the very beginning that there is a real demand for their output.

Patents held by non-practicing entities that appear as upstream specialists can offer a number of pro-competitive benefits too. First, these patents facilitate the entry of specialists into a market, which in turn increases the competition and lowers the prices that consumer pay. Second, specialization leads to higher quality. Third, specialization brings about more innovation in the upstream, as competitors are forced to innovate to remain competitive in the market<sup>39</sup>.

Besides, more entrepreneurs can obtain patent rights from the above-mentioned secondary innovation markets or even from universities that increasingly assert IP rights over their innovations and actively pursue licensing them<sup>40</sup> through their Technology Transfer Offices. These non-practicing entrepreneurs who can realize the value behind the offered rights (the values which are not recognized by the offering party or even companies who produce and sell the related products in the market) will try to license them to downstream companies with related product lines or capture value from manufacturers that may infringe on those rights. In many cases, the intervention of these entrepreneurs, contributes to innovation process by (1) increasing the liquidity of IP rights by providing a ready market for patents unexploited by their inventors, (2) facilitating legal access to IP by pooling patents related to a certain technology from different inventors, and (3) increasing the rewards for inventors<sup>41</sup>.

Therefore, from an innovation management point of view, one can expect more non-producing patent owners to contribute in the innovation process and their role to be more and more acknowledged by Open Innovation companies as it can boost competition, raise product quality, and increase consumer choice<sup>42</sup>. Obviously, companies who still follow the vertically integrated model of the Closed Innovation era, feel challenged by this fact and try to oppose them, with the hope to keep things in the way they used to be, which does not seem to be a possible option. What they can do, instead, is to actively participate in the secondary innovation markets, looking for ideas for future products and also rights that are or might be infringed by them; an approach that was promoted by Chesbrough<sup>43</sup>. In following this approach, that can also be described as a a

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<sup>39</sup> D. GERADIN, A. LAYNE-FARRAR and A. J. PADILLA, *supra*, note 30, p. 27

<sup>40</sup> C. ROSELL and A. AGRAWAL, *University Patenting: Estimating the Diminishing Breadth of Knowledge Diffusion and Consumption*, National Bureau of Economic Research, Working Papers number 12640, Cambridge, 2006.

<sup>41</sup> EUROPEAN COMMISSION, *supra*, note 29

<sup>42</sup> D. GERADIN, A. LAYNE-FARRAR and A. J. PADILLA, , *supra*, note 30, p. 28

<sup>43</sup> H. CHESBROUGH, *supra*, note 1, p. 78

wider strategic view, better skills at landscape assessment, and more proactive in-licensing<sup>44</sup>, they can rely on their clear advantage to identify conflicting rights or even ideas that can perfectly fit into their business models, much easier, due to their higher absorptive capacity in the field<sup>45</sup>.

Thus, although the growing presence of companies with IP-based business models and also individual inventors, who are not necessarily producing any goods, is a natural trend in the Open Innovation context, it is coming under increasing attack from media and consequently law enforcement authorities. This can be a challenge for Open Innovation companies, as posing any further limits on the rights of non-practicing patent holders will force them to follow the traditional vertical integration model. This in turn forces these patent holders to internally develop and distribute new products based on their patents, which in many occasions in the Open Innovation context, is not a feasible or efficient option. Even if the mentioned patent holders choose the licensing route, the current legal attitude will undermine their bargaining power and put them in serious disadvantage against potential licensees, who are usually large and established producers. This will eventually act as a strong discouraging factor for inventors to dispatch from the Closed Innovation mindset and actively pursue licensing. In other words, this will threaten the existence of an ongoing stream of external innovations as the major input of the secondary innovation markets and, hence, impede the growth of these markets.

Additionally, downstream Open Innovation manufacturers are also supposed to rely more extensively on external innovation sources in their innovation management practices. But facing with the above-mentioned trends, namely the weakening stream of external innovations and secondary innovation markets, *inter alia*, limits their access to the outside ideas and technologies, stops them from exploring external sources of innovation opportunities, and also forces them back to vertical integration and following Closed Innovation practices.

All of these clearly indicate that legislators, courts, and competition agencies should be careful not to view the effects of specialized non-practicing patent holders too narrowly. In the light of the analyses presented here, it is obvious that categorizing all non-practicing patent holders as patent trolls and trying to undermine their legal rights is a too simplistic approach, which denies the trend toward specialization in the context of Open Innovation and enhanced social welfare made possible as a result. One should remember that the primary goal of a patent system is to enhance social welfare through encouraging innovation and achieving this goal may require following different approaches over time. Thus, the policy debate should shift its attention

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<sup>44</sup> E. KAHN, *Innovate or Perish: Managing the Enduring Technology Company in the Global Market*, John Wiley & Sons, Inc., Hoboken, New Jersey, 2007, p. 27.

<sup>45</sup> W. M. COHEN and D.A. LEVINTHAL, *Innovation and learning: the two faces of R&D*, *The Economic Journal*, 189, 99, 569-596.

toward finding meaningful ways for identifying harmful behaviors, rather than targeting certain business models.

### **III. Territorial nature of Patent Law**

In the Open Innovation context, it is important for the potential licensees to have the ability to objectively analyze and understand the offered technology and patents of other companies. This is due to the need to secure a degree of freedom for the business, improve the company's monopoly, and increase the efficiency of the company's product development through the active incorporation of IP from other companies<sup>46</sup>. The potential licensees should also judge the value of the offered technology and compare the cost of buy versus build.

As discussed earlier, in the absence of IP rights the information needed for such judgements may not be available in the first place, since the provider would be concerned about receivers' attempt to invent around and bypass him. On the other hand, IP rights can contribute dramatically to the complexity inherent in the process of evaluating the information and judging about its value.

According to the so-called principle of territoriality in the field of intellectual property law, the law of the country in which the patent is granted not only governs the grant of the patent but also the rights derived from patent. In other words, the term of the patent, the scope of protection, the remedies available in infringement actions and all other relevant issues of substantive law are determined in accordance with the country for which patent protection is claimed<sup>47</sup>.

Although the effects of the principle have been substantially mitigated as the different national patent laws got more harmonized<sup>48</sup>, the not yet harmonized issues, like Claim interpretation<sup>49</sup>,

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<sup>46</sup> Y. MORI, *From Practice: IP Management in Japanese Companies*, in C. HERSTATT et al, *Management of Technology and Innovation in Japan*, Springer-Verlag, Heidelberg, 2006, p. 365.

<sup>47</sup> F. BLUMER, *Patent Law and International Private Law on both sides of the Atlantic*, WIPO forum on Private International Law and Intellectual Property, Geneva, January 30 and 31, 2001, available at: [www.wipo.int/edocs/mdocs/mdocs/en/wipo\\_pil\\_01/wipo\\_pil\\_01\\_3.doc](http://www.wipo.int/edocs/mdocs/mdocs/en/wipo_pil_01/wipo_pil_01_3.doc)

<sup>48</sup> The first step toward international harmonization of patent laws was taken under Paris Convention in the late nineteenth century. This harmonization process continued with Patent Cooperation Treaty (PCT), which established centralized international application proceedings and contains requirements for patentability (Art. 33), and TRIPS Agreement, which contains not only standards for patentability (Art. 27) but also minimal standards for the rights conferred by a patent (Art. 28).

<sup>49</sup> *Patentability and claim interpretation*, prepared by the International Bureau of World Intellectual Property Organization, Geneva, 2003, available at: [http://www.wipo.int/edocs/mdocs/sme/en/wipo\\_ip\\_bis\\_ge\\_03/wipo\\_ip\\_bis\\_ge\\_03\\_12-main1.pdf](http://www.wipo.int/edocs/mdocs/sme/en/wipo_ip_bis_ge_03/wipo_ip_bis_ge_03_12-main1.pdf)

ownership issues and damages awarded for infringement, can still substantially affect the practical possibility to leverage or enforce patents based on foreign patents<sup>50</sup>.

The complexity arising out of this can be illustrated by a simplified example. Consider a Chinese inventor A, having patented a new product in the US and China, approaches a US consumer electronics company X, which markets pioneering products in the US and China, hoping to license its patent under reasonable condition. There is a tough competition in the US and Chinese consumer electronics market and company X would be interested in the offered technology only if the patent gives it clear protection cover for the product and there would be no potential conflicts with competitors' property rights in the same field. Therefore, company X should evaluate the scope of the protection granted not only to the inventor but also to its competitors in US and China. To this end, X will need to know, *inter alia*, claim interpretation according to the US and Chinese laws and jurisprudences. X may find out that its US patent, which is a word for word translation of its Chinese counterpart application, gives it a much broader protection in US due to the American interpretation of the claimed invention. The result can be more freedom to operate in the US market, which leads to a clear competitive edge in the same market. X should, for instance, check the employment status of the inventor and possible ownership rights of his employee according to Chinese law. Finally, company X should see whether it can legally practice the patented technology in US and China only by acquiring the patent of A or it possibly needs other licenses to use other patented technologies<sup>51</sup> (technologies that might be owned by competitors).

In reality, however, companies seek patent protection for their complex products in many different countries that are the potential target markets. No need to mention that the technologies embedded in these complex products usually originate from different sources in several countries and there is a thicket of competing claims and the possibility of IP infringement is real and hard to know in advance. Due to the territoriality principle, in many cases, the scope of protection offered by a patent in one country differs with the scope of protection of the same patent in a different country, even in countries with well harmonized patent systems like members of the European Patent Convention (The well known case of the so-called "Epilady" patent is clearly to the point<sup>52</sup>). Therefore, any attempt to understand the validity and scope of legal exclusivity received for the use of the technology and also to evaluate the commercial value attached to it, should be based on a sound knowledge of patent law intricacies in the targeted markets or at least the most important ones. The access to this kind of knowledge is certainly very costly and not an

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<sup>50</sup> F. BLUMER, *Supra*, note 47

<sup>51</sup> Since Patent right is an 'exclusive' right in the sense that it gives the holder the legal right to exclude others and not necessarily to put it into practice.

<sup>52</sup> J. STRAUS, *Patent Litigation in Europe: A Glimmer of Hope? Present Status and Future Perspectives*, Washington University Journal of Law and Policy, Volume 2, 2000, pp. 403-429.

option for many small and medium-sized enterprises (SMEs) and the majority of the companies in the developing or even emerging economies.

The fact that, in the Open Innovation world, the full history of the in-licensed technology is not well known to the recipient makes the legal evaluation more difficult<sup>53</sup>, because, *inter alia*, its closest prior art and also competitor's challenging patents are not known and it usually requires a minimum level of knowledge the accumulation of which consumes considerable time and effort. In practice, however, the evaluation process of the in-licensed technology usually takes place under considerable time pressure.

Having known these, one can conclude that Open Innovation companies need to develop and improve IP Absorptive Capacity (IPAC). An improved IPAC can mean that companies, who enjoy higher levels of IPAC, are companies that have good access to the territorial IP knowledge and their IP experts have been engaged in the same technological field. These companies can better evaluate the offered technology from a legal point of view and can do this more rapidly with much less uncertainty.

What makes this more complicated is the fact that from the Open Innovation perspective, technology by itself has no inherent value and the value only arises when it is commercialized through a business model<sup>54</sup>. In other words, in-licensing a technology means hiring the firm's business model to create value out of that external technology. Basically, a business model serves the following functions<sup>55</sup>: (1) articulating the value proposition, i.e. the value created for users by the offering based on the technology; (2) identifying a market segment, i.e. the users to whom the technology is useful and for what purpose; (3) defining the structure of the value chain within the firm required to create and distribute the offering; (4) estimating the cost structure and profit potential of producing the offering, given the value proposition and value chain structure chosen; (5) describing the position of the firm within the value network linking suppliers and customers, including identification of potential complementors and competitors; and (6) formulating the competitive strategy by which the innovating firm will gain and hold advantage over its rivals. Thus, if a business model is not considered in the evaluation and valuation process of a technology that is offered, it is quite likely to end up in a surprisingly wrong outcome.

Accordingly, any potential licensee in evaluating an external technology requires much more than internal technical expertise and should inevitably add a proper business model plus having a

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<sup>53</sup> H. CHESBROUGH, *Supra*, note 1, p. 67

<sup>54</sup> *Ibid*, p. 156

<sup>55</sup> H. CHESBROUGH and R. S. ROSENBLUM, *The Role of the Business Model in capturing value from Innovation: Evidence from XEROX Corporation's Technology Spinoff Companies*, Boston, Massachusetts, Harvard Business School, 2000, p. 7

good level of related IPAC. This, in other words, requires that technology evaluations be done by a joint committee of experts with technical, business, and legal (more specifically, IP) backgrounds. In this scenario, a proper level of technical absorptive capacity accompanied by a good level of IPAC will facilitate evaluation of a given technology within the framework of a certain business model that has been foreseen by business peoples inside the company.

Complexities discussed here, especially those rooted in the territorial nature of the patent law can pose challenges to companies that want to tap into the wealth of external knowledge around them and make their innovation process more efficient. Having in mind the fact that big multinational companies already have in-house patent experts in their branches in different jurisdictions, it can be understood that they already enjoy a high level of IPAC. On the other hand companies that don't have access to the same knowledge are facing much more problems in this regard as they are at clear disadvantage as far as IPAC is concerned. They have to pay for external IP council, which at the best cannot bring them the same IPAC as in the case of having in-house IP experts who are familiar with the technological field. Otherwise they should just accept a high level of legal uncertainty attached to their in-licensed technology.

Of course, the territorial nature of IP laws is nothing new and is neither specific to Open Innovation companies. However, the increasing number of companies that adopt Open Innovation practices indicates that more and more companies (that formerly used to rely on their in-house R&D and therefore only deal with technologies whose background were fully known by them and the scopes of protection of their IPs were merely determined by referring to the local IP law), are exposing themselves to the complexities caused by the territorial nature of IP laws. Accordingly, in the Open Innovation context, companies have no options but to gradually increase their IPAC.

This may also have clear policy implications. Governments, for instance, should develop special policy tools to increase the IPAC of local companies, especially SMEs, empowering them to better act in their growing international IP interactions in the Open Innovation world. This, however, is not going to be any easy, since, as discussed earlier, IPAC relies on internal capabilities that accumulate over time. Therefore, even providing local SMEs with subsidized IP counseling is not going to be a perfect solution.

#### **IV. Licensing out and Competition Law**

Open Innovation companies are more open not only to external ideas and technologies, but also in the sense that they let more ideas and technologies to move outward or to become accessible to others. This could be the result of (a) a coordinated act to avoid patent litigation or overcome patent thicket, a growing phenomenon especially in key industries including semiconductors,

biotechnology, computer software, and internet, or (b) a strategy to let technologies that don't fit into the company's own business model to go out through licensing or assignment.

#### a) Cross Licensing & Patent Pools

Cross licenses and patent pools are two methods used by companies to cut through the patent thicket and commercialize new technologies which are protected by a dense web of overlapping set of patent rights owned by multiple patentees<sup>56</sup>. Cross licenses are commonly bilateral agreements between two parties seeking to avoid infringement litigations<sup>57</sup>. One of the possible objectives that make cross-licensing, even between competitors, an attractive option is securing a degree of freedom for the company's business and minimizing its associated costs. Canon, for instance, is certainly one of the companies that are doing a good job in this respect<sup>58</sup>.

Patent pools which have been considered as large-scale open innovation structures<sup>59</sup> are defined by Shapiro as: "a single entity (either a new entity or one of the original patent holders) that licenses the patents of two or more companies to third parties as a package"<sup>60</sup>. Where patent pools are most significant, covering whole industries, they are often preceded by standard settings, establishing the basic technological rules of the game and allowing for interoperability. In such a situation a patent pool removes the obstacles that would otherwise easily have impeded the development of products meeting the standard<sup>61</sup>.

This structure, in many occasions, involves competitors. Competition law, however, has posed serious threats to cooperative activities involving direct competitors. As Antitrust Guidelines for the Licensing of Intellectual Property Issued by the U.S. Department of Justice indicate<sup>62</sup>:

"Antitrust concerns may arise when a licensing arrangement harms competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the license".

Or according the guideline<sup>63</sup> of the European Commission on Technology Transfer Block Exemption Regulation<sup>64</sup> (TTBER) relating to licensing of technologies protected by IPRs or industrial secret:

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<sup>56</sup> C. SHAPIRO, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, in A.B. JAFFE, J. LERNER and S. STERN, *Innovation Policy and the Economy*, The MIT Press, 2000, p. 119-120, available at: <http://faculty.haas.berkeley.edu/shapiro/thicket.pdf>

<sup>57</sup> Antitrust Guidelines for the Licensing of Intellectual Property, Issued by the U.S. Department of Justice, April 6, 1995, available at <http://www.usdoj.gov/atr/public/guidelines/0558.pdf>

<sup>58</sup> Y. MORI, *supra*, note 46, p. 365

<sup>59</sup> T. RAYNA and L. STRIUKOVA, *Large-scale Open Innovation: Open Source vs. Patent Pools*, DIME Workshop on Open Innovation and Distributed Entrepreneurship, 2008, available at: <http://pubs.doc.ic.ac.uk/patent-pools-vs-open-source/patent-pools-vs-open-source.pdf>

<sup>60</sup> C. SHAPIRO, *Supra*, note 56, p. 127

<sup>61</sup> M. GLADER, *supra*, note 19, p. 68

<sup>62</sup> Antitrust Guidelines for the Licensing of Intellectual Property, *supra*, note 57

“A technology pool, for instance, can result in an industry standard, leading to a situation in which there is little competition in terms of the technological format. Once the main players in the market adopt a certain format, network effects may make it very difficult for alternative formats to survive.”

Although there is a trend, in both EU and US, toward encouraging ‘group innovation’, which promotes licensing as a means of sharing technology, and hence of furthering the innovation process<sup>65</sup>, the competition law’s deep suspicion of cooperative activities involving direct competitors and the present ambiguity of border lines between allowed<sup>66</sup> and non-allowed<sup>67</sup> practices (including the distinguishing characteristics of complementary or essential<sup>68</sup> patents and substitutable or rival patents that can be included in patent pools) can have the perverse effect of slowing down the commercialization of new technologies<sup>69</sup> by discouraging the use of more open structures like cross licensing and patent pools. What makes the situation more complex is the fact that moving from a potential product market toward areas, in which a variety of as yet unidentified products are expected to result, the impact of a transaction from competition authorities point of view becomes less predictable. This is to some extent due to the fact that US and EU guidelines are designed to treat product-oriented R&D, not general basic research<sup>70</sup>.

Maximizing the pro-competitive effects of patent pools and the efficiencies inherent in them, which integrate complementary technologies and reduce transaction costs that would hinder technological progress, requires a new set of unambiguous guidelines on the application of

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<sup>63</sup> COMMISSION NOTICE (EC) Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, 2004/C 101/02

<sup>64</sup> COMMISSION REGULATION (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements, available on the European Union Official Website

<sup>65</sup> G. GHIDINI, *Intellectual Property and Competition Law*, Edward Elgar Publishing, 2006, pp. 101.

<sup>66</sup> See, for instance, MPEG Pool Letter. Business Review Letter from Joel I. Klein, Acting Assistant Attorney General, Antitrust Division, U.S. Department of Justice, to Garrard R. Beeney, Esq. (June 26, 1997) and the European Case No IV/C-3/36.849 – MPEG-2 Licensing Programme, OJ C 229/19 (1998), or DVD Pool Letter. Business Review Letter from Joel I. Klein, Acting Assistant Attorney General, Antitrust Division, U.S. Department of Justice, to Garrard R. Beeney, Esq. (Dec. 16, 1998) and the European Case No IV/C-3/37.506 – DVD Patent Licensing Programme, OJ C 242/5 (1999)

<sup>67</sup> See, for instance, *Ciba-Geigy/Sandoz* (The U.S. Federal Trade Commission, 1997 and European Commission 1998) and *Pasteur Mérieux/Merck* (European Commission, 1994)

<sup>68</sup> Essential patent, in this context, means that there is no technical alternative for the selected patents and moreover the pooled patent is only useful in conjunction with the others

<sup>69</sup> C. SHAPIRO, *Supra*, note 56, p. 122

<sup>70</sup> M. GLADER, *supra*, note 19, p. 164

antitrust or competition law. In drawing up the new guidelines, especial care should be taken to improve their compatibility with the realities of the Open Innovation era, including, but not limited to, the growing importance of distributed and incremental innovations. In the absence of supervisions undertaken by competition authorities, however, a patent pool has great potentials to become a means of collusion or indirectly promote, due to the synergy of the partners' technologies, the emerging of a dominant *de facto* standard, thereby foreclosing competitors from the relevant markets<sup>71</sup> and, in turn, hindering innovation rather than promoting it.

## **b) Licensing to competitors**

Cross licensing and patent pools are not the only intersections of Open Innovation behaviors with competition law. Open Innovation companies are also encouraged to overcome the so-called “not sold here” (NSH) virus, which argues that: “if we don't sell it, no one should,”<sup>72</sup> and find an outside path to market for technologies that might otherwise sit on the shelf within the labs. In the new context, many research and development (R&D) type companies such as IBM and Hitachi, are using in-house IP as a source of income by transferring it to outside companies<sup>73</sup>.

Even licensing out to competitors, is also promoted in such a context. For instance, if one has some unused intellectual property, one is best served by licensing that to competitors who might make use of it, rather than let it sit idle. And, in reverse, if competitors have something of value one needs, some arrangement can be to enable one to get it. There are several potential benefits in doing so, namely<sup>74</sup>: making more effective use of a company's resources<sup>75</sup>; uncluttering company's innovation system; generating new knowledge on market and technological opportunities; and preventing unplanned exit of unutilized idea. This category of Open Innovation activities, however, has not been considered by scholars as to its compatibility with competition law, maybe because it may seem that, in practice, companies are willing to license to the competitors only those technologies that they don't want to use themselves and hence there is no direct competition in those fields. However, as IBM case described by Chesbrough clearly shows<sup>76</sup>, this presumption is not always true.

Engagement of high market-share companies, that have strong in-house R&D programs, in more open practices like licensing out to competitors, is expected to grow as they adopt Open

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<sup>71</sup> G. GHIDINI, *supra*, note 65, p. 101

<sup>72</sup> H. CHESBROUGH, *supra*, note 33, p. 32

<sup>73</sup> Y. MORI, *supra*, note 46, p. 365.

<sup>74</sup> H. CHESBROUGH, *supra*, note 33, p. 26

<sup>75</sup> According to a survey conducted in 1998, only about 60 percent of patents held by the top patenting firms around the world were utilized in mainstream businesses (H. CHESBROUGH, *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Boston: Harvard Business School Press, 2003, pp. 158)

<sup>76</sup> H. CHESBROUGH, *Supra*, note 1

Innovation business models. However, these practices, especially those that may end up in *de facto* standard settings, would bring about unfriendly reactions of competition law authorities, the reaction that may act, again, as a deterrent factor against more effective use of companies' IP portfolios.

Bringing sophisticated technologies into market increasingly requires more open approaches. However, licensing practices, especially those between competitors and those who involve competitors, have come under increasing scrutiny by competition law authorities. The existing rather vague conflicting areas, if not clearly defined can pose challenges, at least in the form of a discouraging or deterrent factor, to future developments in using more open structures and joint development initiatives. This is not a call for easing competition policies, since these policies are also instrumental for the application of the Open paradigm. Policies to stimulate the functioning of markets, including the enforcement of competition, legislation to limit cartels or to prevent abuse of dominant market positions, are all indirectly supportive<sup>77</sup>. Here, I call for clearer general guidelines.

## **Conclusion**

Open innovation is becoming a prevalent trend in many industries. The growing interest in Open Innovation practices is, to some extent, the result of an appropriation system in place and also a sign of its growing strength. Furthermore, the formal appropriability depends very much on IP rights. Although the critical role of IP rights in the Open Innovation companies has been extensively studied by scholars, the intersection of "Patent and Competition laws" and Open Innovation practices, especially the effects of general trends in Patent and Competition laws on the adoption of Open Innovation practices and vice versa, has not received enough attention.

In this paper, the growing trend toward Open Innovation has been reviewed from a patent and competition laws point of view and the potential challenging areas have been analyzed under four separate titles. First, "optimal scope of patent protection" and the effects of which on the growing demand for open innovation solutions have been examined. It has been concluded that although an appropriation system is the prerequisite of any departure from a do-it-all-yourself approach and adopting Open Innovation principles, overprotection limits networked and cumulative innovation and negatively affects Open Innovation companies.

Second, the concept of "Patent Trolls" has been reviewed. It was shown that one can expect more non-producing patent owners to contribute in the innovation process and their important role to be more and more acknowledged and needed by Open Innovation companies. Thus, categorizing all non-practicing patent holders as patent trolls and trying to undermine their legal

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<sup>77</sup> J.P.J. DE JONG, W. VANHAVERBEKE, T. KALVET & H. CHESBROUGH, *Policies for Open Innovation: Theory, Framework and Cases*, Research project funded by VISION Era-Net, Helsinki: Finland, 2008, pp. 48.

rights is too simplistic an approach, which denies the trend toward specialization in the context of Open Innovation and enhanced social welfare made possible as a result. Accordingly, the policy debate should shift its attention toward finding meaningful ways for identifying harmful behaviors, rather than targeting certain business models.

Third, the “territorial” nature of patent rights and its effects on Open Innovation companies were analyzed. It has been concluded that complexities, which are rooted in the territorial nature of the patent law can pose challenges to companies who want to tap into the external, and especially foreign, sources of knowledge. Small and medium-sized enterprises (SMEs) and the majority of the companies in the developing or even emerging economies are the most vulnerable ones in facing these kinds of challenges. The concept of Intellectual Property Absorptive capacity (IPAC) is also introduced. Finally, it has been suggested that governments develop special policy tools to increase the IPAC of local companies, empowering them to better act in their growing international IP interactions in the Open Innovation world.

Forth, this paper examined the outward movement of technology from Open Innovation companies, in the form of cross-licensing, patent pooling or simple license-out arrangements, in the light of the limitations posed thereon from “Competition Law” authorities. It was concluded that the existing rather vague conflicting areas between allowed and non-allowed practices, can pose challenges, at least in the form of a discouraging or deterrent factor, to future developments in using more open structures. Issuing clearer guidelines by competition authorities while considering the new realities of Open Innovation era, has been suggested as a result.

Finally, considering the realities of the fast moving business environment, it seems that some presumptions have been taken into account in policy debates concerning the patent and competition laws are not supported anymore. This places a novel tension on these systems traditionally focused on rewarding lone inventors and very skeptical of cooperative activities involving direct competitors. Therefore, there is a significant potential for legal developments in this area, without which companies would be much more reluctant to be open and much more hesitant to join collaborative arrangements for technology development.

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