

Transparency for Efficiency of the International Patent System

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Abstract

Confidentiality of patent applications and delayed release of other patent documents have been the underlying principles of the patent system, but the realities of the modern networked innovation systems undermine their justification. Moreover, traditional secrecy of the patent system may be at least partially responsible for the problems currently challenging the system – that is – deterioration in the patent quality, patent thickets, and evergreening. Lack of transparency may also be standing in a way of efficiency and new innovation. Limiting the secrecy may promote faster technology development and lower the cost (by reducing the volume of low quality applications, where patentability defects would be more easily discoverable). The paper overviews the historical transparency of the patent systems and argues that it is increasingly unjustified. More specifically the transparency through the PCT procedure at the European Patent Office, publication of the search and review outcomes, as well as some features of the main international public patent databases are investigated. The findings have implications to most patent systems worldwide. The paper advocates the need to increase transparency of the patent system in several ways: by advancing the publication of the patent application and the search and review outcomes, as well as by improving patent data availability in the databases. In addition to the systemic benefits, this would also ensure that important patent data is available earlier and is more discoverable, thus contributing to greater efficiency of the patent system.

Keywords: Patent, secrecy, search and review, patentability, patent database

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I. Introduction

Patents on inventions have been central to the innovation systems around the globe for at least fifty years.¹ Economic and technological development, as well as globalization, have contributed to the explosion of patent applications and patent grants worldwide. Over the last few decades the regulatory and economic policies pertaining to the patent systems have facilitated increasing filings for patent protection, but largely forgot to address transparency and efficiency in the patent systems. Coincidentally, the patent adversities (poor quality patents, patent trolling, patent thickets) have increased as much (if not more) as the volume of patent applications.²

The topic of patent information publication has been somewhat forgotten in the legal research. Most available scholarly work on this topic published around the 1995-2000 reform of the patent application publication in the United States.³ This is unfortunate, since the issues raised in this literature remain largely unaddressed, patent systems are ever more stressed and beset by abuses, while the innovation systems have evolved.

This paper argues that transparency of the international patent system must be urgently addressed in follow up to the application increasing reforms. Transparency is by far insufficient in view of the increasing application volumes and faster technological development. Lack of transparency is caused by the historical secrecy rules, which are much less relevant in the current global social and technological context. Shorter publication terms (e.g., fixed to international priority term (12 months)) shall be considered and key patent documentation (documentation on search and review outcomes) must be made available immediately and must be available in modern searchable formats. More transparency is urgently needed in order to ensure that important patent data is more available earlier and is more discoverable, thus contributing to the overall efficiency of the patent system.

The paper specifically investigates and advocates the need to increase transparency of the patent system in three ways: (1) by further shortening the secrecy terms for patent applications; (2) by making the search and review outcomes available in searchable and data mining friendly formats (e.g., XML); also (3) by improving international patent databases. Accordingly, the Part I of the paper provides the context on the explosive growth of the patent systems, which makes transparency/efficiency reform an urgent matter. Part

¹ See Zvi Griliches, *Patent Statistics as Economic Indicators: A Survey*, 28 JOURNAL OF ECONOMIC LITERATURE 1661, 1661-707 (1990).

² See Mark A. Lemley & Bhaven Sampat, *Is the Patent Office a Rubber Stamp?*, 58 EMORY L.J. 101, 101-28 (2008), available at http://www.law.emory.edu/fileadmin/journals/elj/58/58.1/Lemley_Sampat.pdf.

³ See literatures referred in footnotes 11, 16, 19, and 23.

II of the paper discusses traditional patent application secrecy principle and justifications thereof, goes to show that they have been mostly eliminated or offset by the legal development and social interests in faster transparency. Part III of the paper deals with the transparency of patentability information and other limitations of the international patent databases.

II. Growing Patent Application Volumes Urge for More Efficiency

Worldwide patent applications filed through the Patent Cooperation Treaty (PCT) procedure have doubled in less than decade, as shown in the Fig. 1 below.

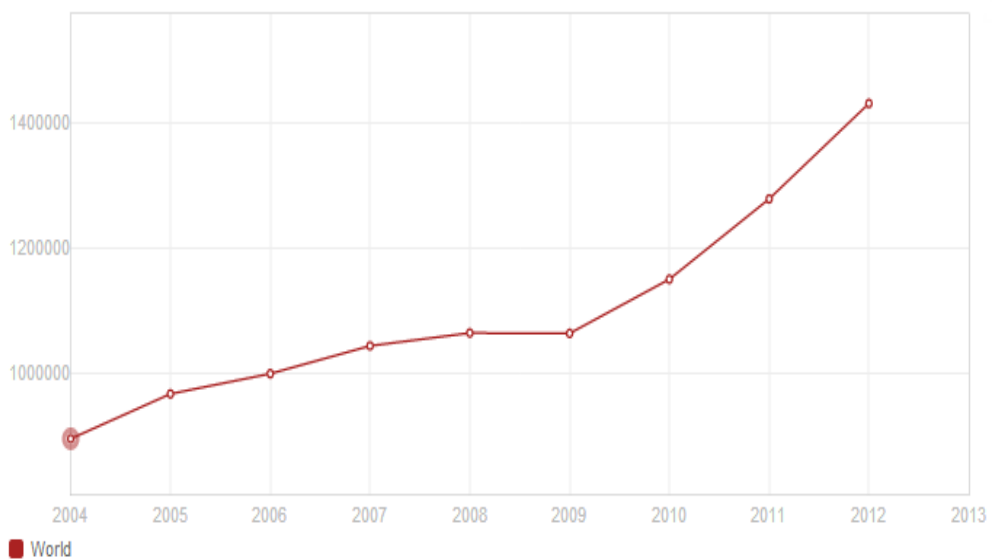


Figure 1: Worldwide patent applications filed through the Patent Cooperation Treaty (Source: World Bank⁴).

Most recently the patent application numbers have accelerated even further. China has emerged as the new leader in the world patent application filings. In 2012, China's State Intellectual Property Office ("SIPO") granted more patents than any other patent office in the world. In 2012 more than 1.26 million patent applications were filed with SIPO and represent a 31% annual increase. Based on official public policy China's government has set a goal of granting 2 million patents per year by 2015. It is noteworthy that almost 80% of China's patents were awarded to domestic applicants in 2012. Compare this to fewer than 50% of all patents going to domestic applicants

⁴ See World Bank, Patent Applications, Residents, <http://data.worldbank.org/indicator/IP.PAT.RESD/countries?display=graph> (last visited Nov. 9, 2014).

in the EU or the U.S.⁵

Internationally patent applications are exploding as well. China is rapidly ascending to the top of the users of the PCT system with the annual growth in PCT patent applications of +15.6%. Overall annual PCT patent applications in 2013 exceeded the 200,000 mark for the first time. The total number of the PCT filings in 2013 amounted to 205,300, representing 5.1% growth compared with 2012.⁶

The increasing globalization and patent application volumes already stress the patent system. Patent offices at both national and international level struggle to cope with said increases in the number of patent applications. Many patent offices have built up extensive and growing backlogs of patent applications which are awaiting processing, causing increases in pending time. Increase of patent application volumes and growing patent prosecution backlogs have negative effects on patent quality,⁷ are undesirable and incur socio-legal costs for several different reasons:

- (1) applicants may be encouraged to pursue patents for lower patentability inventions because they know there is a possibility of grant;
- (2) lower quality patents create an environment where infringement and litigation is more likely since the validity of patents is more questionable; this may also incentivize the filing of more low quality patent applications;
- (3) incorrectly granted patents incur costs arising from patent protection (monopoly protection) without providing the benefit of incentivizing true innovation;
- (4) any patents (regardless of quality) carry secondary benefits for the applicant and inventors, especially in terms of intimidation (patent trolling), individual career and bragging rights.

Patent application growth also challenges would be inventors and applicants due to the need to trawl huge amounts of information, reduced

⁵ See WORLD INTELLECTUAL PROPERTY ORGANIZATION [WIPO], WHO FILED THE MOST PCT PATENT APPLICATIONS IN 2013?, *available at* http://www.wipo.int/export/sites/www/ipstats/en/docs/infographics_patents_2013.pdf (last visited Nov. 9, 2014).

⁶ See WIPO, *US and China Drive International Patent Filing Growth in Record-Setting Year*, PR/2014/755 (Mar. 13, 2014), http://www.wipo.int/pressroom/en/articles/2014/article_0002.html.

⁷ See David Encaoua, Dominique Guellec, & Catalina Martínez, *Patent Systems for Encouraging Innovation: Lessons from Economic Analysis*, 35 RESEARCH POLICY 1423, 1423-40 (2006); see also DOMINIQUE GUELLEC & BRUNO VAN POTTELSBERGHE DE LA POTTERIE, *THE ECONOMICS OF THE EUROPEAN PATENT SYSTEM* (Oxford University Press 2007).

certainties on patentability and increased global technological competition. When filing a new patent application, inventors and applicants can not be sure of the patentability because they can only refer to information on relatively old patent applications (at least 18 months) and even older patentability information (search and review data). Applicants also face increasing burden and cost of digging through massive volumes of patent information sometimes just to find that the researched applications lack patentability or are abandoned. At the same time non-descriptive, vague or plainly useless patent applications hide undiscovered behind the veil of secrecy or unintelligible data formats. This situation clearly increases the potential for patent abuse, trolling and patent thickets. In its own right, the delays in disclosure of technological and patentability information stifle innovation by preventing the reuse of this information for subsequent research and innovation and may cause social inefficiencies (e.g., public funding may be inadvertently granted to the research, which is already described in the filed patent applications).

Nevertheless, over the last twenty years policy makers, legislators and patent offices worldwide have taken direct steps to facilitate patent filings, such as financial support for patenting costs, reduced fees, allowing for provisional applications, introduction of the electronic filing and electronic communication between the applicant and the patent office, etc. Bold regional action, such as the new European Unitary patent legal framework is also aimed at making patent system even more accessible. All of this increases the acuteness of the efficiency problem experienced by the patent systems worldwide. Facilitating new applications may just further clog the patent systems, if the efficiency of the overall patent system is not markedly improved.

The attempts to facilitate patenting may exacerbate these problems, thus further compromising the efficiency of the patent system. It is noteworthy that the basic social goal is to stimulate innovative activities, and not just to increase the volume of the patent applications.⁸

All of the above is happening against the backdrop of increasingly faster technological development, global knowledge exchange and shorter lifecycles – e.g. in the fields of computer and digital communications technologies the product lifecycle rarely exceeds 18 months.⁹ Note that same 18 months is the standard time for the patent application to be

⁸ See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 265-90 (1977).

⁹ See KAMRAN L. BILIR, PATENT LAWS, PRODUCT LIFECYCLE LENGTHS, AND MULTINATIONAL ACTIVITY, available at http://www.ssc.wisc.edu/~kbilir/Bilir_IP_and_MNCs.pdf (last visited Nov. 9, 2014).

published. Information on the examination of the patent application (such as the search and review documentation) is published even later.

Transparency of the international patent system is one of the ways to increase efficiency, and is unfortunately mainly overlooked in existing legal and policy reforms over the last two decades. In view of the increasing application volumes, global knowledge flows and faster technological development transparency is by far insufficient. Patent transparency manifests in public availability of patent information. The concept of transparency as used in this paper embraces both the disclosure of the invention, which is normally provided in the patent application, as well as the public availability of information on the expert assessment of this patent application and current status thereof. Unfortunately, secrecy rather than transparency seems to be the guiding historical principle of patent system design, but it is positively overdue for re-evaluation.

III. Application Secrecy at the Foundations of the Patent Systems

The current secrecy of patent applications for 18 months from the earliest priority date is relatively recent approach and is not directly set in the international patent law. Up until the end of the XX century, many countries followed the principle of complete secrecy of patent applications and only published patent applications after grant of the patent. For special cases, such as innovations with national security importance, full secrecy is still imposed and patent grants withheld.

Pre-grant secrecy extends on the basic pre-filing secrecy requirement, which is essential in order to establish novelty of the invention. More fundamentally it was accepted by the architects of the national patent systems that the inventor may wish to maintain the secrecy of the invention regardless of the patent application, and secrecy is central especially in order to allow the inventor a secret withdrawal or amendments of the patent application.¹⁰

On the other hand, the secrecy of the patent applications runs contrary to the basic social interests of disclosure and access to knowledge. Disclosure is another founding principle of the patent system.¹¹ It is generally accepted that patent monopoly is given for a period of time specifically in exchange for the inventor (applicant) disclosing to the public how to make or practice

¹⁰ See JOHN F. DUFFY ET AL., EARLY PATENT PUBLICATION: A BOON OR BANE? A DISCUSSION ON THE LEGAL AND ECONOMIC EFFECTS OF PUBLISHING PATENT APPLICATIONS AFTER EIGHTEEN MONTHS OF FILING, *available at* <http://www.cardozoaej.com/wp-content/uploads/2013/02/Early-Patent-Publication.pdf>.

¹¹ See JOHN W. SCHLICHER, PATENT LAW: LEGAL AND ECONOMIC PRINCIPLES REL. 8 VOL. 2 (Thomson/West 2012).

the invention.¹² Note that disclosure is directly connected to the grant of the patent in this traditional concept of a patent, and hence it was accepted verbatim for more than two centuries in a form of pre-grant secrecy. Pre-grant secrecy was also justified by practical considerations.

The leader of the full pre-grant secrecy approach has always been the United States. On top of the said basic secrecy principles, there were four main utilitarian reasons to maintain secrecy of the patent applications in the U.S.:

- (1) historically in the U.S., the term of patent was calculated from the grant, rather from the filing of the application, and provisional protection for ungranted applications was not available;
- (2) historically in the U.S., the patent grants relied on so called first to invent principle (as opposed to first to file);
- (3) the pre-grant secrecy historically was maintained as one of the ways to protect international patent rights for the national inventors;
- (4) pre-grant secrecy also served to allow the applicants certain headway in terms of developing manufacturing leadership and improvements of the original invention.

Lately the pre-grant secrecy justifications have started to disintegrate, while other social considerations have become more prominent. The first two aforesaid reasons have faded with the U.S. integration into the international patent system. The term of a patent was uniformized to twenty years counted from the filing date in most developed countries before 1995 (2000 in the U.S.) according to the Article 33 of the WTO TRIPS. In the U.S. it actually meant an extension of 3 years (from 17 to 20 years). The first to invent was abandoned by the U.S. patent law in favor of first to file at the end of 2011, along with other reforms introduced by the Leahy-Smith America Invents Act.

The third reason was addressed directly through the development of the international patent law. Indeed in the early days of the patent systems, prior to the advent of the international patent law, the key argument against national pre-grant publishing of the patent applications was the need of a reasonable period of time for the applicant to file patent application in foreign jurisdictions. Publication in one jurisdiction prior to filing in another would compromise the novelty of the application for the purpose of the secondary fillings in foreign jurisdictions. Now this is dealt with under the application of the international priority rights under the Article 4 of the Paris

¹² See for instance Article 100(b) and Article 138(1)(b) of the European Patent Convention; Decision T 1452/06 of 10 May 2007 (Boards of Appeal of the European Patent Office), Point 23 of the Reasons (“A basic principle of the patent system is that exclusive rights can only be granted in exchange for a full disclosure of the invention.”).

Convention for the Protection of Industrial Property and the Article 8 of the Patent Cooperation Treaty.

The fourth reason is arguably the most important remaining justification for maintaining patent application secrecy. It is guided by the industrial economics of translating the invention and bringing it into market,¹³ but is also challenged by accelerating modern technology development cycles, economic separation of development (research) and manufacturing (often outsourced), as well as networked innovation systems reliant on rapid diffusion of new technological knowledge.

Pre-grant secrecy has always been treated differently in different countries. In some countries (Australia) the patent system swung between full transparency (publishing patent applications immediately or in just couple of months after filing) and full secrecy (publishing after grant).¹⁴

Following up on the Article 93 of the European Patent Convention of 1973 most European countries have maintained uniform patent application publication standard of the 18 months after filing. Subsequently, the 18 months after first priority publishing deadline became the de facto international standard, although it is mainly regulated in the national patent laws and in some cases in the regional patent treaties (such as the EPC).

Opposite the said pro-secrecy arguments, there have always been important pro-transparency considerations. In countries which calculate patent terms from the date of application (what is now established as an international standard in the WTO TRIPS) the publication was considered helpful for the filing of the application, examination and opposition process.¹⁵ It is obvious that the patentability defects, analogues of the invention, or objections to the patentability are more likely to be ascertained earlier, if the patent applications are published sooner. Moreover, the lengthy secrecy period was considered detrimental to the competition. Competing manufacturers would be able to ascertain at an early date whether they are infringing or likely to infringe an invention which is the subject of an application for a patent, thus avoid wasteful allocation of their resources.¹⁶ Finally, a basic social interest in the efficient allocation of limited public resources generally favors greater transparency of the patent information.

The other remaining disadvantage of early publication is restriction on

¹³ See Klaus Kultti, Tuomas Takalo, & Juuso Toikka, *Simultaneous Model of Innovation, Secrecy, and Patent Policy*, 96(2) THE AMERICAN ECONOMIC REVIEW 82, 82-86 (2006).

¹⁴ See MICHAEL CAINE, THE HISTORY OF PRE-ACCEPTANCE PATENT PUBLICATION IN AUSTRALIA (Melbourne, Davies Collison Cave 2012), available at http://www.davies.com.au/publication_pdfs/3The%20History%20of%20preAcceptance.pdf.

¹⁵ See Qin Shi, *Reexamination, Opposition, or Litigation-Legislative Efforts to Create a Post-Grant Patent Quality Control System*, 31 AIPLA Q. J. 433 (2003).

¹⁶ See DUFFY ET AL., *supra* note 10.

applicant's right to amend his patent application after publication.¹⁷ In theory early publication enables competitors of applicants to learn about the technology and development focus on which the applicant is interested. In times when countries followed different rules for the publication of the patent applications, the latter was especially important consideration, and may have allowed foreign competitors to gather information at a much earlier date than the domestic applicants may have obtained from the patent applications in foreign countries. Currently this disadvantage remains speculative.

Overall the analyzed scholarly discussion of the pre-grant secrecy is ideologically polarized and the positions taken depend on the preferences for either the social interests in greater transparency and access to knowledge, or the private interests in secrecy and disposal of the patent applications. Empirical evidence is, unfortunately, rather scarce. Nonetheless, it is obvious that gradual abandonment of the secrecy in the second half of the XX century is a reflection of realities of the modern innovation systems and processes, as well as a soft surrender to the global flows of technical information. It was also encouraged by the private abuses of the patent application secrecy for selfish and contra-innovatory purposes.¹⁸ The secrecy of the patent applications has directly caused the so called submarine patents that were central in the early patent trolls' arsenal.

More recently patent application secrecy contributed to the patentability uncertainties, depreciating quality of patents, growth in patent thickets and patent trolling. It is now universally accepted that legal uncertainties on patentability and patent thickets increase patent disputes and subsequently discourage innovation, investment and commerce.¹⁹ Thus, patent application secrecy may turn to harm the applicant itself and depreciate the value of the patent, since the applicant may not be aware of competing applications at the time of filing. Conflicting and overlapping patents are of limited, if any, value for the applicants and the society, since they are not subsequently exploited in downstream product developments or licensing agreements, they also prohibit enforcement²⁰ and instead form the dead weight in the patent systems. Such patents take away resources that could have been spent on

¹⁷ See *id.*

¹⁸ See Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63 (2004), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=462404.

¹⁹ See JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* (Princeton University Press 2008).

²⁰ See Federico Munari & Maurizio Sobrero, *Economic and Management Perspectives on the Value of Patents*, in *THE ECONOMIC VALUATION OF PATENTS: METHODS AND APPLICATIONS* 56 (Federico Munari & Raffaele Oriani ed., Edward Elgar Publishing 2010).

fruitful R&D and other socially valuable activities. Due to the exponential growth and unprecedented globalization of the patent systems, the risks for patent trolling, patent thickets and other contra-innovatory effects of the non-transparent systems are also much advanced.

Pre 1995 secrecy of the patent applications in the U.S. is the key culprit for the so called evergreening practices – practices of manipulating the patent prosecution process and lengthening of the patent office procedures, aimed to maximize the available patent protection terms. Since the U.S. has abandoned the full pre-grant secrecy of the patent applications only as of the end of 2000, some of the patent applications filed prior to 1995 are still surfacing.²¹

On a more general level the lack of transparency further compromises the innovation process and efficient allocation of resources, especially in view of the accelerating technology development and knowledge diffusion based innovation systems. Delay in publication may be especially detrimental for high-innovation and high-competition areas, where the likelihood of conflicting or overlapping patent applications is innately higher.

The relatively recent change of the secrecy rules in the U.S. (the change was initiated in 1995, enacted in 1999 and came into effect as of 2000), although was limited to the national applications which are converted into the international PCT applications, also provides some evidence that no detrimental effects on patenting activities resulted from the significant shortening of the patent application secrecy period. At the very least, faster publication of the patent applications produced greater legal certainty and positive effects on the diffusion of innovative activities in the U.S.²² Combining this with the above discussed social considerations provides a good starting argument to renew a discussion on further shortening of the patent application publication terms.

III. Transparency of patentability information and other limitations of the international patent databases

Another layer of patent secrecy in the patent applications can be attained by willing applicants through obscurity of patent claims and descriptions of the inventions. Although lack of descriptiveness is generally considered a patenting defect, the patent system is awash with poorly

²¹ See, e.g., patent on blockbuster pharmaceutical etanercept (U.S. Pat. No. 8,063,182) granted by the USPTO in 2012, while claiming priority on the original application filed in 1990.

²² See Daniel K.N. Johnson & David Popp, Forced Out of the Closet: The Impact of the American Inventors Protection Act on the Timing of Patent Disclosure (National Bureau of Economic Research Working Paper No. 8374, 2001), available at <http://www.nber.org/papers/w8374>.

disclosed patents. The current reality of the patent systems worldwide is that patents are granted for inventions, which are not sufficiently novel, lack inventive step and are described often in rather generic terms.²³ Sometimes even deliberate efforts are undertaken (and are tolerated by the patent offices) in order to complicate descriptions and search of patent information. Disappointingly, even the EPO training material, designed for would be applicants, suggests tolerance for obscure descriptions,²⁴ although EPO is generally known for its rigorous prosecution of patent applications.

Invention disclosure has always been contentions, but it is increasingly important above all due to the growth of the volume of information in the patent systems. For assessing the patentability of the new patent application one needs to trawl through all available information on the technology and past applications. Disclosure may be addressed through certain standardization of patent applications, but progress in this field is extremely complicated and slow, so far it has been partially achieved only in few very specialized areas (e.g., standard rules for nucleotide or amino acid sequence disclosure²⁵). Although the latter is an example of good practice, which certainly increases transparency, the disclosure is not investigated further in this paper.

Instead, as it was noted, it is worthwhile to review the public availability of information on the expert assessment of the patent applications and current status thereof.

During the typical patent prosecution process the patentability of the claimed invention is authoritatively evaluated by the pertinent patent office through the search and review process. Normally, defects (lack) in any of the patentability characteristics shall be an obstacle to grant of the patent, and generally shall be addressed by the applicant either by abandoning the patent application (not pursuing the grant) or by making amendments to the patent application.

If the patent application is not subject to search and examination, then patentability is not established at all. Unfortunately, this has become the standard case for national patents in many countries. Whether to undergo the search and examination remains the unilateral decision of the applicant. It is increasingly possible to obtain a national patent without search and review, and in many jurisdictions this is now the default option.²⁶ In this case the

²³ See Bessen & Meurer, *supra* note 19.

²⁴ See <http://www.epo.org/learning-events/materials/kit/modules.html>, especially Case study A – Toy ball

²⁵ See Standard for the Presentation of Nucleotide and Amino Acid Sequence Listings in International Patent Applications under the PCT, http://www.wipo.int/pct/en/texts/ai/annex_c.html.

²⁶ See ALEXANDER STACK, INTERNATIONAL PATENT LAW: COOPERATION,

further information on the patent application (in addition to the application itself) is only limited to legal status information.

If search and review is performed, then the individual patentability parameters – novelty, inventive step and industrial applicability are expertly assessed. Search and review process from the legal point of view results in non-binding evaluation – an opinion, which can or can not be taken into account when issuing a patent. Although there is a general trend in many patent offices to grant patents, even if there are hesitations about patentability,²⁷ the search and review outcomes remain very valuable source of information if the validity of the patent is later contested in the courts of law. The search and review outcomes also provide useful information for the original applicant, other applicants, and parties working in the same technological fields in delineating the state of art and interpretations of inventive step in the field. Objections to faster publishing thereof are generally the same as objections against the publication of the patent applications and hence are mostly obsolete.

In the PCT procedure there are two main search and review outcome documents evaluating the patentability of the invention – the International Search Report (ISR) (form PCT/ISA/210) and the Written Opinion of the International Search Authority (WOISA) (form PCT/ISA/237). These forms are generally available within the full published document file of the patent application in the publicly available international patent databases. For the purpose of this paper the EPO PCT process was reviewed, although the process is very similar in all major patent bureaus.

In the first document – the ISR – the EPO uses the so called A, D, E, I, L, O, P, T, X, Y system. The WOISA adopts a binary (Yes/No) evaluation of the individual patentability parameters – novelty, inventive step and industrial applicability criteria. The ISR and the WOISA are both published only in the WIPO Patentscope database.²⁸ Only the EPO ISR (form PCT/ISA/210) is published in the EPO Espacenet database²⁹ and is usually not separately identified in the patent information file. Unfortunately publication in the in the WIPO Patentscope database is subject to further delays compared to the publication date of the patent application for which it is issued.³⁰ Most recently the EPO attempts to publish the ISR together with

HARMONIZATION, AND AN INSTITUTIONAL ANALYSIS OF WIPO AND THE WTO 96-115
(Edward Elgar Publishing 2011).

²⁷ See Bernard Caillaud & Anne Duchene, *Patent Office in Innovation Policy: Nobody's Perfect*, 29 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 242, 242-252 (2011).

²⁸ See <http://patentscope.wipo.int/search/en/search.jsf>.

²⁹ See http://worldwide.espacenet.com/advancedSearch?locale=en_EP.

³⁰ For example, the application WO2009134110 was filed as PCT application on June 18, 2008 with the priority of April 30, 2008, which was originally published by the EPO on

the application, but the publication of the WOISA is still arbitrarily delayed. This delay produces little value for the applicant, since WOISA is not a final mandatory document and there are many examples where patents were granted following on the negative WOISA (i.e., where patentability was originally found to be defective), but the delay in publication compromises availability of important patent information for the other parties.

In addition to the publication delay and due to ambiguous (likely legacy format) reasons the search and review forms are provided only in scanned picture format. Certainly this is not justified by the lack of resources. Note that the forms only contain textual information – references to sources and expert conclusions (no pictures, formulas or graphs), thus providing it in modern text based formats (e.g., XML) would require less resources than scanned pictures (even significant resource economy may be possible). No searchable or otherwise easily processed forms are provided, thus severely handicapping research, and especially automatic patent data mining and processing. All in all, such situation is unjustifiable in 2014.

Closer investigation of the EPO and WIPO public patent information databases reveals further curious shortcomings. As it was noted, the EPO Espacenet database generally does not publish WOISA form, although provides an ISR form. Both are available only through WIPO Patentscope. Furthermore, only the EPO Espacenet provides information on the current legal status of the application (limited to the EPO member countries) and/or national patents issued for these applications. Although due to specific national phase requirements neither EPO, nor WIPO are the final authorities issuing a patent, it is disappointing that status information is not systematically processed. Finally, neither database allows useful custom search queries for the provided patent information, e.g., only bibliographic data, abstract, description and claims of the patent are searchable. For example, it is not possible to search for the patent applications originating from the specific country of the applicant or inventor.

In defense of the EPO, it must be acknowledged that other patent offices' databases, especially SIPO databases (as much as they are available in English) are even worse in terms of patent information transparency, availability and format friendliness to modern data search and processing.

Although the above discussed aspects rather technical than legal, they cause legal effects and provide very significant constraints on the transparency of the patent information, and in 2014 they are not justifiable by technological or social confines. While advancing the publication of the patent application requires major legal reforms in multiple jurisdictions, the

November 5, 2009; the PCT/ISA/237 for this application was published on October 31, 2010, despite it was originally made available to the applicant on August 25, 2008.

changes in ISR/WOISA publication and especially the discussed improvements in the published document formats, as well as patent database contents may be implemented without significant legal reforms through basic changes of the patent office rules. The latter two steps alone would improve transparency through the increase in discoverability of the important patent information, would tremendously simplify research, and would contribute to the overall efficiency of the patent system.

IV. Conclusion

Although secrecy lies at the beginnings of the national patent systems, the modern international patent system has been able to address most of the original concerns. The remaining secrecy in the patent systems is only precariously supported by the need for the applicant to amend the original patent application or to file for improvements. This reason alone shall not justify the need to keep the application secret for 18 months after filing.

18 months of secrecy (and legacy of past full secrecy which is still lingering in some counties) are contributing to the most notable problems in the modern patent systems, such as patentability uncertainties, lesser patent quality, patent thickets, patent trolling, and evergreening. Due to the accelerating technological development and growing role of fast knowledge diffusion in the innovation systems, the lack of timely disclosure of patent information also stands in the way of new innovation. These arguments and the lack of negative effects from the U.S. experience in significantly advancing the publication of patent applications (in 2000) provide compelling argument in favor of further shortening of the patent application publication terms. It must be noted that certain warming to the possibility of the review of the publication rules very recently appeared in the patent office circles.³¹

A useful time threshold to be considered for patent application publication may be the date of conversion into the PCT application or the expiration of the priority term of 12 months. By this data most applicants have rather clear plan for the patent application and are ready to commit to the significant fees of filing an international patent application. Earlier terms are less feasible due to significantly diverging national rules, filing in national languages, etc.

Transparency of the patent systems must also be upgraded by improving the poor disclosure standards, and especially in addressing the publishing of

³¹ See UK INTELLECTUAL PROPERTY OFFICE, DISCUSSION DOCUMENT: PUBLICATION OF PATENT APPLICATIONS (August 2014), available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/341899/discussion-patent-applications.pdf.

the search and review outcomes. As it was noted, objections to faster publishing thereof are generally obsolete and not empirically supported. Based on the analysis of the EPO and PCT processes and pertinent public patent databases it may also be concluded that the international patent information databases are clearly out of synch with the modern information and data processing technologies. The databases also contain a plethora of other omissions – there is no centralized data on the current status of applications and/or national patents issued for these applications, there are no possibilities to search for the country of the applicant or inventors. The essential patent search and review documentation for the PCT applications is publicized with a delay, and in archaic and unfriendly formats, which severely handicap discoverability and necessitate manual review in the age of automated data mining and search technologies.

The transparency of search and review information would simplify the patent search, would be useful for research and evaluating of patentability of new technologies, and it would also increase the confidence level of the patent systems, while discouraging lesser patentability (at least by giving it more publicity), and while decreasing inefficiencies in public patent support policies and research spending. More speculative benefits may be a decrease in patent trolling (a bundle questionable patentability patents still has intimidation value) and patent thickets. Finally, lower costs and faster patent prosecution for the patent offices may be appreciated.

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