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PATENT PROTECTION: FUNCTIONS AND WEAKNESSES

Abstract: While patent protection has been established for many centuries, its criticism has been growing. The aim of this article is to identify the main functions of the patent protection system as well as its weaknesses. This article shows that main functions of patent protection may be grouped into following categories: protection, information disclosure, trade and finance, defensive functions and an input in the innovation process. On the other hand, main weaknesses of patent protection system are: slowing down the technological progress, hindering the commercial application of innovative ideas, possible hostile take-overs of patent owners, creating barriers to innovation due to complementary patents and patent thickets, patent wars and patent trolls. Despite those downsides, patent protection system seems to be unrivaled.

Keywords: intellectual property rights, patent rights, patent protection, patent management.

INTRODUCTION

Patent is a set of exclusive rights granted for a limited period of time in exchange for detailed public disclosure of an invention. The patentee has the right to prevent others from commercially making, using, selling, importing, or distributing a patented invention without permission. Patent protection dates back to XVth century and is a commonly used system all over the world [Johns 2009, s. 8]. However, it has gained a notable critique as detrimental in many ways and not serving one of its basic functions – improving the innovativeness of the economy [Jaffe and Lerner 2011]. Therefore the aim of this article is to identify the main functions of the patent protection system as well its weaknesses.

FUNCTIONS OF PATENTS

It is commonly acknowledged that state-of-the-art inventions ought to be hedged against imitation and be a spur for conducting further research. Often a moment of granting a patent for an invention is a transition point between research and development (R&D) activities and its economic use [Schmeisser and Mohnkopf 2008, p.136-141]. According to the guide published by WIPO (World Intellectual Property Organization), a patent has basically two functions: protection and disclosure [2012, p.4]. Firstly, the patent owner is allowed to exclude competitors from commercial exploitation of an invention covered by the patent and the binding right might be utilized for a certain period of time and within a specific country or internationally. This function is the one most often distinguished amongst researchers [Guellec and van Pottelsberghe de la Potterie 2004, p.648-650; Gassmann and Bader 2011, p.137]. The second function refers to the disclosure of information: a granted patent right provides access to knowledge concerning the new technology which should contribute to the stimulation of the innovativeness and faster economic growth. In addition, according to WIPO, patent documentation contains information on filing trends, which are important for public policy makers (for instance for national innovation and industrial strategies [2012, p.8]).

This basic division has been reformulated by Corbel and Le Bas [2011, p.1-3]. They prove that the role and functions of patents have evolved over time. Patents are not only instruments facilitating the achievement of a monopoly position, but also tools enabling protection of products or processes, which constitute the source of differentiation from competition. Furthermore, an individual patent cannot be perceived as a guarantee to obtain a temporary monopoly anymore.

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Mentioned authors classified functions of patents into four categories: (1) innovation protection, (2) trade and finance, (3) defensive roles and (4) input in the innovation process. The first function was admittedly discussed in the previous paragraph, however, it needs to be added that lately important improvements have been implemented to protect successfully an innovation, namely probabilistic patents [Lemley and Shapiro 2005, p.75-98], strategic patents, as well as patent portfolios and families [Blind et al. 2006]. Secondly, functions related to trade and finance comprise such aspects as technology exchange (licensing), treating patents as quasi financial assets and a contribution to tax optimization [Schmeisser and Mohnkopf 2008, p.136-141]. On the other hand, the defensive function of patents is based on defensive blockades, deterring character of large patent portfolios and the role of patents as a "currency", since in case of a patent-infringement a cross-licensing deal may be proposed to the competitor. The fourth category of patent's functions refers to signaling function, which seems to be relevant especially for SMEs (small and medium enterprises), since they can signal the growth potential to potential investors. Furthermore, a patent may be used as an innovativeness index and a basis for further development, due to the fact that innovations have a cumulative character.

Some authors additionally stress the chance to create added value by setting up joint ventures or following other exploitation strategies and consequently sharing benefits from the economic use of patents. Furthermore, the reputation of a legal subject submitting a patent application grows significantly. Moreover, patents may contribute to a standardization of products or processes and become thus profitable in the long term, due to royalties achieved from its competitors for permission to use it [Corbel and Le Bas 2011, p.12-13]. Finally, patents make the transfer of technology easier. Table 1 summarizes the divergences on patent functions.

Table 1: Overview of functions of patents.

Protection	<ul style="list-style-type: none"> • Exclusion of competitors • Strategic patents 	<ul style="list-style-type: none"> • Probabilistic patents • Patent families and portfolios
Information disclosure	<ul style="list-style-type: none"> • Technical information • Legal information 	<ul style="list-style-type: none"> • Economical information • Filling trends
Trade and finance	<ul style="list-style-type: none"> • Technology exchange • Collateral in financing 	<ul style="list-style-type: none"> • Licensing • Tax optimization
Defensive functions	<ul style="list-style-type: none"> • Blockades • Defensive publications 	<ul style="list-style-type: none"> • Deterrent patent portfolios • "Currency" in case of infringements
Input in the innovation process	<ul style="list-style-type: none"> • Signaling • Innovativeness indicator 	<ul style="list-style-type: none"> • Basis for further development • Transfer of technology

Source: authors' own elaboration, based on aforementioned literature.

DOWNSIDERS OF PATENT PROTECTION

The role of patent protection cannot be uncritically evaluated. Although patents have many vital functions, there are also some significant disadvantages. First of all, the monopoly position achieved through patent rights leads, as other monopolies on the market, to a non-effective allocation of public resources. Secondly, patent system contributes to waste of resources, since other companies are required to patent or invent around the patented inventions. Thirdly, the idea of the patent right to be an award for inventors for technological development is misguided, because there are other institutional and technological methods bringing benefits for the innovators. Furthermore,



patent holders may deliberately postpone developing new inventions in order to gain profit from already patented invention. In addition, high collateral costs incurred in patent protection without a guarantee of financial return cannot be ignored. Consequently, patent rights could have both a negative impact on national economies and on companies.

SLOWING DOWN THE TECHNOLOGICAL PROGRESS

Although patent systems are generally recognized as instruments driving or even speeding up the technological development, Kortum and Lerner [1999] challenged this statement due to the monopoly position gained through patents. Accordingly, patent commercialization requires time, which contributes to slowing down the technological advancement [Kortum and Lerner 1999, p.1105-1107]. Furthermore, patent rights on the one hand stimulate propensity to innovate, but on the other hand, contribute to reducing the amount of technology spillovers and following “non-risky research strategies”. The issue of hindering the global technology development has rarely been raised by researchers and business policy makers.

UNTAPPED POTENTIAL OF INNOVATIVE IDEAS

The total amount of granted patents has been constantly growing due to possible high revenues, generated thanks to achieved competitive advantage [EPO 2016]. Innovative companies try to take the maximum benefit of continuous conversion of intangible assets into a measurable profit, since significant investments in R&D and hedging may pay off in the long term. Nevertheless, many of patented inventions never find an industrial application, for instance due to the lack of an effective cooperation between scientists and industrial entrepreneurs. Literature provides examples of patented innovations in the field of advanced materials, for which their applicability has not been known of at the time of their invention. One such example is the invention of CZ-method (Czochralski method) in the beginning of XXth century. Nowadays, scientists struggle to find a commercial applicability for a promising semi-metal – graphene [Waszak 2011]. In 2011 Polish scientists managed to develop a method of industrial mass production of this material without the quality deterioration and high expenses. The process was granted a worldwide patent protection and thus became a big hope of the Polish science for a development of new, high-growth potential markets or a formation of a new industry. Proper patent management is crucial in order to find an appropriate way of its commercialization.

HOSTILE TAKEOVERS OF PATENT OWNERS

Although small companies and individual inventors contribute to enlarging of global knowledge and technological development through ground-breaking inventions, innovation management within such organizations is especially difficult, due to risks and threats caused by large, well established corporations. Hixon [2013] evaluated the role of patent rights held by small enterprises indicating their lack of usefulness in most of cases (with some exceptions, such as pharma industry). Accordingly, many entrepreneurs incorrectly understand the patent value creation process. To begin with, in contrast to common opinions, patent should not be perceived as a defensive tool (a “shield”) safeguarding a freedom to operate, but rather as an offensive one (a “sword”), which gives the right to challenge competitors infringing intellectual property. With reference to the new understanding of this approach, as well as having in mind the length and costs involved in the average lawsuit, international corporations are thus often resistant to any suits filed by small competitors. Moreover, large companies often pursue offensive legal strategies against start-ups, e.g. by an alleged infringement of their patent, since the incurred litigation costs substantially harm small companies’ liquidity. Therefore they are more exposed to hostile takeovers. All in all, small enterprises may improve their reputation through patenting which leads to attracting potential inventors, but on the other hand it can also grasp the attention of hostile competitors. Accordingly, general business strategy should not be based on patent rights. Hixon



[2013] advises small entrepreneurs to develop their business on real competitive advantages such as: rapid innovation and long-term customer relationship management.

PATENT THICKETS

The cumulative character of innovations leads to building of patent thickets, required to commercialize the state of the art inventions. This concerns especially industries with “complex” technologies (e.g. biotechnology, software, semiconductors), namely those with dispersed ownership [Shapiro 2000, p.121-122]. Should a company have developed a new product consisting of numerous other complementary patents, for each component a license has to be gained, which often makes it unprofitable. Therefore, enterprises are often forced to sign patent pools agreements and cross-licensing deals to assure themselves a bigger chance for the freedom-to-operate [Shapiro 2000, p.121-122].

PATENT WARS

Since the competition between companies all over the world has become so harsh, the importance of legal patent strategies has also grown. Having in mind the increasing role of patent rights in the contemporary knowledge-based economies, enterprises are forced to struggle for enhancement of their competitive positions through available patent-related measures. Especially vulnerable sectors for patent rights infringements are those with high competitiveness rate and complex high-tech technologies, due to the dispersed ownership of patent rights. A patent war is a legal "battle" between corporations or individuals in order to secure patent rights, often in the form of multiple lawsuits. This forces firms to allocate time and money that could have been spent on research and development in multiple patent litigations. Suits between Apple and Samsung or RIM against NTP are flagship examples of multimillion patent wars.

PATENT TROLLS

Another negative aspect related to patent management refers to the growing share of non-practicing entities (hereafter called “patent trolls” or “NPEs”) [Reitzig, Henkel and Heath 2007, p.137]. The goal of a patent strategy pursued by patent trolls is to acquire patent rights and then sue potential violators of their patent portfolio in order to obtain either royalties in case of a settlement or damage compensation for an infringement based on the court’s ruling. Therefore business model of NPEs is to benefit from innovation only through litigation without commercializing the patent-protected inventions. In addition, an important element of the business strategy pursued by patent trolls is not to offer their competitors a possibility to license-in patent rights [Fischer and Henkel 2012, p.1520-1521]. Due to the fact that small companies are especially vulnerable to measures taken by NPEs, three hints can be provided in order to avoid or minimize damages caused by patent trolls: (1) being proactive – determining which innovations are already patented, (2) purchasing insurance – insurance companies offer protection against infringement lawsuits, (3) attorney consultation – usually requires high costs, although these expenses are incomparably lower than expenditures incurred in the lawsuit.

SUMMARY

This article shows that main functions of patent protection may be grouped into following categories: protection, information disclosure, trade and finance, defensive functions and an input in the innovation process. On the other hand, main weaknesses of patent protection system are: slowing down the technological progress, hindering the commercial application of innovative ideas, possible hostile take-overs of patent owners, creating barriers to innovation due to complementary patents and patent thickets, patent wars as well as patent trolls. While the downsides of patent protection system may seem overwhelming, two issues need to be underlined. Firstly, in most cases aforementioned functions of patent protection are fulfilled and presented weaknesses are either less common or not as impactful on whole economy and single companies. Secondly, other systems



alternative to patent protection have been proposed, but it is agreed that they are not a valid alternative to the patent protection system [Mazzoleni and Nelson 1998].

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