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**Prior Art**  
**Strategic consideration in a changing prior art landscape**

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## 2 Introduction

### 2.1 What is prior art searching and why does it matter?

Robert Cantrell, partner at Landon Ip, one of the world's largest patent search firms, makes this statement in his new book:

*The author has heard on many occasions, and has seen more than enough evidence to believe in its truth, that 90% of patents can be invalidated, in whole or in part, if someone is willing to invest in finding the prior art.<sup>1</sup>*

Though Cantrell talks in his own interest as a consultant in prior art searching, I am still willing to agree with this statement. It is probably true that there is at least one piece of prior art out there that would cast serious doubt on almost any granted patent. One could of course wonder why this is the case and why not the examiners have spent the time and effort necessary to find such prior art. Even though this is a relevant question, the truth is much more complex. With different legislative structures for prior art around the world, different possibilities to actually access what is out there and of course under a strict cost/benefit pressure in to what is actually worth looking for, it is not so surprising that there are pieces of prior art slipping through the granting process unknown of.

Since the material generally considered by the patent examiner is quite straight forward; patent documentation, scientific journals, etc, the real challenge is when approaching the more unconventional areas of prior art, such as lectures at a university, actual products or material on an online discussion board.

At the same time as there are prior art out there to invalidate almost any patent, we are living in a time where there is an abundance of information. The emergence of internet has made the source from which we can look for prior art virtually endless.

This is where this thesis takes its starting point as it explores the relevant criteria for prior art in different patent areas and also looks at different emerging ways to get hold of these lost pieces of relevant information. Ending up with a discussion around what approach to take and what we can expect in the future of prior art.

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<sup>1</sup> Cantrell, R. L. (2009). *Outpacing the Competition - Patent-Based Business Strategy*. Hoboken, New Jersey, USA: John Wiley & Sons Inc. page 29.

## 2.2 Research problem

In this paper prior art is analyzed with focus on how the abundance of information accessible through internet impacts on what art is accepted and how the search is shifting. My key research problems are:

- What impact has the development of internet and collaborative efforts had on prior art and prior art searches before and after grant?
- What strategy should companies have when approaching prior art searching, based on the new search landscape?
- How is the correlation between legal difficulties and searching for prior art to be handled in the future?

## 2.3 Delimitations

The area of prior art is vast and I have made two main delimitations for this paper 1) the geographic areas analyzed and 2) deepened discussion around specific materials to be considered as prior art.

The geographic areas that I have chosen to focus on are EU, the United States, Japan and China. EU, the United States and Japan are considered to be strong patent areas with a well-developed intellectual property tradition. Even though they might show similarities in some instances they still prove to be different in other areas. China on the other hand is a relatively young actor within intellectual property. It has traditionally made itself a reputation much more by its violations of IP than of its protection of it. Though there are changes to be seen<sup>2</sup> and the country will most certainly be of interest in the future IP scene, which is why I have chosen to also include it.

Even though prior art can be grouped in to relatively defined groups, such as printed publications and patent documents, there are still many unsolved issues in the border areas between those groups. This paper will discuss the broader aspects of prior. For more specific issues it is referred to legislation specific issues.

## 2.4 Source material and method

The analysis in this thesis is based on the current discussion among IP practitioners around prior art. This is a discussion that mostly is done online on blogs, in journals and to some extent in books. Most of the blogs can be said to be peer

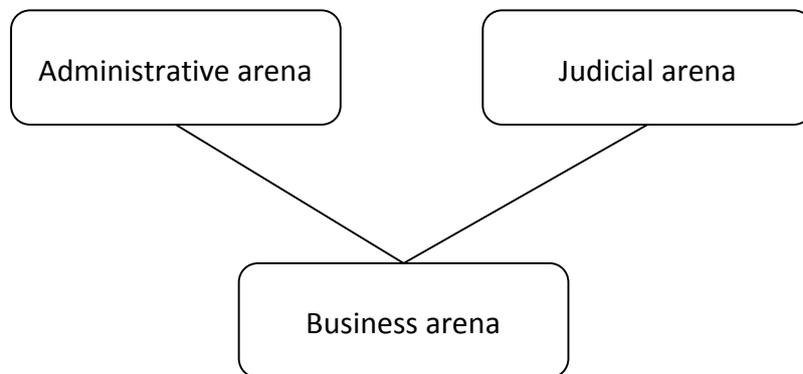
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<sup>2</sup> China has a new Patent Act that enters in to force in October 2009.

reviewed post publication and I have in some instances referred to some of those comments as well. The progress and discussion around intellectual property and how to relate to the emerging abundance of prior art information is in itself an example of the change going on.

The breadth of literature used has played the role of a backdrop for the specific issues at hand and to provide a broader understanding of the complex role of prior art and the development.

I have chosen to use the theoretical framework of the three arenas, 1) administrative, 2) judicial and 3) business arena, for how to approach the relevance of prior art in different settings. Professor Ulf Petrusson at CIP at Gothenburg University has developed the model.<sup>3</sup> It is based on the notion that norms are simultaneously developed and interacted with on three arenas, all of which have its specific considerations.



The administrative area has, when it comes to patents and prior art, a specific role in that it contains strict administrative structures. The actors on this arena are to a large extent highly specialized, such as patent attorneys and patent examiners. The procedures are to a large extent in accordance with a formalistic structure.<sup>4</sup>

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<sup>3</sup> Petrusson, U. (2004). *Intellectual Property and Entrepreneurship - Creating Wealth in an Intellectual Value Chain*. Göteborg, Sweden: Center for Intellectual Property. page 104-106.

<sup>4</sup> Petrusson, U. (2004). *Intellectual Property and Entrepreneurship - Creating Wealth in an Intellectual Value Chain*. Göteborg, Sweden: Center for Intellectual Property. page 105.

The judicial arena is also highly specialized and formalistic. The actors here are also to a large extent specific for this arena, though we can see that for instance lawyers can act on all three arenas and patent attorneys sometimes also act on the judicial arena. The most significant feature of the judicial arena is that it is exclusively national.<sup>5</sup> Whereas the administrative arena can act cross borders, such as for instance the EPC in Europe.

The business arena on the other hand is most often international. To companies with an active approach to IP it comes natural to see to that they have their rights respected in several countries. It is on one hand a driver for a more harmonized way of handling IP internationally but it can on the other hand also create a lot of friction.

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<sup>5</sup> Petrusson, U. (2004). *Intellectual Property and Entrepreneurship - Creating Wealth in an Intellectual Value Chain*. Göteborg, Sweden: Center for Intellectual Property. page 105.

### 3 Introduction to patents

A patent is a right to exclude others from practicing a specific invention for a limited period of time. It is a right granted by the state to a specific individual or entity. The modern patent rests on three main criteria, which are almost the same worldwide; the invention has to be novel, it has to involve an inventive step and it has to have industrial applicability (you need to be able to practice the invention). The monopoly granted lasts for a limited time, almost universally 20 years, and one of the features of the system is that the invention is published for anyone to read and become influenced by.

Patents seen from a strict market economy sense, with their inherent right to block competitors, seem to impede trade and development. There are however several ways to justify such a monopoly right.<sup>6</sup> With these justifying grounds as the basis we will see that the idea and practice of patents have developed over the years from a way to promote the national or territorial economy to a more general view of encouraging invention for the benefit of mankind.

This development and diversification of geographic areas are relevant when understanding the different approaches existing towards prior art internationally. Especially if only the own country or the whole world is to be considered when deciding if the applied for invention is novel or not. The development has moved towards a more harmonized patent policy worldwide. This is a natural reaction to the ever more globalized economy where trade is truly worldwide as well as access to information if “flattened”.<sup>7</sup>

#### 3.1 Patent criterion

##### 3.1.1 Novelty, Inventive Step and Industrial Application

The three universal criteria for patents are that they should be novel, have an inventive step over what is already known and that they have industrial applicability, that they can be reproduced.

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<sup>6</sup> I am aware of that “monopoly right” might imply that the patentee has a positive right to practice the invention. It is of course so that a patent only is a negative right to block others from a specific invention.

<sup>7</sup> The concept of a “flat” world is championed by Tomas Friedman. Friedman, T. L. (2007). *The world is flat: a brief history of the twenty-first century*. Farrar, Straus and Giroux..

The main criterion for an invention to be patentable is that it is new. This novelty criterion means that you cannot patent something that is already available to the public. Since it is one of the main criteria the modern patent legislation rests upon, most jurisdictions apply an approach where they review this as an intrinsic part of the patent granting process, on the administrative arena. Though there are parts of the world, such as France and Switzerland, which do not include any examination for novelty in the granting process. They leave it to the courts and the judicial arena, as part of the post-grant process.

No system grants patents that claim something that already has been patented, irrelevant of where in the world that might be. There are however systems that consider different types of information available to the public differently, as we will see in more depth below.

An important distinction between the patentability criteria novelty and inventive step needs to be made since both of them rely on the state of the art to determine patentability. When novelty focuses on what actually has been made, obviousness asks if a reasonable skilled person could have made it before.<sup>8</sup> It is in Europe called “inventive step” and in the US “non obviousness”. Though differences in the wording the basic concept is considered to be the same. This distinction between novelty and inventive step has its relevance when assessing the available prior art and not especially when looking at what could contribute to the state of the art, why it is outside of the scope of this thesis.

The third main criterion is that the invention has to have industrial applicability this is expressed differently in different legislations, though the key concept is that the invention has to be reproducible.<sup>9</sup>

### **3.2 Prior art**

The two main questions arising in relation to novelty is 1) what prior art builds up “the state of the art” and 2) is the claimed invention novel over the state of the art.<sup>10</sup> The following will focus on the first question.

The state of the art is determined in relation to what existed before a specific date, which in most countries is the filing date of the patent application. I will

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<sup>8</sup> MacKernan, C. (2006). *International Technology Law and Business: A Practical Glossary*. Aspatore Books. “Novelty” page 244-245.

<sup>9</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 257-260.

<sup>10</sup> Paterson, G. (2001). *The European Patent System*. London, UK: Sweet & Maxwell. page 484.

refer to the date for which the state of the art is to be determined against, as the “priority date” even though it is might not be based on a priority filing.<sup>11</sup> For the purpose of this thesis there will be no differentiation between considering the grace period or not, unless specifically stated.

It might seem straightforward in determining what existed before the priority date but as we will see further down; this can prove to be quite tricky. Both in determining what type of material can be used as evidence of the state of the art and especially when a certain piece of material was released in to the public domain.

### 3.2.1 Prior art internationally

As touched upon above the approach towards novelty and what can be prior art varies in different patent systems.<sup>12</sup> One could say that there are three main ways of regulate what constitutes prior art.<sup>13</sup> 1) *Absolute/objective novelty* is the approach where everything might be novelty destroying, with no discrepancies between how and where in the world it has been put in to the public domain. 2) *Mixed novelty*, where certain types of information might not be novelty damaging, though it has been out in the public domain before the priority date. This is true to the system in the United States where only published prior art is considered worldwide. 3) *Local novelty* is where only novelty destroying material from within the own jurisdiction is considered. This is for instance the way the patent system in New Zealand handles novelty-destroying material.

The issue of *grace period* is relevant to bring up when discussing the different approaches to novelty, since absolute novelty sometimes (perhaps rightly) refers to a system without such possibility to cure that the inventor has made the invention public.<sup>14</sup> MacKernan points out that though the systems of grace periods are not handled consistent in the 38 countries which practice it, including the United States, Japan and Canada, it is nonetheless something which needs to be kept in

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<sup>11</sup> Silverman, A. B., & Stacey, G. K. (1996). *Understanding "Patentese"—A Patent Glossary*. Retrieved July 20, 2009 from JOM: <http://www.tms.org/pubs/journals/JOM/matters/matters-9609.html>

<sup>12</sup> A brief overview of many national patent systems can be found in the WIPO report on international patent systems; WIPO. (2009). *Report on the International Patent System: Revised Annex II of Document SCP/12/3 Rev.2*. Geneva, Switzerland: WIPO..

<sup>13</sup> Dutfield, G., & Suthersanen, U. (2008). *Global Intellectual Property Law*. Cheltenham, UK: Edward Elgar. page 120.

<sup>14</sup> An inventor in the United States can claim priority to the actual invention date, to a maximum of one year before filing the application; using the so called “grace period”. See 35 U.S.C §§ 102(a) and (b).

mind when looking at the issue of prior art.<sup>15</sup> Therefore, a more relevant way of expressing novelty with no discretion to in what form the information was put in to the public domain would be to refer to it as *objective novelty*. Even though can be important to understand the grace period as something which limits the novelty destroying materials, for this thesis it has no direct effect, since the focus is more towards the different types of making material public. The grace period will only come in as a limitation, almost independent of in which form.

### 3.2.2 Philosophic/historic justification for prior art

Patents can roughly be motivated by three main lines of argumentation<sup>16</sup> and all of them are based in the notion of that the invention in fact is new. Though the area for in which the invention has to be new has varied from the own county to mostly the whole world today, it is important when understanding the concept of prior art to also understand the lines of argumentation that lay behind.

The early granted patents were to a large extent a way to promote national technology or at least the country's competitiveness.<sup>17</sup> This resulted in that the novelty criterion, which existed in one way or another, was taken relatively light. In England for instance patents could be granted for an old technology that had not been worked out in the country for long.<sup>18</sup>

The novelty criteria developed in the eighteenth century to be more like today, though the focus on the own country was still present. The nineteenth century patent laws had three main ways of handling novelty, much the same as we have today. There were those who had an absolute novelty criterion where the invention had not to be publicly known anywhere in the world. The other alternative way was that it had not to be published anywhere in the world but could be practiced anywhere but in the own country. The last, and also at the time oddity, was

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<sup>15</sup> MacKernan, C. (2006). *International Technology Law and Business: A Practical Glossary*. Aspatore Books. "Grace Period" page 172-173.

<sup>16</sup> For a deeper analysis of the different ways of motivate patents see Petrusson, U. (1999). *Patent och industriell omvandling*. Stockholm, Sweden: Norstedts Juridik AB., Guellec, D., & van Pottelsberghe de la Potterie, B. (2007). *The Economics of the European Patent System*. Oxford: Oxford University Press. and Fisher, M. (2007). *Fundamentals of Patent Law*. Hart Publishing..

<sup>17</sup> Guellec, D., & van Pottelsberghe de la Potterie, B. (2007). *The Economics of the European Patent System*. Oxford: Oxford University Press. page 36.

<sup>18</sup> Guellec, D., & van Pottelsberghe de la Potterie, B. (2007). *The Economics of the European Patent System*. Oxford: Oxford University Press. page 38.

Britain where only “public manufacture, use or sale in England” invalidated the application for lack of novelty.<sup>19</sup>

This difference can still be seen in for instance the United States today, where published inventions are damaging for novelty worldwide but not practiced inventions on one hand and in Europe where absolute novelty applies. One explanation for this could be the problem with being able to search the relevant prior art and evidential difficulties for a more international prior art base.

Since a patent is a grant from the state in the form of right to exclude others it can be argued that the monopoly might hinder the development in society and imply a societal cost in the form it takes. To award inventors with this right to something that is already available to the public would be counterproductive through removing what has already been put in to the public domain and the costs for society would be high for such a way.<sup>20</sup> When seeing patents as an incentive to innovate and as a contract of monopoly for disclosure, to have a strict novelty criterion makes sense.<sup>21</sup>

The patent system itself finds its advocates in different grounds depending on the desired outcome of a specific discussion. As Guellec notes the natural right arguments are more frequently used by the courts at times of expanding and strengthening patents:

*The reason is that the natural right argument just refers to a principle, with no need of further substantiation, whereas the utilitarian argument calls for empirical proofs – it supports patents only in certain circumstances, when they increase social welfare, and it must be checked in each case that proper conditions are met.*<sup>22</sup>

Though it might be tempting to put forward arguments in the lines of the natural right theory as a response to the current discussion against intellectual property,<sup>23</sup>

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<sup>19</sup> Dutfield, G., & Suthersanen, U. (2008). *Global Intellectual Property Law*. Cheltenham, UK: Edward Elgar. page 24.

<sup>20</sup> Adelman, M. J., Rader, R. R., & Thomas, J. R. (2009). *Cases and Material on Patent Law*. St. Paul, MN, USA: West. page 7.

<sup>21</sup> Guellec, D., & van Pottelsberghe de la Potterie, B. (2007). *The Economics of the European Patent System*. Oxford: Oxford University Press. page 49-51.

<sup>22</sup> Guellec, D., & van Pottelsberghe de la Potterie, B. (2007). *The Economics of the European Patent System*. Oxford: Oxford University Press. page 54.

<sup>23</sup> See for instance the debate between the Swedish Pirate Party’s leader, Christian Engström, and representatives for the industry, in Financial Times during July 2009. Article by Engström, C. (2009, July 7). *Copyright laws threaten our online freedom*. Retrieved July 11, 2009 from Financial

it still is the two utilitarian theories that function as the main justification for the current system. This in the way EPO argues on their web page:

*In return for the protection bestowed by the patent, the holder has to disclose the details of the invention. This information is published in the patent document so that everyone can benefit from it. The disclosure of the invention in exchange for patent protection is also known as the "patent bargain".<sup>24</sup>*

The different justifications do not exclude each other in the debate but rather acts as complements.

Applying these lines of justification for patents on to the issue of prior art brings up interesting thoughts. The natural right theory does not question the right of the inventor and it is therefore irrelevant whether it objectively would be prior art out there. The same reasoning cannot be present when it comes to the types of justification, since all of them take a stance in the greater good for society. In such a model, to award an inventor for an invention, which in fact do not bring the society forward would be counterproductive. If not the driving force is the nation's benefit, as was the case in early England and more recent in Japan.

To promote national invention, or at least the introduction of invention in to the country, would on the other hand be fully justifiable with a patent grant. Even though the United States for example does not consider everything from abroad as valid prior art, they typically do not use the national invention as the argument. Even though this might be the result of the current patent legislation.

### **3.3 International legislation**

#### **3.3.1 General**

The development of the global patent systems has to a large extent gone from a national way for the state to encourage the development of technical innovation

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Times: <http://www.ft.com/cms/s/0/87c523a4-6b18-11de-861d-00144feabdc0.html> and the reply by Esper, M. T. (2009, July 10). *Not even pirates are entitled to a free lunch*. Retrieved July 11, 2009 from Financial Times: <http://www.ft.com/cms/s/0/57255a00-6ce6-11de-af56-00144feabdc0.html>.

<sup>24</sup> European Patent Office. (2007, December 13). *About patents*. Retrieved July 11, 2009 from EPO - The European Patent Office Homepage: <http://www.epo.org/patents/Grant-procedure/About-patents.html>

within its borders, to a relatively harmonized international system with few national differences.<sup>25</sup>

Even though the British established patent systems within the Commonwealth, the first international initiative was the Paris Convention for the Protection of Industrial Property, from 1883.<sup>26</sup> The main issues the convention was set up to handle were the right of priority and national treatment. National treatment relates to that an applicant that is a foreign citizen should be treated as if she was a citizen of that specific country, in relation to legal rights.<sup>27</sup>

The second issue that the Paris Convention was set out to address was how to handle applications in different countries and their relation to each other in regards of being novelty destroying to each other. The system that was established was that an application in one country would not destroy novelty for the same application in another country if the applications were handed in within 6 months of each other.<sup>28</sup> This has been extended and the current convention priority time is 12 months from the first filing.

Based on the model of Dutfield and Suthersanen international agreements can be divided in to three categories.<sup>29</sup>

- There are the standard setting agreements in the Paris Convention and the TRIPS Agreement.
- The global protection system treaties, which for patents include the Patent Cooperation Treaty (PCT) from 1970. It handles patent filing in several countries.
- The classification treaties, which for patents is the 1971 Strasbourg Agreement Concerning the International Patent Classification. A classification system that has a vital role in searching for prior art, as we will see further down.

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<sup>25</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 225.

<sup>26</sup> Dutfield, G., & Suthersanen, U. (2008). *Global Intellectual Property Law*. Cheltenham, UK: Edward Elgar. page 23.

<sup>27</sup> Dutfield, G., & Suthersanen, U. (2008). *Global Intellectual Property Law*. Cheltenham, UK: Edward Elgar. page 25.

<sup>28</sup> Dutfield, G., & Suthersanen, U. (2008). *Global Intellectual Property Law*. Cheltenham, UK: Edward Elgar. page 25.

<sup>29</sup> Dutfield, G., & Suthersanen, U. (2008). *Global Intellectual Property Law*. Cheltenham, UK: Edward Elgar. pages 30-31.

There are also different local systems for patent cooperation, such as the EPC in Europe, which will be discussed further below.

Even though there is a fairly detailed legislation in the patent area, both for formality and for the process, there has developed a global patent tradition.<sup>30</sup> It tries to combine the national sovereignty with the global goal to treat a granted patent in the same way, independent of in what country it is being prosecuted. The harmonization has mainly been on the administrative arena and not to as large extent on the judicial. This is especially eminent in Europe where the granting process through EPC is the same for all designated countries but when the patent is granted, the enforcement is national. This is also why it is interesting to look at the prior art issues both at a global and at a national level.

### **3.3.2 PCT**

The Patent Cooperation Treaty was established 1970 and it enables a resident of one of the contracting states to apply for a patent in several countries simultaneously.<sup>31</sup> The application is handed in to one of the receiving offices, which generally is the national patent office of a contracting state. An “international search” is then conducted by one of the major patent offices appointed as International Searching Authority. This search of prior art is the basis for a written opinion on patentability drafted by any of the International Patent Examining Authorities and is then communicated to the applicant, who has the opportunity to withdraw the application or proceed to the next phase in the application process.<sup>32</sup>

This centralized way for the first step of the examination has its benefits in that one application is handled in the same way internationally. It also prolongs the time until the applicant has to finally decide in which counties she wishes to proceed with the application, and subsequently pay national fees for.

### **3.3.3 EU**

The European countries have gone through extensive harmonization within the patent area and the intended outcome is to handle patents the same way within the EU. The European Patent Convention (EPC) was established in 1973 and

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<sup>30</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 225.

<sup>31</sup> WIPO. (n.d.). *Patent Cooperation Treaty ("PCT") (1970)*. Retrieved July 14, 2009 from WIPO: <http://www.wipo.int/pct/en/treaty/about.htm>.

<sup>32</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 237-238.

entered in to force 1977.<sup>33</sup> The main goal with the convention was to address the granting process and to establish a common granting authority, the European Patent Office (EPO). Even though the application and granting process within the EU (and some other countries) is mostly handled through the EPO the enforcement is still national.<sup>34</sup>

To be awarded a patent, a European patentee has three ways to proceed with her application; through the global PCT route, the European EPO route or the strict national in the relevant country. Though the different processes have different features, the end result will still be the same; a national patent in the countries of choice. If the application is granted, that is. The patent office does not guarantee that the patent is valid, especially the question about existing prior art can never be examined fully exhaustive.<sup>35</sup>

The granted patents acquire the same legal status as if the national authority granted them, though they have a collective granting process. There is no “European patent”, only several national ones. This makes room for national differences in the enforcement, which especially comes to show in invalidation processes where the same presented prior art can get different evaluations in different countries, resulting in invalidation in only one country<sup>36</sup>.

There have been efforts in establishing a single European patent for quite some time, but it is far from accomplished yet. Neither is the issue of differences in enforcement solved, though there are discussions in the direction of establishing a single patent court for Europe. This would make the enforcement more efficient and also coherent within the EU.<sup>37</sup>

The last revision of the European Patent Convention, EPC 2000, has been accepted by all of the 32 contracting states by either ratification or accession.<sup>38</sup> Worth noting though is a major difference in relation to how EPO handles ap-

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<sup>33</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 49-50.

<sup>34</sup> EPC 2000, Art. 64(3), Art. 74.

<sup>35</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 229.

<sup>36</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 223-224.

<sup>37</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 51 and 221-222.

<sup>38</sup> European Patent Office. (2008, January 14). *Entry into force of the revised text of the European Patent Convention*. Retrieved July 20, 2009 from EPO - The European Patent Office Homepage: <http://www.epo.org/patents/law/legal-texts/epc2000/status.html>

plications is that France practice a registration system without prior examination for one form of patent rights.<sup>39</sup>

The EPC follows the worldwide system of first-to-file where the priority date is determined by the filing date.

### **3.3.3.1 Prior art**

A European patent may be granted for an invention, which is “new, involve an inventive step and are susceptible of industrial application”.<sup>40</sup> The novelty criterion is defined in Article 54:

#### *Novelty*

*(1) An invention shall be considered to be new if it does not form part of the state of the art.*

*(2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.<sup>41</sup>*

The basic criterion is therefore that the claimed invention is new in relation to *anything* made available to the public prior to the priority date of the application. This is a case of *absolute novelty*, using the terminology of Dutfield et al. above. Anything anywhere is damaging to the novelty. To determine what is “made available to the public” at the priority date, and of course to be able to find it, becomes the key issue.

The absolute novelty criterion puts a substantive pressure on the patent authority to actually consider the available prior art. The EPC does not state any obligation for the patentee to disclose any prior art, though it is advisable to do so.

On the other hand, the EPO has access to a vast number of databases and also cites them frequently. The effect on the prior art possible to cite is that the EPO have no need to determine whether the prior art is “published” or accessible “in any other way” as long as it can be verified to be within the priority date. This

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<sup>39</sup> Guellec, D., & van Pottelsberghe de la Potterie, B. (2007). *The Economics of the European Patent System*. Oxford: Oxford University Press. page 37.

<sup>40</sup> European Patent Office. (2007, July). The European Patent Convention. (13th edition) . Art. 52(1).

<sup>41</sup> European Patent Office. (2007, July). The European Patent Convention. (13th edition) . Art. 54(1-2).

brings us to the problem expressed by the EPO<sup>42</sup> when it comes to in this case internet references, but would be applicable to any unconventional prior art reference, the date might not be verifiable, or it can be unclear if the same information available today was in fact the same version available the relevant date. This is an issue we will get back to.

### **3.3.4 The United States**

The American patent system has its roots in the British, since the colonial time. Though it today has developed in to one of the most commonly used systems for patent protection, it still has some of the original provisions intact. They are virtually alone in still using the first-to-invent system<sup>43</sup> and it also stands out with its geographic limitations to what constitutes prior art.<sup>44</sup>

The United States patent Office has for long suffered from a huge backlog of patent applications. This, as we will see have led to different efforts where the introduction of peer reviewers to patents, or at least help in providing relevant prior art, might be the most significant.

#### **3.3.4.1 Prior art**

The prior art consideration in the United States is different from the one in the EPC, as mentioned above. Even though almost the same wording is being used for the general patentability criteria; any “new and useful process, machine, manufacture, or composition of matter” they differ in the very understanding of what constitutes evidence of state of the art. It is expressed in 35 U.S.C. 102:

*A person shall be entitled to a patent unless —*

*(a)the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or*

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<sup>42</sup> Archontopoulos, E. (2004). Prior art search tools on the Internet and legal status of the results. *World Patent Information* , 26, 113-121. page 117.

<sup>43</sup> Adelman, M. J., Rader, R. R., & Thomas, J. R. (2009). *Cases and Material on Patent Law*. St. Paul, MN, USA: West. page 282.

<sup>44</sup> Adelman, M. J., Rader, R. R., & Thomas, J. R. (2009). *Cases and Material on Patent Law*. St. Paul, MN, USA: West. page 5.

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States*<sup>45</sup>

Anything described in a “printed publication” is novelty destroying, there is no limitation to where in the world it has been put in to the public domain.<sup>46</sup> The second option, “known or used by others” and “public use or on sale” is limited to “this country”; the United States. It would therefore be described as a *mixed novelty* criterion with clear limitations to what constitutes prior art to the patent.

The novelty criterion is currently being discussed in the United States, especially in relation to the long discussed patent reform there. It is in many instances closely related to the first-to-file debate as well, especially the use of the grace period.<sup>47</sup>

As pointed out earlier, the distinction between published content and practice of an invention in assessing the novelty might have historical motivations since it only 20 years ago was almost impossible to get accurate information about what had been shown or practiced elsewhere. To rely only on printed publications was a way of finding a clear evidential practice and possibly the result of a cost-benefit analysis on what information was to be considered. However, the emergence of new technologies both in the patent area but also when it comes to search and access to prior art in an ever flatter world, to use the terminology of Thomas Friedman, has perhaps caused an even greater problem. How to draw the line between novelty destroying printed publication and non destroying materials, may well be that they are still printed. Well, one way can be to use a publication service such as Ip.com that actually publish your documents and also is being actively searched by PTOs around the world.<sup>48</sup>

Innovation hijacking is a problem that Dutfield et al. notes may arise in countries that do not use absolute novelty. The fact that an applicant may not receive a patent if “he himself did not invent the subject matter sought to be patented” in the United States, may not hinder an unscrupulous applicant to bring informa-

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<sup>45</sup> USA. (2007). United States Code Title 35 - Patents. 35 U.S.C. 102 (a) and (b)

<sup>46</sup> Harmon, R. L. (2007). *Patents and the Federal Circuit* (8th ed ed.). Washington, DC, USA: BNA Books. page 131.

<sup>47</sup> Crouch, D. (2008, March 21). *Absolute Novelty, First-to-File, and Foreign Bias*. Retrieved July 19, 2009 from Patently-O: <http://www.patentlyo.com/patent/2008/03/absolute-novelt.html>, especially on the “absolute novelty” in relation to the grace period.

<sup>48</sup> Ip.com. (2005, September). *Everything Under the Sun*. Retrieved July 23, 2009 from Ip.com - Securing innovation: <http://www.ip.com/email/archive.jsp?year=05&month=09>.

tion received elsewhere to the patent office as an invention of himself. This based on that the invention was not published in a novelty destroying way before.

### **3.3.5 Japan**

The Japanese patent system has quite recent origins with its major starting point as late as in the 19<sup>th</sup> century.<sup>49</sup> The introduction of a relatively modern system in 1885 was as a response to the shifts in the world economy from agriculture to industry. Since Japan at that time was in an urge to catch up to the development both in the United States and Europe and just recently had opened up its country for foreign investments one of the aims with the legislation was to promote the national technology development. This was done at first though not allowing people from abroad to apply for patents, though not explicitly stated in the Patent Ordinance. Later, using the patent system and allowing foreigners to apply for the right as a bargaining chip in trade negotiations.

Using much the same rational as the one in Britain under Queen Victoria I, Japan allowed and perhaps to a large extent promoted, import of technology in to the country and also allowed it to be patented. The reasons originate directly from the ever increasing gap between Japan the Western countries in technological development. This also had implications on claim interpretation where societal development was superior to the individual's rights.

The system of more or less systematically importing technology from overseas was adjusted to a more modern legislation, perhaps also to promote more national innovation as well, when the current Patent ordinance was introduced 1959. The most significant change in this context was the fact that overseas publications also was included as to be novelty destroying.

#### **3.3.5.1 Prior art**

With a background of promoting domestic innovation and enhancing the national industry,<sup>50</sup> the step to introduce foreign printed publications as novelty

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<sup>49</sup> This section is based on Fisher, M. (2007). *Fundamentals of Patent Law*. Hart Publishing. page 259-279.

<sup>50</sup> Nakayama, N. (2000). *Industrial Property Law. Volume1, Patent Law. 2nd Revised and Enlarged ed. (Law Lectures Series)*. Koubundou Publishers. "Subsection 3", no page numbering.

destroying in the Patent Ordinance of 1959 was a major one.<sup>51</sup> The novelty criteria used so far had been local domestic novelty only.

The current novelty criteria was introduced around 10 years ago and brought Japan in to the countries where *objective novelty* is practiced. The legislation explicitly puts forward that electronic publications are included as novelty destroying material.

*Article 29 (Conditions for Patentability)*

*(1) An inventor of an invention that is industrially applicable may be entitled to obtain a patent for the said invention, except for the following:*

*(i) inventions that were publicly known in Japan or a foreign country, prior to the filing of the patent application;*

*(ii) inventions that were publicly worked in Japan or a foreign country, prior to the filing of the patent application; or*

*(iii) inventions that were described in a distributed publication, or inventions that were made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the patent application.<sup>52</sup>*

In addition to this there is a 6 months grace period for which the inventor still could file a patent application even though he himself has made the invention publicly available by some specific requirements stated in Article 30 of the Patent Act.<sup>53</sup>

### **3.3.6 China**

China has long been regarded as a place where Intellectual Property has been taken light handed and protection was a rarity. Though this still might be the case and as Ganea explains, “Investors frequently complain about inadequate legal protection, especially in the area of Intellectual Property” there are changes on the way.<sup>54</sup> A new patent act entered in to force on October 1, 2009,<sup>55</sup> much as

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<sup>51</sup> Fisher, M. (2007). *Fundamentals of Patent Law*. Hart Publishing. page 275-276.

<sup>52</sup> Japan. (2006). Patent Act (Act No. 121 of 1959). Article 29 (1).

<sup>53</sup> Japan. (2006). Patent Act (Act No. 121 of 1959). Article 30.

<sup>54</sup> Ganea, P., Pattloch, T., & Heath, C. (2005). *Intellectual Property Law in China*. The Hague, The Netherlands: Kluwer Law International. page xi.

<sup>55</sup> An English translation can be found here <http://www.ipr2.org/ipsearch/file.php?id=188>

a response to foreign pressure.<sup>56</sup> The new patent act has established an objective novelty criterion and also strengthened the enforcement of patent rights.<sup>57</sup> This shift to a more “European” type of patent system can be traced back to China’s urge to be accepted as a trustworthy investment partner when it comes to manufacture and development. Where the intellectual property system has to show itself as being trustworthy and not promote national or international hijacking of innovations.

### 3.3.6.1 *Prior art*

China has for quite some time practiced a novelty standard very much alike the one of the United States, with public practicing of an invention abroad not being novelty destroying. The new patent act introduced some major changes to the current position.<sup>58</sup> The significant shift in relation to prior art is the introduction of a global objective novelty criterion.<sup>59</sup> The new patent law explicitly includes all technology known to the public anywhere in the world.<sup>60</sup>

#### *Article 22*

*Any invention or utility model for which a patent right may be granted must possess the characteristics of novelty, inventiveness and usefulness.*

*"Novelty" means that the invention or utility model shall neither belong to the prior art, nor has any entity or individual previously filed before the date of filing with the patent administrative department under the State Council an application on an identical invention or utility model which was recorded in patent application documents or other gazetted patent documents published after the said date of filing.*

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<sup>56</sup> Cheng, W. (2009, September 8). *Third Revision Of Patent Law In China*. Retrieved December 3, 2009 from Intellectual Property Watch: <http://www.ip-watch.org/weblog/2009/09/08/third-revision-of-patent-law-in-china/>.

<sup>57</sup> Sutherland. (2009). *Legal Alert - The Third Amendment to the Chinese Patent Law*. Retrieved July 20, 2009 from Sutherland: <http://www.sutherland.com/files/News/ddae6f2a-7502-4740-b58b-060ced14e4bb/Presentation/NewsAttachment/c62ddb11-6747-4dc7-a9e2-3e68f6ccaffd/IPAlertThirdAmendChinesePatent3909.pdf> page 1-4 and Cheng, W. (2009, September 8). *Third Revision Of Patent Law In China*. Retrieved December 3, 2009 from Intellectual Property Watch: <http://www.ip-watch.org/weblog/2009/09/08/third-revision-of-patent-law-in-china/>.

<sup>58</sup> A translated version of the new Patent Act seems not to be available in English yet.

<sup>59</sup> Ollier, P. (2008, October). China's patent amendments uncovered. *Managing Intellectual Property*, p. 8. page 8.

<sup>60</sup> Day, J., Bai, B., Chen, A., Ling Li, C., Cohen, M., & Chen, A. W. (2009). THE radical third amendment. *Managing Intellectual Property: IP Focus China*. page 21.

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*The "prior art" referred to in this Law refers to any technology known to the public before the filing date of the patent application in China or abroad.<sup>61</sup>*

This novelty standard applies to all three types of Chinese patents and will possibly have a big impact on how patent validity is handled in China.

One of the problems China would like to overcome with this new legislation is the so-called patent hi-jacking.<sup>62</sup> The former vice president of intellectual property law court of the higher people's court of Beijing, Cheng Yongshun, agrees with this view.

*Adoption of an absolute novelty standard will have the effect of reducing patent infringement. In the past some Chinese companies purchased the products from foreign expos that were not published overseas, and manufactured them in China. But this situation was no longer legal in China, and the new revision regarded those activities as illegal and increased the ceiling of punishment,<sup>63</sup>*

It has been discussed that this type of hi-jacking of foreign inventions, in the same way as described above when it comes to the US, might be slowed down by the coming change.<sup>64</sup>

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<sup>61</sup> China. (2008). Patent Law (2008). Article 22.

<sup>62</sup> Day, J., Bai, B., Chen, A., Ling Li, C., Cohen, M., & Chen, A. W. (2009). The radical third amendment. *Managing Intellectual Property: IP Focus China* . page 21.

<sup>63</sup> Yannan, T. (2009, February 9). *New China patent law is unveiled*. Retrieved August 4, 2009 from China Daily: [http://www.chinadaily.com.cn/bw/2009-02/09/content\\_7455384.htm](http://www.chinadaily.com.cn/bw/2009-02/09/content_7455384.htm).

<sup>64</sup> Cass, R. A. (2009, February 10). Patent Reform With Chinese Characteristics. *Wall Street Journal Asia* ..

## Prior art

### 3.4 Introduction

Prior art is, as described above, something that existed before, or at least something that shows that a specific invention existed in the public domain before the priority date of a patent application. Prior art is one of the substantial parts of the patent application and the granted patent lists the references both provided by the applicant and the ones discovered by the examiner during the application process.<sup>65</sup> According to Jon Dudas, director of the USPTO at the time, a quarter of the applications they handle contain no references to prior art at all. On the other hand, another quarter contains more than 25 references.<sup>66</sup> Facing this difference also pushes the PTO to have different approaches to the prior art of an application.

The most common types of prior art references are patent documents and scientific literature. The scientific literature is sometimes included in what is called non-patent literature (NPL) together with other publications. I will rather use the two concepts “conventional prior art” and “unconventional prior art”, where the conventional type includes both patent documents and readily available scientific literature. The unconventional types of prior art would then be negatively determined as anything not conventional. The focus of this thesis is unconventional prior art.

### 3.5 Made available to the public

#### 3.5.1 General overview

The common denominator in determining what constitutes prior art, is that the material claiming that status has to been “made available to the public”. This is the same independent on in what form or under what limitations the national prior art legislation exists.<sup>67</sup> The general definition is that information in order

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<sup>65</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 8.

<sup>66</sup> The Economist. (2007, September 8). A patent improvement. *The Economist* ..

<sup>67</sup> For example Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 279-284.

for a person skilled in the art to carry out the invention has to be disclosed to a larger or undefined group of people.<sup>68</sup>

The form in which the prior art has been made available to the public does not matter for countries with objective novelty since everything can be considered. For countries with mixed novelty the form becomes of greater relevance since not everything constitutes prior art.

### 3.5.2 The group of people

The group of people can in theory be small and it is enough that they had the opportunity to get access.<sup>69</sup> As Harmon points out in relation to the US setting the relevant issue is if the person skilled in the art could obtain the information if he wanted to, not if he actually did.<sup>70</sup>

See for instance also the case of the published journal that was placed on the library shelf one day before the publication date. It was considered that the publication was available to the public just by the fact that someone from the public could ask for it, even though no one had in this particular case.<sup>71</sup> The level of effort needed has been described as “undue burden” or that “it could be located by persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence”.<sup>72</sup>

In the European perspective there is one limitation to the group and that is that the persons receiving the information either needs to be skilled to understand and perform the invention or to forward that information to a person with those skills.<sup>73</sup>

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<sup>68</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 280.

<sup>69</sup> Malmberg, L. (1995). *Nybetskravet i patenträtten*. Stockholm, Sweden: Institutet för Immaterialrätt och Marknadsrätt vid Stockholms Universitet. page 36.

<sup>70</sup> Harmon, R. L. (2007). *Patents and the Federal Circuit* (8th ed ed.). Washington, DC, USA: BNA Books. page 124.

<sup>71</sup> Seville, C. (2009). *EU Intellectual Property Law and Policy*. Cheltenham, UK: Edward Elgar. page 105.

<sup>72</sup> Crouch, D. (2009, September 22). *Public Accessibility of Prior Art: PTO Must Provide Evidence of Indexing Date*. Retrieved December 3, 2009 from Patent law Blog (Patently-O): <http://www.patentlyo.com/patent/2009/09/public-accessibility-of-prior-art-ptο-must-provide-evidence-of-indexing-date.html> .

<sup>73</sup> Tritton, G. (2002). *Intellectual Property in Europe (2nd ed.)*. London, UK: Sweet & Maxwell. page 89.

The general rule is that if a secrecy agreement is upheld, it limits the information as to prior art. Though, if the group is too large or the agreement is not enforced this might prove that the information was not kept secret.

### 3.5.3 Public use

When it comes to public use, the main criterion is that there has been one sale of the product. This is the case in the EU as well as in the United States.<sup>74</sup>

If the invention is hidden in a product, the measurement of if it has been out in public is the concept of “undue burden”. It should not be an undue burden for the skilled man in the art to find the invention in the product. An example of this is that it was said to take several 10s of years to decompile the code in a steering card for a machine, the code was not in the public domain.

## 3.6 Published content

In Europe the question of what formalities a prior art reference need to fulfill in order to be considered to be published might be of limited value. It is instead focused on the accuracy of the date and if the version of the published information can be determined. In the United States there is a slight difference since if information is not a printed publication it falls in to any of the other categories of prior art with its limitations to for instance geography. Though the basic is that printed publications are considered to be published, anywhere in the world. The advancements of technology and the different ways information can be disseminated in to the public have made the line a bit more difficult to draw, alas also electronic publications can be accepted.<sup>75</sup>

As mentioned above, the new Japanese Patent Act explicitly state that electronically published content is shall be considered as prior art.

In the EU the issue of electronic publications, is handled similar to in the US, where the question comes down to whether the date can be trusted. But the relevance of unconventional sources of prior art is still highly interesting and Martin

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<sup>74</sup> Malmberg, L. (1995). *Nyhetskravet i patenträtten*. Stockholm, Sweden: Institutet för Immaterialrätt och Marknadsrätt vid Stockholms Universitet. page 39.

<sup>75</sup> Harmon, R. L. (2007). *Patents and the Federal Circuit* (8th ed ed.). Washington, DC, USA: BNA Books. page 121.

van Staveren of the EPO points out that “mailing lists, blogs, etc. can just as well contain relevant prior art”.<sup>76</sup> Though he comes back to the main problem.

*Web pages often refer to other web pages. These cross-referenced web pages may themselves have changed. Therefore, it is possible that it cannot be established exactly what information was made available to the public by a website on a particular date. This could be of legal importance.*<sup>77</sup>

A recent ruling from the UK Intellectual Property Office states that the date on an online newspaper can be taken at face value.<sup>78</sup> This is in line with the standard approach by the EPO which states that content from a “reputable” publisher could be taken at face value. There are though variations in what degree of proof is needed and how to regard the trustworthiness of online sources, also within Europe.<sup>79 80</sup>

It is important to point out that in the US also daily business activity constitutes publication, and there is no expressed need for relying upon library indexing or similar to prove the date of publication.<sup>81</sup> This can on the other hand prove to be valuable and rather undisputable evidence if used.

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<sup>76</sup> van Staveren, M. (2009). Prior art searching on the Internet: Further insights. *World Patent Information*, 31, 54–56. page 55.

<sup>77</sup> van Staveren, M. (2009). Prior art searching on the Internet: Further insights. *World Patent Information*, 31, 54–56. page 56.

<sup>78</sup> The case BLO/180/09 is referenced in Out-law.com. (2009, July 7). *IPO gives 'reputable' web pages prior art status*. Retrieved August 4, 2009 from The Register: [http://www.theregister.co.uk/2009/07/07/web\\_prior\\_art\\_judgment/](http://www.theregister.co.uk/2009/07/07/web_prior_art_judgment/) and available online at <http://www.ipo.gov.uk/patent/p-decisionmaking/p-challenge/p-challenge-decision-results/o18009.pdf>.

<sup>79</sup> See Phillips, J. (2009, November 20). *Proof of availability the public: what standard?* Retrieved November 24, 2009 from PatLit: patent litigation law, practice and strategy: <http://patlit.blogspot.com/2009/11/proof-of-availability-public-what.html> and Phillips, J. (2009, November 20). *Internet-hosted prior art and proof of publication: UK not bound by EPO level of proof*. Retrieved November 24, 2009 from The IPKat - supporting prudent IP use: <http://ipkitten.blogspot.com/2009/11/internet-hosted-prior-art-and-proof-of.html>.

<sup>80</sup> Crouch, D. (2009, September 22). *Public Accessibility of Prior Art: PTO Must Provide Evidence of Indexing Date*. Retrieved December 3, 2009 from Patent law Blog (Patently-O): <http://www.patentlyo.com/patent/2009/09/public-accessibility-of-prior-art-ptu-must-provide-evidence-of-indexing-date.html> exemplifies with a case where the exact date it became publicly available can not with certainty be determined.

<sup>81</sup> Harmon, R. L. (2007). *Patents and the Federal Circuit* (8th ed ed.). Washington, DC, USA: BNA Books. page 124.

### 3.7 Unconventional prior art

Unconventional prior art is almost anything that shows that an invention was in fact known/available to the public before the priority date. Since patent offices are using a broad base for their searches and do not limit themselves to only patent literature but also to NPL the current real implementation of unconventional prior art is to determine the validity of a granted patent, possibly as part of a defense against alleged patent infringement.

*Validity searches by nature are intended to be more extensive and in-depth than the search which was performed by the examiner who issued the patent. For that reason, validity investigations often require searchers to consult obscure, unusual, and remote sources of potential prior art.*<sup>82</sup>

This is where the unconventional types of prior art come in to play. Since prior art in most countries can be anything, it can be such disparate things as public trials, printed manuals, products put on sale and videos on YouTube. The limitations in the United States to printed publication worldwide and products put on sale in the United States brings in what can be considered to be printed publications, but nonetheless the breadth in what can be claimed to be prior art in the rest of the world suggests that it might prove valuable to look for obscure prior art.

### 3.8 Cited prior art

Patent offices are, as described above, generally focused on patent literature and to some extent also NPL in their prior art searches during the granting process. It is uncommon that strict unconventional prior art (not printed materials) is at all cited in the granted patent though NPL are relatively frequently cited.<sup>83</sup> From a study carried out on patents with application dates between 1991 and 2001 Callaert et al. has concluded that almost all patents have references to other patents though only 34% of the examined USPTO patents have references to non patent prior art. The same amount for EPO patents is 38%.<sup>84</sup>

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<sup>82</sup> Intellogist. (2009). *Validity Searching Best Practices*. Retrieved July 21, 2009 from Intellogist: [http://www.intellogist.com/wiki/Validity\\_Searching\\_Best\\_Practices](http://www.intellogist.com/wiki/Validity_Searching_Best_Practices)

<sup>83</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series . page 7.

<sup>84</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series . page 7.

Noteworthy is that Callaert et al. finds that the USPTO has three times as many references of prior art in their granted patents than what EPO has.<sup>85</sup> They conclude that it has a direct relation to the fact that the applicant has a “duty of candor and good faith” in relation to the patent office. The applicant has a “duty to disclose to the Office all information known to that individual to be material to patentability”<sup>86</sup>, an obligation which seems to extend the material referenced. It is however unclear whether this really improves the quality of the referenced material.

Callaert et al. also finds that around half of the NPL references in the examined patents from both USPTO and EPO are from journal articles. This might not be of that great surprise, though the fact that non-journal references represent 36% for EPO patents and 45% for USPTO patents, in their study is of greater interest.<sup>87</sup> One other study finds that the three types of referenced NPL besides scientific and technical journal references are to trade journals, to firm publications and to standards documents.<sup>88</sup>

	USPTO	EPO	Total
Conference Proceedings	381 (17%)	612 (34%)	993
Industry related documents	560 (25%)	304 (17%)	864
Books	333 (15%)	186 (10%)	519
Reference books / Databases	234 (10%)	600 (33%)	834
Patent related documents	327 (15%)	46 (3%)	373
Research / Technical reports	138 (6%)	27 (2%)	165
Newspapers	106 (5%)	10 (0%)	116
Unclear / Other	163 (7%)	18 (1%)	181
<b>Total</b>	<b>2242 (100%)</b>	<b>1803 (100%)</b>	<b>4045</b>

**Figure 1 - Occurrence of non-journal sources in USPTO and EPO: observed values (column percentages between brackets).<sup>89</sup>**

When looking at the non journal references found by Callaert et al. there are some significant conclusions in relation to unconventional prior art that can be drawn. The first is that from their research one can conclude that the more “unconventional” a reference is the more likely is it to be referenced by the USPTO

<sup>85</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series .

<sup>86</sup> 37 CFR 1.56

<sup>87</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series . page 9.

<sup>88</sup> Harhoff, D., Scherer, F. M., & Vopel, K. (2003). Citations, family size, opposition and the value of patent rights. *Research Policy* , 32 (8), 1343-1363. page 1350-1351.

<sup>89</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series . table 5a, page 17.

whereas the opposite is true for the EPO. The disclosure obligation in the United States might be thought to encourage the applicant to disclose prior art that the office not necessarily would search, as the results from the EPO suggests.

The differences between the two patent offices also come to show in what is referenced as more conventional prior art. The study notes that the EPO examiners, at the time of the study, has access to a broad range of electronic databases and conducts the search accordingly. More recent figures state that they have database access to around 80% of all technical publications from the 20<sup>th</sup> century.<sup>90</sup> Whereas the USPTO on the other hand has to have a hard copy of each of the documents cited as references. Even though this could be quite easy to overcome, the difference comes to show in what is referenced.<sup>91</sup>

The amount of “scientific references” differ between technological fields. This could be a combination of how information is spread through different areas of science and also how mature the technology field itself is. With more scientific journal articles in the emergence of the area or technology and a shift to patents as the carrier of new technological improvements the more established the technology field is.<sup>92</sup>

### 3.8.1 An example

I have conducted a patent search using the “Thomson Innovation” software to exemplify the more unconventional prior art citations made since the publication of the Callaert et al. study<sup>93</sup>. The first query used was “ \*youtube\* ” in the citations field. For the last 10 years there have been 29 patents (including the US design patents) or applications referring to the online video sharing site YouTube.com.

An example of this type of citation can be found in the US patent application US7494397B2, filing date June 14, 2007. The applicant references both to the video site YouTube as well as to two other less conventional sources.

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<sup>90</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 230.

<sup>91</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series . page 10.

<sup>92</sup> Callaert, J. V., Verbeek, A., Debackere, K., & Thijs, B. (2006). *Traces of Prior Art: An Analysis of Non-Patent References Found in Patent Documents*. Working Paper Series . page 8.

<sup>93</sup> It can be found at <http://www.thomsoninnovation.com/>.

Website reference, <http://www.youtube.com/watch?v=DsXgmOurvts>, "Golden Age Pioneers—Nicolas Florine", Mar. 28, 2008 (4 pages).

Photographic reference, [www.fas.org/man/dod-101/sys/ac/ab-64-dvic292.jpg](http://www.fas.org/man/dod-101/sys/ac/ab-64-dvic292.jpg), Aug. 19, 2000.

Photographic prior art reference #4, toy helicopter, [www.raidentech.com](http://www.raidentech.com).

In the case of using internet as references a similar search as above using the query "http\*" rendered over 30000 hits since 1994. The graph below shows the evolution of internet references over time. The date refers to the application date, which is why the curve is sloping at the end, since publication of the application is yet to be. The earliest applied for patent with a reference to an http source document, which is not added by compulsory license actions, has application date in June 1995 with the reference added after January 2007.<sup>94</sup> The reference is to Wikipedia.

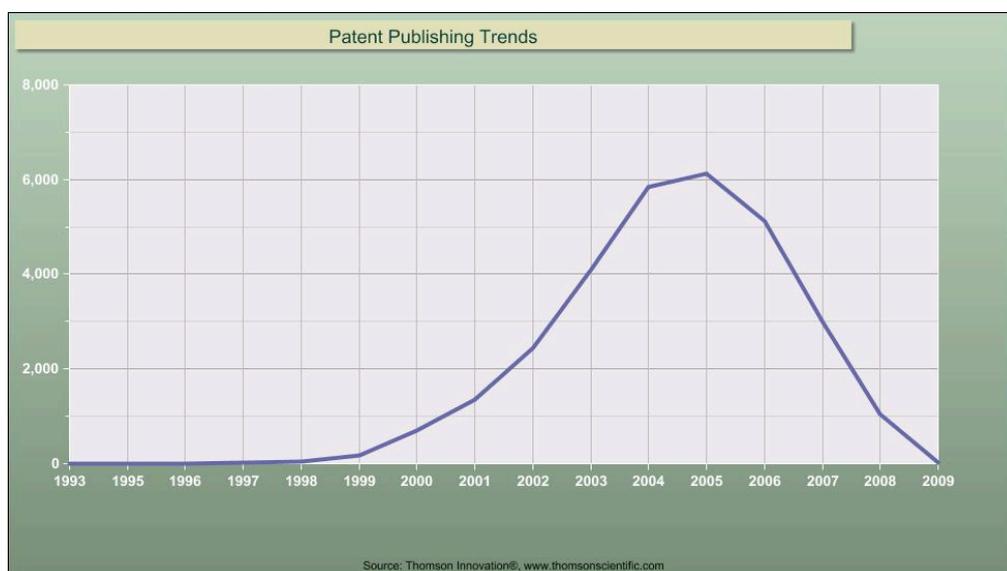


Figure 2 - Prior art references to "http\*" in patent documents over time.

There has been a steady development towards referring to documents from internet in patent applications. The increased use of electronic sources as references has been accompanied by the technical evolution of in this case internet.

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<sup>94</sup> The patent is the US7307166B1 "Oxpurine nucleosides and their congeners, and acyl, derivatives thereof, for improvement of hematopoiesis" and the reference is "Acyl From Wikipedia, the free encyclopedia <<http://en.wikipedia.org/wiki/Acyl>> downloaded from the internet Jan. 4, 2007".

## 4 Searching for prior art

### 4.1 Introduction

The reasons to search for prior art might be many and have different starting points depending on if you are viewing the patent/application from the rights holders side or if you view it from for instance the alleged infringer's side. The core is still the same and in the words of Cantrell:

*Although the expression “ignorance is bliss” has developed in to a positive cliché in the English language, ignorance should not be considered to be an asset [when it comes to patents].<sup>95</sup>*

And he continues to argue for that both the patentee and the other party have great benefits in actually knowing what is out there and what they have or what they have up against them. Adding on the notion that for 90% of all patents there are prior art out there to invalidate them, as mentioned in the introduction, there are real reasons why not to neglect prior art searching.

But on the other hand, there are companies working with the strategy of “ignorance is bliss” and it works fine for them. There are also technology areas where patent pools and extensive cross licensing might diminish the need to actually conduct searches when adopting a new technology, if it would infringe there would be licenses anyway.<sup>96</sup>

However, there are cases where prior art searching might prove difficult to actually accomplish in a comprehensive way. For instance an examiner might have access to a great amount of documents through databases, both patent documents and other types of publications though she might have a hard time actually going through all of the information found or just actually find all relevant material. There is also the case where the prior art which might be helpful for the purpose of the search is in a form not readily available through the usual channels. It might be a physical product or an oral speech recorded and put up on YouTube. This is where unconventional ways of searching prove valuable.

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<sup>95</sup> Cantrell, R. L. (2009). *Outpacing the Competition - Patent-Based Business Strategy*. Hoboken, New Jersey, USA: John Wiley & Sons Inc. page 9.

<sup>96</sup> Cantrell, R. L. (2009). *Outpacing the Competition - Patent-Based Business Strategy*. Hoboken, New Jersey, USA: John Wiley & Sons Inc. page 13.

I will start with a brief overview of different types of searches and move towards firstly searching for unconventional prior art and then look at different emerging searching options available.

## 4.2 Different types of searches

There might be many different reasons to why one would like to investigate the prior art for a specific patent and some of them have been discussed around above. The searches will take slightly different approaches, both in what to search and perhaps most significantly in to how thorough the search is conducted. The authors from Landon IP suggest six different “searches” of both patent documentation and more or less conventional prior art.<sup>97</sup>

1. Patentability Search
2. Validity Search
3. Infringement Search
4. Clearance Search
5. State of the Art Search
6. Patent Landscape Search

The different types have different features and will each be looked at separately below.

### 4.2.1 Patentability search

Preparing for the communication with the actors on the administrative arena can be done through patentability searches. The basic rationale why to search during drafting is that you should be prepared for what prior art might be found during the examination searches done by the patent office. You can this way already during the initial drafting process anticipate that information to get a stronger start.<sup>98</sup>

It is mandatory in the US to disclose all known prior art to the examiner. This could otherwise be a ground for invalidation of the patent.<sup>99</sup> You are on the

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<sup>97</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 21-34.

<sup>98</sup> *Disclosure of Pror Art to the Patent Office*. (n.d.). Retrieved June 25, 2009 page 1.

<sup>99</sup> *Disclosure of Pror Art to the Patent Office*. (n.d.). Retrieved June 25, 2009 page 1.

other hand not required to actually search for prior art, just disclose what you know.<sup>100</sup>

*Often one hears or reads that patents are filed and the inventors deliberately do not search for prior art and since they can not be said to be aware of what they haven't found they are therefore under no obligation to disclose anything. This approach may be tactically useful for a corporation with deep pockets trying to build up a defensive wall of patents which ultimately can be used to threaten or intimidate smaller players into paying royalties. However, from a university perspective with rather more shallow pockets and no overt desire to threaten or intimidate others, such a tactic has much less appeal.<sup>101</sup>*

For a small company it might be more important to have a patent than not to have one. For a larger company it might be more important to have fewer but stronger patents than many of them. Stronger patents create predictability and enforceability and will therefore have a higher significance on the business arena, in for instance license negotiations.<sup>102</sup>

Independently of the rationale for having patents, something which is inevitable during the application stages is to be encountered by prior art, known or unknown.

The patentability search is typically done against published patents, and since they are published 18 months after the filing date it is also common practice to search scientific and non-scientific publications. Hunt et al. concludes that everything really should be searched at this stage and exemplifies with that believing in that the patent office will fill the void with its own search is a major mistake. This then lays the basis for patent invalidation in a later stage.<sup>103</sup>

But, since the most common search engines for prior art do not include unconventional prior art to the extent necessary for a comprehensive search, there is still the problem of probably existing prior art out there.

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<sup>100</sup> *Disclosure of Prior Art to the Patent Office*. (n.d.). Retrieved June 25, 2009 page 1.

<sup>101</sup> *Disclosure of Prior Art to the Patent Office*. (n.d.). Retrieved June 25, 2009 page 1.

<sup>102</sup> IBM. (2008, August 1). *Leading the patent revolution*. Retrieved July 26, 2009 from IBM: <http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.patent.revolution.html>.

<sup>103</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 23.

Though I have not found any evidence of that this is the case, it still might be argued that the easier it is to find and reference a piece of prior art, the more probable it will be found and considered.

#### **4.2.2 Validity search**

If the patentability search had as its main goal to determine patentability before filing, the validity search has the same objective though after the patent has been granted. Since invalidity is the first line of defense in most patent infringement cases, it can be lots of money on stake and the search is therefore most likely to have more resources and then be even more thorough than the patentability search.<sup>104</sup>

This type of search is most likely to surface unconventional prior art. The budget is likely to be larger than during patentability and also on the fact that it is conducted when the patent and technology has had time to develop are factors effecting the outcome of the search. In most cases you can see how and where the technology has been implemented and also then search in broader areas where, at the time of application, might not have been the common practice to use the technology. Though someone might have been using it.

Hunt et al. suggests three types of validity searches; for invalidity, to ensure enforcement readiness and in a licensing situation.<sup>105</sup> All three of them have the purpose of looking in to the validity of an already issued patent. This can be as valuable for a potential licensee to ensure that the royalty rates are correct, you do not want to pay for something which cannot be enforced, as it is for a patent holder to understand the stability of a specific right before using it for licensing or right on enforcement.

The validity search has most relevance on the business arena. This type of search is also the most relevant when it comes to community based searches, as shown below.

#### **4.2.3 Infringement search**

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<sup>104</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 24

<sup>105</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 24-25.

The infringement search is a search against existing patents to see if your invention or concept reads on to any of them.<sup>106</sup> This type of search is by its nature only against patents and the vast majority of producers are not interested in going public with that they are looking at which patents they might infringe. Therefore it is not covered by community activities and does not encompass unconventional prior art.

#### **4.2.4 Clearance search**

The clearance search shares typical features with the infringement search with the difference that it is a product and not an invention which is looked at.<sup>107</sup>

#### **4.2.5 State of the art search**

The state of the art search is a search to establish where a specific technological field is at a certain stage in time.<sup>108</sup> It typically encompasses the same information as a patentability or invalidation search with the difference that it does not focus on one specific invention but rather the full spectra of inventions within certain boundaries. It could be relevant to also search unconventional prior art, though most searches require only focusing on patent documents and scientific publications.

#### **4.2.6 Patent landscape search**

The patent landscape search is a more in depth analysis and perhaps also extended search of the state of the art search.<sup>109</sup> It can typically categorize fundamental discoveries from incremental improvements.

### **4.3 Conventional searching**

#### **4.3.1 Introduction**

Though database based searches has been touched upon elsewhere in this paper it is still relevant to look at the most significant search type to use it in relation to

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<sup>106</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 26-28.

<sup>107</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 28-29.

<sup>108</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 30-31.

<sup>109</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 31.

the more unconventional types of community based methods in gathering prior art.

That the patent offices of today have access to 80% of all published scientific literature from the 20<sup>th</sup> century has already been stated and it goes without saying that they have access to virtually every patent. Though the point of access is only one part of the searching they, and everyone else, also have classification systems to get a better hit rate in the searches.

For many traditional technological areas the best prior art can be found in patent documents, according to the IPR Helpdesk.<sup>110</sup> Though non patent literature sometimes can prove valuable, especially in fast moving areas where the 18 months delay from filing to publication can prove to harbor significant innovations in the area, which might have been published in the non patent literature.

### **4.3.2 Databases**

There is a vast amount of databases available for prior art searches. Even though there are specialized search engines in specific areas, more general databases such as Google Scholar have emerged as a viable, and free, alternative approach.<sup>111</sup>

Most of the databases are available for anyone to use, though searching is a highly specialized type of work and it is also therefore specific search firms have evolved.

## **4.4 Search of unconventional prior art**

If more conventional prior art is quite easy to at least localize, unconventional can be harder to track down. Especially if it is a form that is not widely searchable through a database. The patent consultant Patent Hawk describes different types of prior art and concludes that products can be a valuable source.

*Products can be great prior art, particularly as defensive art in litigation, but finding sufficient technical details about some product types, such as old software or electronic products, can be time-consuming.<sup>112</sup>*

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<sup>110</sup> IPR Helpdesk. (2005, December). *Non-Patent literature as a source of prior art*. Retrieved July 25, 2009 from IPR Helpdesk: <http://www.ipr-helpdesk.org/newsletter/24/html/EN/howToFindAPatent.html>

<sup>111</sup> Some of the available different databases are discussed at Heinze, W. F. (2005, December 02). *Non-Patent Prior Art on the Internet*. Retrieved June 18, 2009 from I/P Updates: <http://ip-updates.blogspot.com/2005/12/non-patent-prior-art-on-internet.html>.

But the prior art found is never better than the understanding of the search topic by the searcher and the selection of queries. Even if they are words in a database search or to choose the right magazine to look at the adverts to find products which might be helpful to have a closer, physical, examination of.

There are also other relevant sources which should not be underestimated, such as Usenet discussion groups, web bulletins in relation to technical standards and blogs. All this can be used as well as YouTube videos or conference proceedings.

The more spread out the information gets the harder is it to trace it down and to evaluate it. This is where community based prior art searches come in to play.

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<sup>112</sup> Patent Hawk. (2008). *Prior Art Search*. Retrieved July 25, 2009 from Patent Hawk: <http://www.patenthawk.com/search.htm>.

## 5 Community based movement

I have divided the community based prior art movement in to three groups based on their approach to the prior art in relation to the status of the patent. The first group is during the granting process, the second is when the patent is granted and the third is the strategic use of defensive publication.

### 5.1 Crowdsourcing

The term “crowdsourcing” is relatively new and is an allegory of “outsourcing” which stands for that you let a specific function from the company be done elsewhere and not in-house. Typically this was the customer service department or handling of logistics. Crowdsourcing on the other hand is to outsourcing to an unspecified group of people.<sup>113</sup> The key denominator where it has been used is that it includes some form of large quantity of data which has to be captured, structured and analyzed in some way. It can be everything from counting stars on pictures from the universe<sup>114</sup> to the recent example of going through millions of pages of expense claims from British MPs<sup>115</sup>.

Don Tapscott has elaborated more on the collaborative movement in his book *Wikinomics*, though that concept is more related to a less regulated environment. The four cornerstones of the *wikinomics* movement are “openness, peering, sharing, and acting globally”.<sup>116</sup> This can quite clearly be seen in the free and open source software community, which also has close connections to the Linux community which harbor some of the new patent initiatives as we will see below.

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<sup>113</sup> Wikipedia. (2009, July 21). *Crowdsourcing*. Retrieved July 25, 2009 from Wikipedia, the free encyclopedia: <http://en.wikipedia.org/wiki/Crowdsourcing> and for more in depth considerations see either the original article by Jeff Howe Howe, J. (2006). The rise of crowdsourcing. *Wired magazine* (14.06). or Tapscott, D., & Williams, A. D. (2006). *Wikinomics - How mass collaboration changes everything*. New York, NY, USA: Portfolio..

<sup>114</sup> Shkolyar, & Svetlana. (2009, July 6). *People's astronomy*. Retrieved July 25, 2009 from The IET: <http://kn.theiet.org/magazine/issues/0912/peoples-astronomy-0912.cfm> though they state this is not really crowdsourcing.

<sup>115</sup> Andersen, M. (2009, June 23). *Four crowdsourcing lessons from the Guardian's (spectacular) expenses-scandal experiment*. Retrieved July 25, 2009 from The Nieman Journalism Lab: <http://www.niemanlab.org/2009/06/four-crowdsourcing-lessons-from-the-guardians-spectacular-expenses-scandal-experiment/>.

<sup>116</sup> Wikipedia. (2009, June 14). *Wikinomics*. Retrieved July 25, 2009 from Wikipedia, the free encyclopedia: [http://en.wikipedia.org/wiki/Wikinomics\\_%28book%29](http://en.wikipedia.org/wiki/Wikinomics_%28book%29).

The reasons for this quite recent development with crowdsourcing efforts of various kinds in the patent area have to a large extent been fuelled by the technological development. Internet has had a key role in creating a closer community of international peers who gladly are sharing their efforts and also enjoy the shared efforts by others. But there is also the fact that the internet has had a technological change and a user experience change. Where internet 10-15 years ago mostly was used to display information it has transformed in to a platform where you can collaborate and interact. Tapscott defines this shift as that “the web becomes a computational platform”<sup>117</sup>.

The combination of technology, huge amount of available information to search through, a community of committed peers willing to contribute and the increasing patent backlog at the world’s patent offices and the United States patent office in particular has paved the way for a new approach to patents. This shift in to a new approach to prior art and validity of patents has emerged both at the application end as well as at the invalidation end of the patent lifecycle.

The fact that the crowdsourcing movement is relatively new might have contributed to that the criticism available is, to be mild, scarce; though some exist.<sup>118</sup> The most obvious problem is that no one of the ones you rely upon is in charge. Neither is the long term commitment self-evident. In the fast moving environment of today, it would be easy to see that the crowd to conduct, for instance, prior art searches is limited to some extent. And too many efforts where they are supposed to contribute might impede the overall contribution, or the contribution to one specific effort. Though the fact that they are fast moving and highly specialized might on the other hand still provide enough value in a specific case to overcome the probability of exhaustion of commitment.

The following will look in to different efforts in the patent are, Peer-to-Patent at the United States patent office as well as the furious efforts by the Linux community to collaborate for invalidation of patents that might threaten their freedom.

## 5.2 Before grant

There have for long been expressed that there are problems with the current patent granting systems worldwide. The most significant criticism has been that

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<sup>117</sup> Tapscott, D. (2007, February 28). Authors@Google: Don Tapscott. (Google, Interviewer) <http://www.youtube.com/watch?v=zF0k6dEm0zQ..>

<sup>118</sup> Wikipedia. (2009, July 21). *Crowdsourcing*. Retrieved July 25, 2009 from Wikipedia, the free encyclopedia: <http://en.wikipedia.org/wiki/Crowdsourcing>.

there are way too much prior art out there to be reviewed during the short time the examiner actually has to look at each application, only about 20 hours on each application.<sup>119</sup> It has therefore emerged efforts to overcome this problem, where the American Peer-to-Patent is the most significant. Other countries have also been interested in the system and Japan has set up a similar trial<sup>120</sup> and the UK has considered doing the same<sup>121</sup>.

## 5.2.1 Peer-to-patent

### 5.2.1.1 Introduction

The most significant of the community based efforts in the patent are is for sure the recently closed two year trial by the USPTO where the public was invited to contribute prior art to specific patents in selected technology areas. The trial sprung out of the huge backlog of patent applications the patent office and the emerging crowdsourcing movement.<sup>122</sup>

IBM has been one of the driving companies behind the project and acknowledges that the conventional system has its flaws that this project is trying to get around.

*The ultimate goal of the program is to improve overall patent quality -- by increasing visibility and leveraging the collective wisdom of experts in the community, examiners are better assured of granting a patent only for a truly novel invention.*<sup>123</sup>

The basic idea with the system is to use the wisdom of the crowd to find the prior art and then to use the examiner's limited time and acquired knowledge to actually asses the prior art found, instead of having him to also look for it.<sup>124</sup>

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<sup>119</sup> Scola, N. (2008, August 29). *Better Patents Through Crowdsourcing*. Retrieved February 11, 2009 from Science Progress: <http://www.scienceprogress.org/2008/08/better-patents-through-crowdsourcing/>.

<sup>120</sup> Peer to Patent. (2008, May 15). *Japan Patent Office Announces Launch of Peer to Patent*. *Japanese IT Companies Sign-On*. Retrieved July 25, 2009 from Peer to Patent: <http://cairns.typepad.com/peertopatent/2008/05/japan-patent-of.html>.

<sup>121</sup> Peer to Patent. (2006, December 7). *Gowers Report Recommends CPR*. Retrieved July 26, 2009 from Peer to Patent: [http://cairns.typepad.com/peertopatent/2006/12/gowers\\_report\\_r.html](http://cairns.typepad.com/peertopatent/2006/12/gowers_report_r.html).

<sup>122</sup> See for instance Hagel, J., & Seely Brown, J. (2009, March 18). *Peer-to-Patent: A System for Increasing Transparency*. Retrieved July 30, 2009 from Business Week: [http://www.businessweek.com/print/innovate/content/mar2009/id20090318\\_730473.htm](http://www.businessweek.com/print/innovate/content/mar2009/id20090318_730473.htm).

<sup>123</sup> IBM. (2008, August 1). *Leading the patent revolution*. Retrieved July 26, 2009 from IBM: <http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.patent.revolution.html>.

The project is a trial that has emerged from the New York Law School's Institute for Information Law & Policy which has been an active partner to the USPTO through the whole project. During the first year of the project there were 71 applications participating and by the end of the second year of the trial, 30 May 2009, there were 187 participating applications.

#### **5.2.1.2 How it works**

I will briefly go through the process of how the Peer-to-Patent system works.<sup>125</sup>

The diagram below shows the main features of the community review program. It starts with that the applicant notifies that she would like to participate in the program and the application becomes published for review. The peer-reviewers discuss and submit relevant prior art and also rank each other's submittals. This is then transferred to the examiner who makes the formal patentability review based on the submitted information.

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<sup>124</sup> Scola, N. (2008, August 29). *Better Patents Through Crowdsourcing*. Retrieved February 11, 2009 from Science Progress: <http://www.scienceprogress.org/2008/08/better-patents-through-crowdsourcing/>.

<sup>125</sup> For a more thorough overview of the Peer-to-Patent system, please visit their homepage at <http://www.peertopatent.org/>.

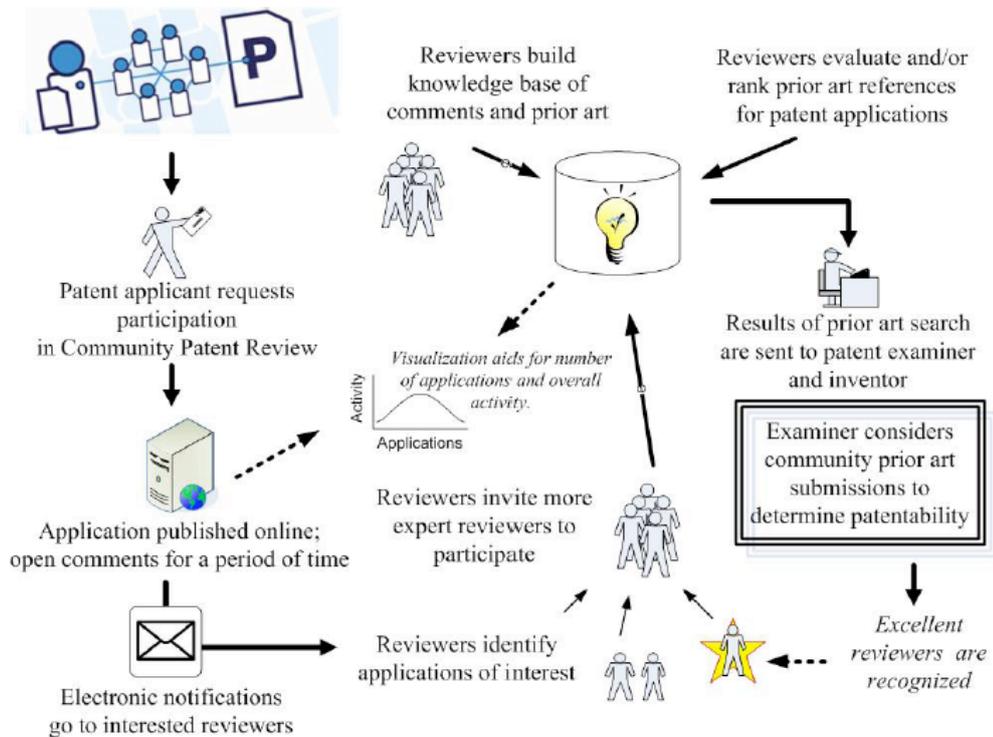


Figure 3 – Community Patent Review Process Diagram.<sup>126</sup>

The current system has been limited to only certain patent classes and the criteria used in the end of the trial period were that the applications:

- Are properly classified in a Technology Center 2100 (Computer Architecture: Classes 380, 700, 703, 706, 707, 708, 710, 711, 712, 714, 715, 717, 718, 719), Technology Center 2400 (Computer Networks & Cryptography and Security: Classes 380, 709, 713, 726) or Technology Center 3600 (Business Methods, Class 705)
- Have recently published (within the past 3 weeks), or have not yet published as a Pre-Grant Publication but expected publication by June 15th, 2009; and
- Have not filed a notice of non-publication; and
- Are not participating in the Accelerated Examination Program.

The limitations of technology areas have been motivated by that those are the most likely areas where community participation and direct access to the prior art is present.

<sup>126</sup> New York Law School. (2007). *Community Patent Review Project Summary*. page 10.

Peer-to-Patent is open for everyone to register at the site and to contribute with prior art.

### 5.2.1.3 Discussion

The system can of course raise doubts that the participants might be competitors doing the uttermost to sabotage the patents of their rivals. Though, in the words of Blaise Mouttet one of the applicants participating, this competition might even be desired. He hopes that the participants will contribute “the best possible prior art so that I get the best possible patent”.<sup>127</sup>

However, the impact on the participating companies can probably not be underestimated, at least is John E. Kelly III, senior vice president and director of IBM Research overwhelmingly positive of the initiative.

*Many of our technical professionals have voluntarily signed up as peer reviewers and IBM stands out as a leading contributor of prior art. I am tremendously proud of that accomplishment I know we can do even better now that the pilot is being expanded and I encourage our inventor community to participate. Not only will it help us do our jobs better by bringing additional focus and awareness to the marketplace, it will help with the imperative of improving patent quality.*<sup>128</sup>

Though the outcome from a project like this is the likelihood of patents of better quality it shifts the efforts from the granting authority and the administrative arena to the business arena where the actors in fact are supposed to contribute to the efforts of the PTO. This is of course something which otherwise would have cost money in the case of an invalidation process, so perhaps does it bring more value to the community.

The prior art submitted by the applicants in general consist of 14% non patent prior art. The amount non patent prior art submitted by the peer reviewers in this trial is as high as 55%.<sup>129</sup> One possible explanation is that they are focused on finding other relevant sources than patents, since the USPTO has reasonable resources there already. This is an interesting observation, since it suggests that

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<sup>127</sup> Scola, N. (2008, August 29). *Better Patents Through Crowdsourcing*. Retrieved February 11, 2009 from Science Progress: <http://www.scienceprogress.org/2008/08/better-patents-through-crowdsourcing/>.

<sup>128</sup> IBM. (2008, August 1). *Leading the patent revolution*. Retrieved July 26, 2009 from IBM: <http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.patent.revolution.html>.

<sup>129</sup> Hagel, J., & Seely Brown, J. (2009, March 18). *Peer-to-Patent: A System for Increasing Transparency*. Retrieved July 30, 2009 from Business Week: [http://www.businessweek.com/print/innovate/content/mar2009/id20090318\\_730473.htm](http://www.businessweek.com/print/innovate/content/mar2009/id20090318_730473.htm).

there actually is prior art out there ready to be found. And it goes without saying that implementing all the relevant sources already before granting is more cost efficient from a societal perspective.

### 5.2.2 Japanese community patent review

Though the US community patent review program was the first to launch it has not been the only one. It has been considered to start similar programs in both the UK and Canada as well as Japan. The latter launched a community based patent review system where several of the large hi-tech companies were participating from the beginning. The project was introduced in 2008 and includes IBM, Fujitsu and Ricoh at the start.<sup>130</sup> The trial period ended in the spring of 2009 with mixed results.<sup>131</sup>

The project combines the crowdsourcing efforts of Peer-to-patent with a sort of expertise panel to help contribute with the relevant prior art. This might have been one of the shortcomings of the project, which also was noted in the report.<sup>132</sup> The way it is set up is that the Japanese PTO have chosen several hundred experts to review patent applications and contribute with prior art.<sup>133</sup> It was not set up as a true community, where interaction between the participants was possible. This led to relatively little interactions and only few real contributions of prior art.

In relation to the US project it can be noted that to get participation from the community it has to engage itself, not to be chosen by the authority. Especially if there is not any compensation for the participation. It essentially goes back to what was said earlier to be the basic foundations of crowdsourcing; “openness, peering, sharing, and acting globally”.<sup>134</sup> To be successful one needs to implement and utilize all of these factors according to Tapscott and Williams and most essentially in this case openness and peering.

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<sup>130</sup> Peer to Patent. (2008, May 15). *Japan Patent Office Announces Launch of Peer to Patent. Japanese IT Companies Sign-On*. Retrieved July 25, 2009 from Peer to Patent: <http://cairns.typepad.com/peertopatent/2008/05/japan-patent-of.html>, though the information on the project in English is scarce.

<sup>131</sup> Institute of Intellectual Property. (2009). *Community Patent Review Report*. .

<sup>132</sup> Institute of Intellectual Property. (2009). *Community Patent Review Report*. .

<sup>133</sup> Peer to Patent. (2008, May 15). *Japan Patent Office Announces Launch of Peer to Patent. Japanese IT Companies Sign-On*. Retrieved July 25, 2009 from Peer to Patent: <http://cairns.typepad.com/peertopatent/2008/05/japan-patent-of.html>.

<sup>134</sup> Wikipedia. (2009, June 14). *Wikinomics*. Retrieved July 25, 2009 from Wikipedia, the free encyclopedia: [http://en.wikipedia.org/wiki/Wikinomics\\_%28book%29](http://en.wikipedia.org/wiki/Wikinomics_%28book%29).

*Participants in peer production communities have many different motivations for jumping in, from fun and altruism to achieving something that is of direct value to them. Though egalitarianism is the general rule, most peer networks have an underlying structure, where some people have more authority and influence than others. [...] Peering succeeds because it leverages self-organization—a style of production that works more effectively than hierarchical management for certain tasks. Its greatest impact today is in the production of information goods<sup>135</sup>.*

This is also a factor that the evaluation report from the Japanese Institute of Intellectual property takes in to account when they discusses the solutions to the fact that only around 10% of the participating reviewers were submitting prior art.

### **5.3 Community based invalidation searches (after grant)**

As pointed out above, the validity search conducted as a response to an alleged patent infringement is one of the most thorough searches made. The budget is most often substantially larger than at the application stage as the stakes are higher with large damages to be paid if the patent is found valid and infringed. Therefore is it not of that great surprise that there are several different emerging services which uses the community of either supporters of a specific product or technology or just by offering a reward, to get them to participate and submit relevant prior art for invalidation.

It is worth noting that there might be a difference between the mere business decisions led efforts such as Article One Partners and the more ideological led projects, especially the ones with the roots in the Free and Open Source Software (FOSS) movement. The utilization of crowdsourcing is somewhat the same though different things motivate the participants. Where the bounty hunting efforts are led by a cash prize the FOSS movement led efforts are pure idealistic with only the own interest in actually being able to use the specific software or technology.

The differentiation between search as a business and search as a moral conviction is important when looking at the search efforts in relation to the existing search firms, since they are somewhat competing on different levels. They play different roles and fill different functions; hence they can be productive at different stages in the process.

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<sup>135</sup> Tapscott, D., & Williams, A. D. (2006). *Wikinomics - How mass collaboration changes everything*. New York, NY, USA: Portfolio. page 25.

### 5.3.1 Bounty Hunting (Article One partners, Bounty Quest)

#### 5.3.1.1 Introduction

The most prominent and probably the only existing at the moment, in the patent bounty hunting are is Article One Partners (AOP)<sup>136</sup>. They provide a cash prize, typically between USD 10000 and USD 50000 for invalidating prior art to selected patents. The idea of AOP is to “provide a reward for those who have particular knowledge and make it worthwhile for them to come forward”, according to Cheryl Malone President of AOP.<sup>137</sup>

Even though AOP first emerged in 2008, the idea is not new. Something similar to this was suggested in 2003 by Bob Besaha, president of Strong Software. His idea was focused on the prior art search during the granting process but it opened up for freelance bounty hunters in the prior art are.<sup>138</sup> Very much like AOP.

#### 5.3.1.2 How it works

When someone from the community submits prior art they think will be invalidating AOP forwards this, or rather all the submitted prior art at the time of the study, to an external expert who both reviews the submitted prior art in relation the patent and also decides who is to get the reward.<sup>139</sup>

The business model is divided with both direct contracts on finding prior art to specific patents, typically for companies alleged infringing those patents. But

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<sup>136</sup> Their homepage contains some information Article One Partners. (2009). *Welcome to AOP :: Article One Partners*. Retrieved July 30, 2009 from Article One Partners: <http://www.articleonepartners.com/welcome.php>.

<sup>137</sup> Quinn, G. (2008, December 16). *Musings on Patent Trolls & Bad patents*. Retrieved July 30, 2009 from IP Watchdog: <http://www.ipwatchdog.com/2008/12/16/musings-on-patent-trolls-bad-patents/id=1034/>.

<sup>138</sup> Besaha, B. (2003). Bounty Hunting in the Patent Base. *Communications of the ACM*, 46 (3), pp. 27-39. page 28. Interesting to note is that Cheryl Malone has tried the bounty hunting business before. She was patent counsel at BountyQuest, see Article One Partners. (n.d.). *Bio- Founder and President, Cheryl Milone*. Retrieved July 30, 2009 from PR Newswire: [http://www.prnewswire.com/mnr/aop/34653/docs/34653-Milone\\_Bio\\_Final.pdf](http://www.prnewswire.com/mnr/aop/34653/docs/34653-Milone_Bio_Final.pdf).

<sup>139</sup> Quinn, G. (2008, December 16). *Musings on Patent Trolls & Bad patents*. Retrieved July 30, 2009 from IP Watchdog: <http://www.ipwatchdog.com/2008/12/16/musings-on-patent-trolls-bad-patents/id=1034/> and Article One Partners. (2008, November). *Article One Partners Q&A*. Retrieved July 30, 2009 from PR Newswire: [http://www.prnewswire.com/mnr/aop/34653/docs/34653-AOP\\_Q&A\\_FINAL.pdf](http://www.prnewswire.com/mnr/aop/34653/docs/34653-AOP_Q&A_FINAL.pdf).

there are also the other model where they collect the submitted prior art and solicit potential buyers. Typically the same group as for the first model.<sup>140</sup>

### 5.3.1.3 Discussion

There have been expressed considerations of however it is good to create a group of patent mercenaries only in it for the money.<sup>141</sup>

Even though the initiative by AOP seems to be a fresh one, it has been tried before by the company BountyQuest that existed between 2000 and 2003.<sup>142</sup> They applied a business model more similar to the one of search firms; someone gives the company a patent to search which they do. In this case by the help of a community of reviewers. This might have been what made them close down in 2003 and perhaps what could get AOP to prosper.<sup>143</sup>

The development since the year 2000 in terms of the connectivity and openness has been rapid, cornerstones for a crowdsourcing movement to work. AOP's business model is also more offensive with them choosing some of the patents to be searched, which will provide more leverage if they actually find interesting prior art.

AOP has applied a model for validating the prior art through an external consultant. To review the prior art found is possibly key be able to have a business proposition to the potential buyer of the prior art source. Though it is far from sure that it actually will invalidate the patent at hand, what is more likely is that it will prove to be a bargaining chip in the infringement discussions. One other aspect brought up in discussions with people in the business and also confirmed by

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<sup>140</sup> Article One Partners. (2008, November 17). *Article One Partners Launches New Global Online Community to Energize Patent Reform*. Retrieved July 30, 2009 from PR Newswire: <http://www.prnewswire.com/mnr/aop/34653/>.

<sup>141</sup> Howe, J. (2008, November 20). *Crowdsourcing the Patent Review System*. Retrieved February 11, 2009 from Crowdsourcing: <http://crowdsourcing.typepad.com/cs/2008/11/crowdsourcing-the-patent-review-system.html>.

<sup>142</sup> Wikipedia. (2008, December 26). *Public participation in patent examination*. Retrieved July 30, 2009 from Wikipedia, the free encyclopedia: [http://en.wikipedia.org/wiki/Public\\_participation\\_in\\_patent\\_examination](http://en.wikipedia.org/wiki/Public_participation_in_patent_examination), Cave, D. (2000, October 23). *Who ya gonna call? Patent busters!* Retrieved July 31, 2009 from Salon.com: <http://www.salon.com/tech/view/2000/10/23/cella/index.html> and their homepage through the Internet Archive BountyQuest. (2001, January 19). *BountyQuest*. Retrieved July 31, 2009 from BountyQuest: <http://web.archive.org/web/20010119171500/http://www.bountyquest.com/>.

<sup>143</sup> Cave, D. (2002, February 15). *Losing the war on patents*. Retrieved July 31, 2009 from Salon.com: <http://dir.salon.com/story/tech/feature/2002/02/15/bountyquest/index.html>.

Joff Wild is how the risk should be handled if it actually proves out not to invalidate the patent.<sup>144</sup>

Though it is some years ago and bounty hunting in the patent sphere is a lot less controversial, it might still be some truth in what was said by Greg Aharonian, a professional prior art searcher<sup>145</sup>, in an article from 2002.

*BountyQuest was always a joke to those who understand prior art searching, /.../ Professional searchers like myself typically bust patents for much less than what BountyQuest charges, and those patents we can't bust, well anyone smart enough to figure out how to find the prior art will know enough about the industry to go straight to the players -- law firms, companies -- and sell the prior art directly, cutting out the BountyQuest middlemen.*

This might also be where AOP can cut out its niche with help from the community and to provide better utility both for the searches by offering a platform where they can collaborate and also for the potential clients/customers in offering a broader search base.<sup>146</sup>

### 5.3.2 Collaborative Communities – PatentFizz and Wiki Patents

There is a specific form of collaborative communities which do not directly aim for invalidation or specific patents. The two most significant are PatentFizz and WikiPatents.

PatentFizz provides a platform for community discussions and comments on issued US patents.<sup>147</sup> The impact of the site is a bit unclear and they use an advertising revenue model, which suggests that they aim for quantity and not necessarily quality.

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<sup>144</sup> Wild, J. (2009, February 9). *\$50,000 to save an entire product line - what a bargain*. Retrieved July 30, 2009 from IAM Magazine - IAM Blog: <http://www.iam-magazine.com/blog/Detail.aspx?g=d94e3518-48af-43ba-92a5-fd1e91161b22>.

<sup>145</sup> Greg Aharonian offers his services through this website <http://www.bustpatents.com/>.

<sup>146</sup> Article One Partners. (2008, November). *Article One Partners Q&A*. Retrieved July 30, 2009 from PR Newswire: [http://www.prnewswire.com/mnr/aop/34653/docs/34653-AOP\\_Q&A\\_FINAL.pdf](http://www.prnewswire.com/mnr/aop/34653/docs/34653-AOP_Q&A_FINAL.pdf).

<sup>147</sup> PatentFizz. (2009). Retrieved July 31, 2009 from PatentFizz - Delivering patent-based information, engaging the community, and facilitating the patent discussion: <http://patentfizz.com/> and PatentFizz. (2007, September 4). *PatentFizz™ - What's this all about?* Retrieved July 31, 2009 from PatentFizz: <http://patentfizz.com/what.html>.

Wiki Patents on the other hand has gained some publicity since they launched in 2006.<sup>148</sup> They also prove a platform for collaboration around patents and patent applications. Since anyone can contribute with information the risk is that the information can be tampered with and not even the community created encyclopedia Wikipedia has overcome this problem. Though, as all of these community efforts, they excel with a greater number of participants who potentially also will monitor the content to actually provide value to the users.

### 5.3.3 Discussion forums and resource offerings

More specific discussion forums and collaboration platforms exist, both in relation to specific patents and more generally directed towards actors in the IP playing field. There are efforts such as Patent Freedom which focuses on non-practicing entities and to collect information around them and the patents they are asserting.<sup>149</sup> They also offer a collaborative platform where the clients can reach out to each other for collaborations on defense against NPEs.

One other example of a similar service is Prior Art Tracker, which in a smaller scale offers a similar information service.<sup>150</sup> Though without the collaborative element in the information exchange.

## 5.4 Community based offensive invalidation

### 5.4.1 Linux Defenders

The Linux Defenders foundation is part of the Open Innovation Network and an online community for defense of Linux from threatening patents. The organization consists of three pillars which all supports the overall goal to keep Linux free. They support the Peer-to-Patent initiative and a Post Grant Peer-to-Patent project as well as Defensive Publications a tool for documenting already known innovations.<sup>151</sup>

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<sup>148</sup> Broache, A. (2006, August 28). *Wiki site aims to boost patent review process*. Retrieved July 31, 2009 from CNET News: [http://news.cnet.com/2100-1030\\_3-6110257.html](http://news.cnet.com/2100-1030_3-6110257.html).

<sup>149</sup> PatentFreedom. (2008, October 27). *PatentFreedom*. Retrieved July 31, 2009 from PatentFreedom: <https://www.patentfreedom.com/index.html>.

<sup>150</sup> Prior Art Tracker. (2008, October 27). *Patent Prior Art Tracker*. Retrieved July 31, 2009 from Prior Art Tracker: <http://www.priorarttracker.com/contentok.php?id=2>.

<sup>151</sup> Linux Defenders. (n.d.). *Our Mission*. Retrieved July 31, 2009 from Linux Defenders: <http://linuxdefenders.org/our-mission>.

Linux Defenders rely heavily on community contributions for their work; it is also something they get great support in. Though they are active when it comes to patents relating to Linux, it is also a narrow initiative which stretches only so far.

While it is limited in its reach it still covers the three approaches that are crucial when it comes to providing prior art; during granting, actively after as well as conscious publishing.

#### **5.4.2 Public Patent Foundation**

The Public patent Foundation is a not-for-profit legal services organization that works in the interest of the public for a better patent system. They “use existing mechanisms within the patent system to achieve our mission of representing the public interest in freedom from unjustified patent restraints”.<sup>152</sup> They mainly focus on requesting reexamination of issued patents. Since their focus is the benefit of the public they mostly direct their attention to patents that restrict the public from important research or innovation activities as well as civil liberties.

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<sup>152</sup> Public Patent Foundation. (2008, October 27). *PUBPAT > About*. Retrieved July 31, 2009 from Public Patent Foundation: <http://www.pubpat.org/About.htm>.

## 6 Strategic prior art considerations

### 6.1 Searching for prior art

The reasons to why a prior art search is to be carried out vary. The core is however to understand the relative validity of a granted patent or a patent application. The efforts made before grant will lay a stronger foundation for the granted patent and later its value on the business arena.

#### 6.1.1 Before grant

The efforts a patentee can carry out in relation to the administrative arena has a twofold relevance, it is of interest to be awarded patents which have been scrutinized against a broad range of prior art during the granting process. It can however also be of interest to actually get a patent granted and to leave the issue about validity to the judicial arena and postpone the process at least a couple of years. The patentee can during this time have established a significant place in the market and perhaps psychologically hindered new entrants, with the possibly weak patent.

Cantrell discusses this possibility of creating uncertainty around a patent grant in relation to the 18 months it takes for an application to be published,<sup>153</sup> and I mean that it can extend also in to the time after grant. One can of course discuss how this relates to what was said earlier about that “ignorance is bliss” might not be the best way to approach prior art. Though I mean that it still can be that in some instances.

To see the patent as a communicative tool with different implications do different actors on the different arenas help in understanding when to take what approach.<sup>154</sup> A patent can serve multiple purposes in different stages of the business for an assignee. This difference is especially visible when to have a patent is more important than to have a strong one, for a small startup seeking funding for instance.

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<sup>153</sup> Cantrell, R. L. (2009). *Outpacing the Competition - Patent-Based Business Strategy*. Hoboken, New Jersey, USA: John Wiley & Sons Inc. Page 298-299.

<sup>154</sup> Petrusson elaborates more about this in Petrusson, U. (2004). *Intellectual Property and Entrepreneurship - Creating Wealth in an Intellectual Value Chain*. Göteborg, Sweden: Center for Intellectual Property..

On the other hand, if you deploy a more sophisticated strategy in that the patents are expected to serve a business purpose longer in to the future than just over the first round of financing, the option to do a thorough prior art search is relevant. It might also be relevant to consider the option of using collaborative prior art efforts such as peer-to-patent. Though it is most likely that the collaborative efforts only will have significance in areas where the community around the technology is strong, such as within computer science and ICT. Which also is why peer-to-patent has limited its trial to just those technology areas.

Even though the search during the granting process has to be mainly focused against the regulations in the specific jurisdiction where a patent is applied for, it still has relevance to think broader. It is mainly an issue with countries with mixed novelty, such as the US, though most patents are applied for in different jurisdictions.

### **6.1.2 After grant**

The drivers to search for prior art after a patent has been granted are almost always the opposite to before grant; with the intention to invalidate the patents in mind. The other reason would be in a preemptive search in order to anticipate the prior art that would meet a licensing program.

Since the driver is different the incentive to be thorough also differs from before grant. The budget for the search is likely, in relation to before grant, to be large, since the alternative to find relevant prior art might be to spend large amounts on royalties. This also has implications on what prior art is likely to be brought forward and it is more likely that physical prior art and other unconventional types will surface in this phase.

The prior art search can be divided in to four categories in this stage 1) search firms, 2) in-house search with special knowledge of the subject, 3) ideologically driven community based searches and 4) bounty hunting. The choice between the different ways of search is not necessarily either or, but they could rather complement each other since they tend to bring out different types of prior art.

Where regular search firms have a focus on conventional prior art the community based prior art searches complement with a broader spectra of more varied types. It is however important to be able to enthusiasm the crowd to be able to actually draw any use of them. The Linux community is one which has good channels to push forward prior art searches if they believe that a patent might be in risk of hindering the use of operating system.

The other community based search type, bounty hunting, might have a broader applicability since the incentive is economic. Though both forms of community based searches tend to end up quite public, an aspect important to think of. Especially if for instance the licensing discussion still is confidential.

The last form of prior art search might be the one that could bring out prior art of potentially highest quality. To use experts on a specific subject, either from within the firm or experts on the subject matter to go through personal files, old conference proceedings, magazine articles or adverts, might prove to be specifically useful where the subject matter is outside of regular patenting areas or has had different developments in different parts of the world simultaneously.

## 6.2 Conscious defensive publication

On the other side of searching is to publish innovations in order to establish them as prior art. Even though it is not really searching for prior art it is to use prior art proactively and is of the same importance as to actually find the relevant prior art.

The tool of defensive publication is growing recognition within the business areas, which rely heavily on not being restricted by patents, and still conduct great amount of innovation, such as software and electronics. It is also an important factor in that the patent examiner might not have any good indexation of the available prior art and therefore will miss some of it.<sup>155</sup> It can also be as Cantrell points out, “If you do not describe and claim a line of technical evolution and the patented invention has value, it is a fair bet your competitor will.”<sup>156</sup> If you instead take the decision to publish the invention so that it can be searched as prior art, you limit the competitor to take advantage.

But it can also be the case that an inventor wants to publish a technology in order to promote the innovation but is eager to ensure it cannot be patented by someone else. This is also when a dedicated prior art publication service such as IP.com can come handy. This practice has been around for quite some time with well known company journals such as the IBM Technical Disclosure Bulletin.<sup>157</sup>

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<sup>155</sup> Hunt, D., Nguyen, L., & Rodgers, M. (2007). *Patent Searching - Tools & Techniques*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc. page 97.

<sup>156</sup> Cantrell, R. L. (2009). *Outpacing the Competition - Patent-Based Business Strategy*. Hoboken, New Jersey, USA: John Wiley & Sons Inc. page 184.

<sup>157</sup> Pangerl, S., & Henkel, J. (2008). *Defensive Publishing - An Empirical Study*. Munich University of Technology, Faculty of Economics and Business Administration, Munich, Germany. page 13.

For a publication to be considered prior art in a non objective prior art country it has to be published following certain formalities. True for all jurisdictions is that it has to become available to the public in one way or another and that the date is verifiable.

The existing research on the area of defensive publications is limited, though the phenomenon is widely used.<sup>158</sup> Pangerl and Henkel see three distinct groups of defensive publications; 1) classical publications, 2) defensive publications within the patent system and 3) disguised publications. Of those three the first two might already be widely accessible to both the patent offices and to the competitors. Though the third type of publications where the publisher for instance print the article in a small language in a publication in a different technological field or just put one example of the published document in a remote library, both options that fulfill the formal requirements for being available to the public, previously have been hard to access. The introduction of internet as both a platform for publications and as a vehicle for research and access to such documents might prove them to be less of an interesting option.

### 6.2.1 Examples

The most well known and developed defensive publication service is IP.com. Their prior art database is fully integrated in both the EPO's and the USPTO's prior art searches. Even though a publication is considered to be prior art, it still has to be found and that is why it is important to be part of the native search at the PTO.

IP.com's system is built around that you can file any document with them and they do both publish it online in to their searchable database and also in a weekly printed publication.<sup>159</sup>

Since the non existence of blocking patents serves the purpose of the open source software community, there are efforts in promoting the use of defensive publications as part of the business strategy. "Defensive Publications" is part of the Linux Defenders organization and they utilize the system to disclose innovations to the public. Though they advocate publications for the benefit of the

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<sup>158</sup> Pangerl, S., & Henkel, J. (2008). *Defensive Publishing - An Empirical Study*. Munich University of Technology , Faculty of Economics and Business Administration, Munich, Germany. page 22.

<sup>159</sup> Ip.com. (2005, September). *Everything Under the Sun*. Retrieved July 23, 2009 from Ip.com - Securing innovation: <http://www.ip.com/email/archive.jsp?year=05&month=09>.

community they do not themselves publish any material, but use the industry standard service IP.com.<sup>160</sup>

There are also several other efforts to create databases or at least platforms where inventors can publish their innovations. One such effort is “Public Domain Ideas”, which is a basic wiki database where anyone can post.<sup>161</sup> As always with smaller initiatives the problem is that it is not sure whether if the PTO will search that database or not. The verification of the date is another problem when looking at prior art from smaller actors. Where IP.com actually can verify the date it is not sure that the court or the PTO will take the date from such disclosures as Public Domain Ideas at face value.

The community based efforts serve only half of the purpose with defensive publications, as expressed by Pangerl and Henkel.

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<sup>160</sup> Defensive Publications. (n.d.). *Frequently Asked Questions*. Retrieved August 1, 2009 from Defensive Publications: <http://docs.defensivepublications.org/defensive-pubs-faqs> and [en.swpat.org](http://en.swpat.org). (2009, 04 28). *Prior art database*. Retrieved 06 18, 2009 from [en.swpat.org](http://en.swpat.org) : [http://en.swpat.org/wiki/Prior\\_art](http://en.swpat.org/wiki/Prior_art).

<sup>161</sup> Public Domain Ideas. (2009, April 20). *PDI:FAQ*. Retrieved August 1, 2009 from Public Domain Ideas: <http://www.publicdomainideas.org/index.php/PDI:FAQ>.

## 7 Future developments

### 7.1 Introduction

The future developments in the area of prior art will inevitably take place on three arenas, the administrative arena, the legal arena and in the business arena. The concept of these three arenas is described by Ulf Petrusson<sup>162</sup> and by using it as the model on the approach to prior art, we will see that the developments in the area today is shifting the roles from the administrative arena with the PTOs towards more participation of external actors in the business arena with support from the legal arena. This is a shift that can be argued to be partly conscious and partly due to the construction of the system and the introduction of abundance of information through internet.

There are two different directions that I see as possible for the future development of prior art in relation to the administrative arena. The first and perhaps most simple is for the patent offices to take a step back and only conduct a formality check of the patent application and hand over the responsibility for enforcement to the business arena. The other option is for the patent offices to take the novelty check one step further with a real interest in finding *all* available prior art. This could be done by for instance a more collaborative approach as the Peer-to-Patent project has shown quite viable.

On the legislative side we have so far seen developments such as the one in China where they have shifted from a limited view on prior art to apply the European model of global objective novelty. To me, the basic is to apply the same view on prior art all over the world, the next step would to actually have the objective global novelty model.

### 7.2 Objective novelty criteria as the standard

In a time when information is unlimited and the forms in which it can be found are constantly changing, it could be wise to follow the Chinese shift from a limited novelty criterion to a global objective one. Though this is already the case in Europe it is not in for instance the United States or Japan. I am aware of the current patent system review in the US and that the discussions made in this direction has a lot to do with the grace period as well. The technology pushes somewhat in the direction; it is especially evident in what information can be brought

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<sup>162</sup> Petrusson, U. (2004). *Intellectual Property and Entrepreneurship - Creating Wealth in an Intellectual Value Chain*. Göteborg, Sweden: Center for Intellectual Property. pages 104-106.

up as prior art has shifted over time and that digitally published content is accepted.

This type of shift where technology is the driver and not the legislation might be disruptive in its nature, but it can also be a good driving force in to a change that otherwise would not have taken place. Mathis Klang defines disruptive technology as:

*When existing technology evolves or old technology is made obsolete that the phase where new technology enters our lives could be seen as being disruptive. The disruption occurs when the technology, which is introduced effects the social arrangements around which we build our lives.<sup>163</sup>*

This disruption in the patent sphere is the outcome of the development of internet. One can of course discuss around how to approach it; to try to incorporate the technology under the current legislation or to follow the technology with new legislation. I believe that the latter is the inevitable way to go. It is however important to have a thought through policy.

*The attempts at regulation do not always lead to the desired effects and in many cases the regulation itself becomes part of a new, unintended problem. Occasionally the problem caused by the solution can be more harmful than the initial problem.<sup>164</sup>*

The trial we have seen with for instance Peer-to-Patent try to address this problem in one way, the parallel way might be to fully accept the objective global novelty standard.

### **7.3 Development of unconventional prior art in to conventional**

As we have seen above, the development of prior art has shifted from a strict sense to a broader acceptance of what can be claimed to be part of the state of the art. This has largely been based on the same rational as discussed in the section above; the introduction of internet and computer power. This is a shift that hardly can be turned backwards and the existence and use of unconventional sources of prior art will be more widely used.

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<sup>163</sup> Klang, M. (2006). *Disruptive technology : effects of technology regulation on democracy*. Department of Applied Information Technology. Göteborg, Sweden: University of Gothenburg. page 7-8.

<sup>164</sup> Klang, M. (2006). *Disruptive technology : effects of technology regulation on democracy*. Department of Applied Information Technology. Göteborg, Sweden: University of Gothenburg. page 225.

## 7.4 The patent office conducts no novelty check

Both Mark Lemley professor of Law at Berkley University<sup>165</sup> and by Bo Heiden, deputy director of CIP at Gothenburg University and Chalmers University of Technology<sup>166</sup>, have expressed ideas in the direction of that there might be a good idea to shift the responsibility for the novelty check from the administrative arena towards the business arena. This shift can be both motivated by the time and money spent on granting and that there are very few patents really used in any way. It can also partly be motivated by that in the emerging knowledge economy, patents are not mainly used to block competitors but to build relationships. In this rational they need not to be scrutinized until they really need to be, for example in a situation of alleged infringement.

Bo Heiden elaborates further:

*In this world patent examination (note: examination not patents as such) becomes less important, as patents become more of a means to objectify knowledge for transfer as opposed to a means of blocking one another. Since only high quality patents are commercialised - studies suggest only 10% - and these 10% are scrutinised in depth, why is there a need to examine patents at all? Most examinations are irrelevant (the 90%) and the others are redundant. Just stamp all patents as valid and fine the hell out of those actors that later try to use those that were obviously not valid when submitted. Let the firms do more of the work as they need to do this anyway in the knowledge economy. /.../*

*A large backlog means that firms need to do business with non-granted patent applications, which is basically a de facto automatic issuance system or worse a system where inventions with short life cycles are worthless to patent./.../ Examining only those patents that are "opposed" would force businesses to pay better attention and allow non-commercial patents to lay dormant until they are likely abandoned. Interesting to see is how many of these abandoned patents were filed because of bonus-based incentive systems as opposed to being based on a business rationale. Whether the patent office embarks on automatic or deferred issuance, the point is that firms need to better manage their patent processes in-house and in relation to others with an emphasis on busi-*

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<sup>165</sup> Lemley expresses his thoughts in a paper from 2001, Lemley, M. (2001). Rational Ignorance at the Patent Office. *Northwestern University Law Review*, 95 (4)..

<sup>166</sup> The views of Heiden can be found both in the main article and in the comments at Wild, J. (2009, March 15). *Is it time to end patent examinations?* Retrieved August 3, 2009 from IAM Magazine - IAM Blog: <http://www.iam-magazine.com/blog/detail.aspx?g=e99b2ea6-683b-4c5e-afd1-ef291eb69b33&q>.

*ness development instead of only the semantic claiming of technical inventions. If this is accomplished, what the patent offices do is irrelevant.*<sup>167</sup>

The counter argument is of course that where the administrative arena, theoretically, do not take in to account who the applicant is, when prosecuting a patent in court the outcome is highly dependent of the depth of the pockets of the parties. Levin points out that this approach would result in patents not being really valid, posing a barrier to competition since the uncertainty will be a hinder in business, both if they have to respect the granted right but also in licensing discussions or technology transfer.<sup>168</sup> The transaction cost of licensing would potentially be larger than what it is today, thus limiting competition.<sup>169</sup> On the other hand, there are already uncertainties in today's system why it might be possible to argue that the difference might not be that large.

A contrary development is the one in Italy where the patent office actually have started to use the EPO to search nationally filed patents.<sup>170</sup> This can be seen as an effort to harmonize the patent systems in Europe, but also and perhaps the most important reason to strengthen the Italian patents system. Through introducing a pre grant examination process the issued patents are more likely to stand up as valid in case of an invalidations process.

## **7.5 Development of community based prior art searching**

Opposed to that the patent office is not to conduct any novelty check is to develop the process even further by involving a broader base in, at least, the search process. The recent trials of involving the community in the prior art search might not have had the impact desired in terms of participating patents or reviewers. On the other hand, none of them were failures either.

I see a development where the change in the formal prior art considerations force the process to shift as well, both in order to respond to the increasing amount of prior art documents available but also by the increasing amount of patents in an ever faster innovation sphere.

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<sup>167</sup> Wild, J. (2009, March 15). *Is it time to end patent examinations?* Retrieved August 3, 2009 from IAM Magazine - IAM Blog: <http://www.iam-magazine.com/blog/detail.aspx?g=e99b2ea6-683b-4c5e-afd1-ef291eb69b33&q>.

<sup>168</sup> Levin, M. (2007). *Lärobok i immaterialrätt (uppl 9:1)*. Stockholm: Norstedts Juridik AB. page 228.

<sup>169</sup> Dahlman, C., Glader, M., & Reidhav, D. (2004). *Rättsekonomi - En introduktion*. Lund, Sweden: Studentlitteratur. page 175.

<sup>170</sup> Modiano, M. (2008). *Italy: A guide to prior art searches*. Retrieved July 25, 2009 from Managing Intellectual Property: <http://www.managingip.com/Article.aspx?ArticleID=2004553>.

The pre-granting process might include efforts similar to Peer-to-Patent where the collaboration is funneled through a platform. To think of only one model might be limiting and the change to a more collaborative approach over the whole process is not farfetched.

The efforts by the community at large and by specific entities such as Article One Partners are shifting the focus from a strict granting process where the patent office is supposed to have universal knowledge to a more open approach. Internet has brought endless possibilities to search and to publish information, something that patent offices have started to understand, especially through accepting online references as prior art. But there is always the tension between abundance and scarcity, especially when it comes to the cost of searching for prior art. On one hand, the prior art needs to be published, but on the other hand it still needs to be found, something which costs time and thus money. The question comes down to who is to bare that cost.

*On the one hand information wants to be expensive, because it's so valuable. The right information in the right place just changes your life. On the other hand, information wants to be free, because the cost of getting it out is getting lower and lower all the time. So you have these two fighting against each other.*<sup>171</sup>

It is this tension we see with actors such as AOP and initiatives such as Peer-to-Patent, they both try to solve the problem of abundance of information, though they see the effort in doing so having different values. Only time will tell who will be the most successful one, as Howe points out.<sup>172</sup>

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<sup>171</sup> As said by Stewart Brand in 1984, Clarke, R. (2000, February 24). *Roger Clarke's 'Information Wants to be Free*. Retrieved August 3, 2009 from <http://www.rogerclarke.com/II/IWtbF.html>.

<sup>172</sup> Howe, J. (2008, November 20). *Crowdsourcing the Patent Review System*. Retrieved February 11, 2009 from Crowdsourcing: <http://crowdsourcing.typepad.com/cs/2008/11/crowdsourcing-the-patent-review-system.html>.

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