Article

Software Legal Protection: Shaping the EU Software Patent

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Introduction

Software[1] includes Skype, Microsoft Office, Adobe Photoshop, Internet Explorer and e-mail platforms. Other examples of software are computer programs that regulate industrial processes, such as temperature balance programs in food storage facilities, robotic 'arms' control software in the production of cars, flight planning software in international airports and GPS. Daily we interact with pieces of software which increase the functionality of mobile devices by allowing us to read news, access e-mail, update a blog from our smartphones.

Software has 'matured' into a fast growing, globalized industry which turnover exceeded $265 billion in 2010; it is expected to grow 6% per annum, bringing the market to almost $357 billion by 2015.[2] In the US, for instance, the sector employed 1.7 million people in 2007, with salaries that are twice the national average.[3]

An industry with this kind of potential needs support in the shape of legal certainty and a stable legal framework in which to better function. The main instruments used to protect software are copyright and patent and neither of these was specifically designed for this purpose. Even so, the patent can be better adjusted to the needs of software and is a much stronger and effective method of legal protection. On the basis of the above mention successful example of the US software industry, the EU could enhance its competitiveness by creating an EU software patent.

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[1] Definition: 'By itself hardware can do nothing. The really important part of the system is the software. Programs are the instructions or commands that tell the hardware what to do. The program itself is an algorithm or formula. It is of necessity contained in a physical medium.' As cited from the *St. Albans v International Computer LTD* case: http://www.bailii.org/ew/cases/EWCA/Civ/1996/1296.html (accessed on 16 May 2014).

[2] 'Global Software - World Market Software' Report published by MarketLine in 2012; only the brief overview is available for free at: http://www.reportlinker.com/p0188773-summary/Global-Software.html (accessed 16 May 2014).

[3] BSA used figures from other institutes to give an overview of fact and figures of the software industry. The employment figures have been taken from the OECD Database in 2008. The report is cited below:
Business Software Alliance (BSA), 'Software Industry facts and figures', at: http://www.bsa.org/country/Public%20Policy/~/media/Files/Policy/Security/General/sw_factsfigures.ashx (accessed 26 May 2013).

In 2003, there was a proposal for an EU Directive on the patentability of computer-implemented inventions.[4] The purpose of this Directive was to set a legal framework for the patentability of software in the EU. The rejection of this Directive proved that attempts to regulate this highly sophisticated industry were premature. It is impossible to regulate this industry without a perfect understanding of software, its economic potential and existing instruments of legal protection.

The EU software patent could be the long awaited resolve to an extensive debate around software. The resolution should be based on the understanding of the copyright and patent basics, the legal conflict between territoriality and the internet, the experience of the existing US software patent, and the identification of the interested parties.

In 2013 EU patents with unitary effect (for inventions) were approved and starting 1st of January 2014 the Regulations defining the patent framework have effect[5] in the 25 of the 27 member states.[6] This means it is the best moment to 'strike' with a fresh new initiative supporting the EU software patent.

The paper's objective is to prove that the patent could become the most effective method for the legal protection of software in the EU. This conclusion will be based on an analysis of software copyright versus software-patent distinctions, existing models of software patents (the US), interests of the stakeholders (big companies, SME, Open-Source promoters) and the previous rejected EU software patent directive.

I. Copyright v Patents – the Basics

To understand the current legal debate on software protection, it is necessary to outline the basic of copyright and patent. The findings will show why copyright and patent, although not specifically tailored for this purpose, were adapted to suit the needs of software. Also, this analysis will provide a better understanding why patents are more effective and better suited to protect software and shed some light on the causes to the current debate.

I.1 Copyright

Copyright emerged in the 15th century as a mean to protect literary and artistic works. The rationale behind it was to protect authors from plagiarism and incentivise creativity. Copyrights are still used as exclusivity rights to prevent others from

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[4] 'Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, Official Journal 151 E, 25/06/2002 P. 0129 – 0131'

[5] Regulation (EU) No 1257/2012 OJ L (2012) 361 pg. 1-8
and Council regulation (EU) No 1260/2012 OJ L (2012) 361 pg. 89-92;

[6] Before 2013 the proposal for a Union patent was at a standstill because of Spain and Italy that were against the harmonisation because they wanted the patents to be translated into their national languages. This reduced from the incentive to harmonize, but after their exclusion from the agreement, things moved at a quick pace, at: http://www.managingip.com/Article/3191456/EU-Court-says-no-to-Italy-and-Spain-and-yes-to-unitary-patent-plan.html (accessed 26 May 2013).

reproducing, distributing copies, publicly displaying or performing, in part or as a whole, the creative expression of the original author.[7]

There are two basic requirements for a material to be copyrightable and these are original expression and the material should qualify as a literary or artistic work[8]. The copyright only protects the expression of the idea and not the idea itself[9]; therefore in the US, for instance, authors must fixate their works in a tangible medium in order to attach copyright to the idea[10]. This is not a requirement in the EU[11], for instance: a live musical performance is automatically copyrighted in the EU and while it must be recorded in the US[12]. Another aspect is that the work must be original, but not one of a kind, this is important in cases in which an author creates a similar work without copying the original. In the US, this person would not be infringing copyright if he can prove access to work, proof that it was separately created.

Authors obviously benefit from preventing others from copying their content; however, the author may also assign or license his or her copyright[13]. Allowing the public to voluntarily infringe his copyright is 'discretionary', but the author still retains ownership in the form of paternity rights (continuance of recognition as author[14]) and integrity rights (which retains the right of the author to object to manipulation of the content as well as commercial use of his work[15]).

I.2 Patents

Patents emerged roughly at the same time in the 15th century and were in the form of letters given to inventors that guaranteed their temporary monopoly over the production and sale of their invention. Patents were and still are granted for technical inventions and engineering solutions.[16]

An invention can be patented if it fulfils certain criteria. The invention must be (1) 'new' – (test of novelty), (2) 'involve an inventive step' (test of obviousness) and (3) be *capable*[17] or *susceptible*[18] to industrial application (test of utility).

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[7] R. van Wendel de Joode; J.A. de Bruin & M.J.G. van Eeten, Protecting the Virtual Commons - Self-Organizing Open Source and Free Software Communities and Innovative Intellectual Property Regimes, The Hague 2003: T.M.C. Asser Press, vol. 3), p.55.

[8] Article 2 of the Berne Convention for the Protection of Literary and Artistic Works;

[9] The idea-expression dichotomy in America is said to have originated in the United States Supreme Court case of Baker v. Selden.

[10] 17 U.S. Code § 102 - Subject matter of copyright:

[11] Article 2 (2) Berne Convention; Signatory states decide on how to regulate harmonize this constituent with their existing law;

[12] See an example of how authors protect their music in this article http://www.dmlp.org/blog/2008/prince-radiohead-and-bootlegging-provision-copyright-act Accessed on 16th of May 2014.

[13] The mechanism through which one can license a copyright are explained in the following link: http://www.dmlp.org/legal-guide/how-effectively-transfer-or-license-your-work

[14] Article 6bis, Berne Convention for the Protection of Literary and Artistic Works;

[15] See 15.

[16] Wendel de Joode, de Bruin, van Eeten, p. 56.

[17] Article 27(1) TRIPS, accessible at: http://www.wto.org/english/tratop_e/trips_e/t_agm3c_e.htm#5

In most national systems the requirement of novelty is broad as it requires a worldwide novelty. The inventive step ensures that the invention is differentiated from previous inventions in the same field. The fourth criterion, industrial application, is needed to incentivise utility of an invention and was introduced to avoid patents for trivial inventions.[19]

The first thing that is specific for a patent is that it must be registered at a patent office. During the application, the office's employees evaluate the invention and check their database for possible overlaps.

The second thing that differentiates a patent from patent from a copyright is the length for which it is granted: a copyright lasts for the duration of the author's life + 70 years in the US[20] and EU[21]; while a patent is only protected to a maximum of 20 years from the date of the application filing.[22]

At present, the patent is a reliable form of legal protection and the most relevant effect for private companies is that it guarantees them a temporary monopoly over their inventions for production and distribution, which is necessary to recover the invested costs in research and development.

In case of a patent infringement, the company or individual holding the patent has a solid legal argument and can apply, for example, for an injunction. Injunctions are directed at individuals or companies that use the invention without consent or have created the same invention after the original author obtained a patent for it.

A problem with patents is its territorial limitations. Even at the European Patent Office (EPO) you could not obtain *patents with unitary effect* until recently. This increased the cost of application, which consequently led to legal actions with high claims for patent infringements. Costs of patent application at the US Patent and Trademark office range from $5.000 to more than $15.000 for a highly complex invention.[23] For the EPO application it used to be around € 32.000 and by up to 80% for the recently implemented 'unitary patent' as of January 2013.[24]

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[18]Article   52   European   Patent   Convention,   accessible   at: http://www.cep.eu/fileadmin/user_upload/Kurzanalysen/EU-Patent/European_Patent_Convention.pdf

[19] Ian J. Lloyd, *Information Technology Law*, Oxford: Oxford University Press 2011, 6th ed., p. 292.

[20] 17 U.S. Code § 302 - Duration of copyright: Works

[21] Art. 1 (1) of Directive 2011/77/EU

[22] For EPC system: Art. 63 (1) EPC; and for US system: 35 U.S.C. § 154 - Contents and term of patent; provisional rights

[23] Eugene R. Quinn, Jr., 'Cost of Obtaining a Patent in the US', (posted in 2011, updated on 30 April 2013), at: http://www.ipwatchdog.com/2011/01/28/the-cost-of-obtaining-patent/id=14668/ (accessed 26 May 2013).

[24] Official website of the EU Commission, 'European patents costs to be radically reduced', at: http://ec.europa.eu/unitedkingdom/press/press_releases/2011/pr1138_en.htm (accessed 26 May 2013).

II. Software Copyright v Patent

When software emerged there was a general misunderstanding of what software actually is and it raised the question under which type of legal protection it falls. Copyright and patents are complimentary in some regards: patents protect fundamental and functional features, while a copyright protects the way a program is written and its data structure. However, this does not exclude an overlap.[25] The distinction between copyright and patent is best explained by the following analogy:

> A document setting out a novel chemical process would attract copyright protection, but the protection would protect the document against copying, not the process from being carried out. A patent for the process would prevent it from being carried out but not being written about or broadcast.[26]

This is to say that in appropriate circumstances, both copyright and patent protect different aspects of a piece of software.

The possibility of having more than one instrument of software protection gave rise to the ongoing software protection vagueness that escalated into the question of why the EU needs a software patent when it already has software copyright. At the same time, the US system adopted both copyright and patents for software.

II.1. Challenges in Software Copyright

The primary concern with copyrighting software is that it is not a literary work as such and it is better suited under the definition of a mathematical formula or algorithm, which ordinarily cannot be copyrighted.[27] Software is based on source code which means that once you have it on your computer the algorithm can easily be rewritten.[28] Since the copyright only protects original expression[29], it is a weak legal defence against people that rewrite an already existing computer program with slight modifications.

In the US, the *Whelan v Jaslow*[30] case set the possibility of copyrighting a computer program; the court stated that the structure, arrangement and organisation of a computer program are an expression of an idea. This expanded the scope of the copyright to cover elements of the software beyond the source code.

The European directive on copyright is based on the abovementioned US rationale and includes the prohibition of 'unauthorized reproduction, translation, adaptation or transformation of the form of the code'[31] of a computer program.

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[25] C. Reed, *Computer Law*, Oxford: Oxford University Press 2003, 5th ed., p. 175.

[26] Ibid, p. 176.

[27] Art. 52(2)(a) of the Convention on the Grant of European Patents (European Patent Convention) 14th ed., August 2010.

[28] Wendel de Joode, p. 58.

[29] See 10.

[30] *Whelan Associates, Inc. v. Jaslow Dental Laboratory*, Inc. [1985] 609 F. Supp. 1307 - Dist. Court, ED Pennsylvania.

[31] Council Directive of 14 May 1991 on the legal protection of computer programs (91/250/EEC) OJ L122.

The advantages of copyright in the case of software is that it is automatically applicable in the US and EU: once a program has been created on one's computer and afterwards recorded (disk, hard disk, USB flash, etc.), according to Article 2(2) of the Berne Convention[32], it is already covered by copyright. Second, the copyright is relatively cheap and almost universally recognised.

The length of copyright is generally the author's life + 70 years both in the US and the EU and there are no apparent adaptations of the length in cases of software which have a relatively short shelf life.

II.2. Application of Software Copyright

If the author of a program or another piece of software discovers unauthorised usage of his or her material, there is a possibility of filing a suit and claiming damages as well as imposing an injunction. Suing for copyright infringement is cheaper than suing for patent infringement and is quicker and easier in most cases.

One important element is the ownership, the more proof you have of your 'access to work' the stronger your legal position is. An exception to this rule is the case in which in a software company as an employer holds ownership over the software created by its employees, as specified in the employment contracts.

The copyright is instrumental and even though it is seemingly weak, a person that has basic understanding of law and ownership will do all possible to record or keep the source code safe as well as other preparatory works that could confirm authorship.
Because copyright has not yet reached a point of consistency, in the cyberspace era, there has been significant loss for software producers. In 2009 internet piracy caused about 41% of all software installed on personal computers to be obtained illegally, with foregone revenues to the software industry of $53 billion worldwide.[33] There are multiple factors that contributed to this loss in revenue, such as the anonymity of internet users. However the ineffectiveness of copyright should not be overlooked.
Patenting is becoming the reliable dominant strategy for the effective protection of computer programs. While copyright protects an original work set in a tangible fixed form, a patent protects the creation of inventive concepts as well as their output.

II.3. Software Patent Challenges in the US

The US software patent emerged on the basis of case law that broadened the scope of an invention to include computer programs. The patentability trilogy[34] is a series of case law that shaped the US software patent and set a pattern for its applicability.

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[32] Berne Convention for Protection of Literary and Artistic Works of September 9, 1886.

[33] Business Software Alliance, 'Software Piracy on the Internet: A Threat To Your Security' (Report in October 2009), at: http://portal.bsa.org/internetreport2009/2009internetpiracyreport.pdf (accessed 26 May 2013).

[34] Keating, William J., *Supreme Court Interprets the Patent Statute: A Trilogy of Cases and Their Effect Today*, 72 Dick. L. Rev. 244 (1967-1968)

1). *Gottschalk v. Benson*,[35] the invention to be patented was a computer program that used an algorithm to convert decimal numbers into binary numbers. The Supreme Court said that 'abstract intellectual concepts' are not patentable since they were the basic tools of scientific and technological work. Despite denying patentability of this algorithm based program, the Court emphasized that its decision did not preclude computer software patentability, but rather precluded the patentability of software where the only functional element was an algorithm.

2). *Parker v. Flook*,[36] the Supreme Court ruled that an invention that departs from 'prior art'[37] only in its use of a mathematical algorithm is patent-eligible only if the implementation is novel and non-obvious.

3). *Diamond v. Diehr*,[38] in this final case the Supreme Court concluded that an invention of physical process executed by a computer program can be patented as a whole.

On the basis of these core Supreme Court cases, the patentability of software emerged in the US and given the time when these were settled, the US has had a historical advantage over software and technological economic development. It was the first country to allow software patents and so it gained a competitive advantage over the EU.

Despite its historical advantage, in 2008, the Supreme Court issued a decision that almost ended the software patentability era with a narrow precedent - *In re Bilski* case.[39] The court nullified previous software patentability thresholds and introduced a new test, which holds that a process is patentable if '(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.'[40] The Court forgot to note whether a "machine apparatus" could be interpreted to cover a general computer, thus making most software not patentable and conflicting with previous case law. In 2010 the Court partially reversed its decision, in *Bilski v. Kappos*,[41] by stating that machine-or-transformation test is no more than '*a useful and important clue, an investigative tool'*.

In the light of this case law and resulting legal uncertainty, US software patents are on a "slippery slope". Hence, it is the perfect time to boost EU software patent reforms and gain a market advantage over the US. Their progress in the technological sector was done at a fast pace, but without solid basis and it can shatter at any "unfortunate" court decision. The EU software patent, if based on a solid regulation, can become

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[35] *Gottschalk v. Benson* [1972] US S. Ct., 409 U.S. 63.

[36] *Parker v. Flook* [1978] US S. Ct., 437 U.S. 584, 198 USPQ 193

[37] Prior art: 'constitutes all information that has been made available to the public in any form before a given date that might be relevant to a patent's claims of originality.' Definition as found at http://www.priorartsearch.com/faq.htm accessed 26 May 2013.

[38] *Diamond v. Diehr* [1981] US S Ct., 450 U.S. 175.

[39] *In re Bernard L. Bilski and Rand A. Warsaw*, [2007] US Ct. of Appeals for the Federal Circuit 2007-1130,   No.   08/833,892.   Summary   at: http://www.bitlaw.com/source/cases/patent/In_re_Bilski.html, (accessed 26 May 2013).

[40] *Gottschalk v. Benson*.

[41] *Bilski v. Kappos* [2010] US S. Ct. No. 08-964.

more appealing to international software companies who would like to stabilise their investments.

II.4. Software Patent Challenges in the EU

As mentioned above, the debate between whether copyright or patent is a more efficient software legal protection mechanism, has escalated into the EU software patent debate. The debate was between two main groups of scholars, the ones 'in favour' and the ones 'against' software patents. The previous debate avoided getting to the core issues behind software patents. The arguments used in this preceding debate were based on beliefs, misconceptions and were superficial, making the debate resemble a 'religious discussion instead of a legal ditto.'[42]

The interest for patenting software arises in part from the need to protect the elements of software not protected by copyright law; *inter alia* algorithm components of software, which often are the most valuable part of the software.

Despite sincere attempts to explain abstractions and vague words included in the text of the EPO convention, there is still a great deal of uncertainty as to what kind of software is patentable. Software 'as such' is excluded from patenting and 'computer programs' are not patentable according to article 52(2) of the European Patent Convention; nonetheless, the latest changes dictate that even though 'software' cannot be patented, Computer Implemented Inventions[43] (CII) is patentable material in some exceptional cases.

The *IBM case*[44] was a 'ground-breaking' decision in the EPO as it indicated that:

> A computer program product is not excluded from patentability under Article 52(2) and (3) EPC if, when it is run on a computer, it produces a **further technical effect** which goes beyond [...] physical interactions between program (software) and computer (hardware).

One the one hand, the Board classified the causing of electrical currents to pass through the computer as an insufficient technical effect, and on the other it determined that a 'technical effect' is present when the program solves a technical problem (without further explanations of what a technical problem is). The case of the CII, mentioned above, is a clear example of technical effect because it is the same as physical or external effect[45]. This reinforces the traditional patent 'industrial application' as a CII can find usage in agriculture for instance. Without a *de minimis*, however, there is no way of knowing which computer programs cause technical effects and which do not reach the threshold.

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[42] Kim G. Hansen, 'Software Patents in Europe', *Scandinavian Studies in Law* 2004-9, p. 175.

[43] 'An invention whose implementation involves the use of a computer, computer network or other programmable apparatus, the invention having one or more features which are realized wholly or partly by means of a computer program.' Definition as found in the 'Examination of Computer Implemented Invention' EPO Official Journal 11/2007, p 564.

[44] *T 1173/97* (Computer program product/IBM) EPO, of 1.7.1998, at: http://www.epo.org/law-practice/case-law-appeals/recent/t971173ex1.html (accessed at 26 May 2013).

[45] Supra at 42, Hansen, p 192, para. 3.

Even with this great uncertainty, according to statistics,[46] more than 30.000 CII patents have already been granted by the EPO by the year 2002. What is more surprising is that most of these were granted to US or Japanese companies[47] which knew how to share an increased reliability on case law precedents over statute ambiguity. From an economic perspective, it means that Japanese and US companies found a way to reinforce their market position in the EU for software products. During this time, most European companies just assumed that statutory norms did not allow software patents,[48] while American companies like IBM intentionally filed claims against major European companies such as Siemens in order to build-up case law.

In 2003, there was a proposal for an EU Directive on the patentability of computer-implemented inventions that would provide a broad interpretation and a clear scope for CII. The proposal failed and in July 2005 it was rejected by a majority of 648 MEPs (18 in favour and 11 abstentions out of total of 680 MEPs).[49] The aim of the Directive was to harmonize national patent laws and patent application practices in the EU. The debate was rather intense and there were a number of companies such as Microsoft, Hewlett-Packard and IBM that supported the motion and certain EU politicians, as well as Linux International and other open-source software[50] supporters that were against the motion.

The big software companies argued that the directive was vital for their economic activities in the EU market and the return on their R&D investments, as a software patent can 'reach' beyond the regular copyright and protect the core algorithm of a computer program. Big companies opt for quality over quantity and as long as they have a large staff and massive research funds, they are the only parties that can offer the masses a high quality software product. Take the example of Microsoft Office, which was initially developed by Microsoft; they created a design, a pattern, and an algorithm of functioning which resulted in a highly successful product. On the other hand, the open-source Open Office, which is basically the same program, having the same functions with slight design changes that is free to download is only a success because the general public was already familiar with Microsoft Office. This is a common economic phenomenon, people are only willing to pay slightly more for a service or product that they could get for free, if it is of a higher quality. Open Office was released in 2002 and in 2007 Microsoft Office still has 95% of the market share.[51]
Of course, small and medium-sized (software) companies, SMEs, that could not afford patent application costs as well as patent legal suits, wanted to 'keep the ball in their

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[46] F. Rentocchini, 'Sources and characteristics of software patents in the European Union: some empirical considerations', Working Paper 22/2010, Openlec Working Paper Series (2010), 1-37, at: http://ideas.repec.org/p/trn/utwpol/1022.html, (accessed 2 June 2013).
[47] Idem.
[48] M. Guntersdorfer, 'Software Patent Law: United States and Europe compared', 2 *Duke Law & Technology Review* 2003, p. 4.
[49] See 5. Also: BBC 'Software patent bill thrown out'
http://news.bbc.co.uk/2/hi/technology/4655955.stm
[50] Open-source software refers to a program in which the source code is available to the general public for use and/or modification from its original design free of charge. Definition derived from: Boettinger, S., Burke. D., *Open Source Patenting*, p.222
[51] Wharton University of Pennsylvania, 'Rivals Set Their Sights on Microsoft Office: Can They Topple the Giant?' (Published by Knowledge@Wharton, August 22, 2007), at: http://knowledge.wharton.upenn.edu/article.cfm?articleid=1795 (accessed 27 May 2013).

court' and were opposed as they were unwilling to allow the bigger companies to gain an advantage over SMSEs or worse, eliminate SMEs as market competition completely. The SMEs like to see software as building blocks and were sharing the common opinion that software patents would stifle innovation because every time a programmer wanted to write a code, they would have to check the EPO lists every step of the way to see if they are not infringing any patents. The SMEs have a financial incapacity to race against the big companies that would immediately seize the opportunity to get as many patents as their budget allows.

This debate was undoubtedly pivotal, as it shed some light on the parties that have a direct interest in the matter and allowed these to influence the EU decision-making process. The fact of the matter is, that EU patents for software will be introduced, however, these insights from international organizations and companies provided the EU legislator a better focus and enough material to create a consensus legal remedy suitable for and satisfying all interests involved.

After almost a decade, big changes are happening at the moment: the EU unitary patent[52] has entered into force in January 2013 in all member states except for Italy and Spain. This reform will be followed by the Agreement for the Unified Patent Court, which will come into force in January 2014.[53] The unitary patent system will simplify the application procedure for a European Software Patent and make it cheaper while ensuring legal certainty throughout the entire EU jurisdiction. Strengthening the EU software industry through patents has long been on the Commission's agenda[54] and now is the best time to use the reform momentum to introduce the EU Software patent model.

IV. Theoretical Reconsiderations

Before further engaging into modifying EU law in any way, the legislator must come back to three theoretical aspects that in my view significantly improve the interaction between law and the software industry:

IV.1. Duration

The duration of the software patent needs to be reduced from its 20-year term (this is the duration now in the EU[55] as well as the US) to a more appropriate duration, which will apply universally for all software. The 20-year term, from filling date, is disproportional for software because the shelf life of most software is about three years[56] (after this a major upgrade and re-engineering is needed). The shelf life of mobile apps is as low as 30 days and only 30% of the Apps downloaded are used the

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[52] 'Explained - A Unitary Patent System for Europe' (published by eu2013.ie, 19.02.2013) http://www.eu2013.ie/news/news-items/20130219upcfeature/ (accessed 27 May 2013)
[53] Official website of the Council of the EU, 'Agreement on Unified Patent Court signed' (19/02/2013), at: http://www.consilium.europa.eu/homepage/highlights/agreement-on-unified-patent-court-signed?lang=en (accessed 27 May 2013).
[54] 'Green Paper on the Community patent and the patent system in Europe', EC Commission (1997) COM 97 314
[55] Art 63 EPC.
[56] 'Shelf life of Software Project' (published by Architectural Thoughts IT blog, 11 April 2007) at: http://eagroup.blogspot.nl/2007/04/shelf-life-of-software-project.html (accessed 31 May 2013).

next day.[57] Also remotely related to this, 'software-carrying' modern mobile phones have a shelf life of six to nine months.[58] The patent duration mismatches software volatility.

Another possibility is to establish an evaluation criterion that permits EPO investigators to look into the character of the software and give it a more 'tailored' term, which could then be renewed each year based on necessity and interests of the patent owner.

A reduction in the length will reduce the possibility of monopoly abuse by the developing company and leads to a faster production of a 'virtual commons'. This is essential because software are in many ways like 'building blocks' and the ways programmers create is by using parts of multiple algorithms into the creation of a whole new 'arrangement'. When patents are barring an developer from a steady creative process, because every time, he or she wants to develop something they have to be careful not to infringe existing patents, they waste time with finding ways around it.

IV.2. What is Industrial application?

All vague provisions in the EPC and auxiliary legal documents fall under the *contra proferentem* - principle - they shall be interpreted to the disadvantage of the drafter. In the US common law system, case law gives a context for the interpretation of certain notions. The EU civil law based structure must constantly 'maintain' statute validity and clarity of interpretation in order to compete with US rapid legal adjustment in this technical field of law.

The Paris Convention for the Protection of Industrial Property states in Article 1 (3) that 'Industrial property shall be understood in the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries [...].' .This definition is normally used in patent law to refer to "industrial application" or industry. "Broadest sense" - the definition of industry is 'a particular form or branch of economic or commercial activity'[59] so according to this definition car production is as much of an industry as advertising, for instance. Photoshop software may be interpreted as having 'industrial application' for the advertising industry. Also Microsoft Office has a de facto global scale 'industrial application' because it supplies software for office work everywhere.

The relatively high cost of patents, in most cases is enough of a barrier to prevent trivial and software that has no economic value. From this results that any application

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[57] G. Charlton, 'Study: iPhone apps have a short shelf life' (published by Econsultancy, 25 Feb 2009), at: http://econsultancy.com/nl/blog/3358-study-iphone-apps-have-a-short-shelf-life (accessed 31 May 2013).
[58] 'Why Your New Smartphone is Already Obsolete' (published by MyPhoneMD, 16 July 2012), at: http://myphonemd.net/blog/2012/07/16/why-your-new-smartphone-is-already-obsolete/ (accessed 31 May 2013).
[59] Definition of 'Industry' as found at: http://oxforddictionaries.com/definition/english/industry (accessed 27 May 2013).

request on behalf of a software developer is intended to offer legal protection for a future business venture and contribute to the software sector, as a whole.

For this exact reason, the EPC convention must either be adjusted or interpretation reports should be issued by the EPO to clarify the meaning of 'industrial application'. The current information asymmetry causes most of the EPO software patent applications to be submitted by non-EU companies and private persons.[60]

IV.3. Extinguishing the external/internal effect separation

A second interpretation issue is the internal/external effect test. The requirement of a technical external effect is a definite unnecessary complexity and will remain to be so until either the EPO or EU legislators will create an interpretative framework. The derived uncertainty simply stifles innovation and incentivises local software developers to register their software inventions in countries that allow software patenting and 'forum shopping' in cases of patent infringements.

For instance, the computer program Skype, can be interpreted as having both *external effect* and *industrial application*, because it works in the same way in which a telephone does and numerous companies use it on a daily basis for conference calls, which are essential for the functioning of a company within an industry.

By not giving clear definitions and interpretation of its legislation, the EPO has too much discretion in the application selection and this causes reluctance of companies to fill in applications at the EPO. As a consequence there's a trend towards a more certain legal system (US). Software patenting on an EU level must not only be 'pushed' into effect, but must also be put in proper (interpretational) context. This will allow the European software companies to gain solid legal certainty and to reimburse their R&D investments by having an advantage in the local EU market.[61]

V. The 2-Player Scenario

One of the benefits of the rejected CII Directive was the identification of interested parties. Despite some exaggerated conspiracy theory arguments mentioned in the heat of the debate, the parties managed to express their concerns and choose a side: in favour or against software patents in the EU.

The 2-player scenario is a term that I have given to the current situation considering the 2 most important 'players' in the software patent industry in terms of: influence, resources, capital, expertise and profit making. Of course there are other participants and interested parties; however, none of them have as much power in the industry as:

1). the Big Patent Owning Companies, and
2). the Patent Troll(s) Companies

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[60] C. Reed, *Computer Law*, p. 180
[61] R. Hart; P. Holmes & R. Reid, 'The Economic Impact of Patentability of Computer Programs', *Report to the European Commission*, Study Contract ETD/99/B5-3000/E/106.

A third party, the Open Source software developers and supporters will be mentioned for the sake of completeness at the end of the 2-player scenario. They are included into the equation because they had considerable influence during the CII Directive timeframe and were pivotal in the rejection of the Directive. Despite their involvement and victory with the CII Directive, the Open Source Software supporters are going in a different direction and will have lesser impact on the software industry in the future.

This scenario portrayed in the next paragraphs, is not a potential threat to the current diversity in the software industry; it merely shows the two most influential 'actors' in the industry and how the protection of interested parties may change with the latest updates in the EU and some further legislative reforms.

V.1. BPO Companies

Apple and Samsung were still engaged in around 50 lawsuits around the globe in July 2012,[62] with billions of dollars in damages claimed between them. The damages awarded in patent cases are varying from $1.9 mil to $16.1 between 1995 and 2011 and the median damage awarded between 2006 and 2011 amounts to $ 4 mil.[63] BPOs are big spenders and this is the first reason to incentivise their relocation to the EU.
As patent legal suits are expensive most companies are incapable of obtaining multiple patents and to defend these in courts. These high costs reduced the availability of the patent as an instrument of protection in which the SMEs suffer the most.

In the 2-player scenario, both players are interested in removing competition, thereby allowing them to act more like monopolists. The major companies: Apple, Samsung, Microsoft, IBM, Motorola are considerably more endowed with resources and thus can afford to gather software patents and fully benefit from these. If the R&D funds are insanely robust, as it is in the cases of Samsung or Apple, these companies obtain as many patents as possible in order to reinforce their market position. This is where the term Big Patent Owning (BPO) Companies derives from.

Apple, for instance, currently has 4.649 patents for software, hardware and design. Samsung has 47.855 US patents and IBM has 70.000.[64] These numbers reflect the competitiveness of the industry and there's an obvious misbalance in the market since these companies can afford patents and copyright to ensure a full legal 'package', whereas most SMEs still rely mainly on software copyright.

'Apple v. Samsung: 50 suits, 10 countries – and counting' (published by CNET News, 28 April 2012), at: http://news.cnet.com/8301-13579_3-57423627-37/apple-v-samsung-50-suits-10-countries-and-counting/ (accessed 31 May 2013).
[63]   *PricewaterhouseCoopers   (PwC),*   'Patent   Litigation   Study'   (2012),   at: http://www.pwc.com/en_US/us/forensic-services/publications/assets/2012-patent-litigation-study.pdf (accessed 27 April 2013).
[64] M. Rosoff, 'If Patents Are Weapons, These Companies Are Armed To The Teeth' (published by Business Insider, 14 March 2012), at: http://www.businessinsider.com/if-patents-are-weapons-these-companies-are-armed-to-the-teeth-2012-3?op=1 (accessed 27 May 2013).

There is a contrasting perception of patents for software as *equity* and some believe that once a company obtains *even a single* patent, their market position is guaranteed for the time being and big corporations may be interested in buying off the patent or license the product and reward the investments of the smaller company. The argument is that a medium marketing campaign costs more than an application for a patent,[65] thus it is more convenient for companies to specialize in software development and leave the distribution to other market actors that have more funds for an effective marketing campaign.

Another way in which SMEs can interact with BPOs is by entering into a cross-licensing[66] agreement in which they can use one another's patents for research, development and creation of new products without the dangers of infringement. Even with this possibility on the table, SMEs will always have significantly less bargaining power in the negotiation of such agreements.

As mentioned above, the high patent costs consequently cause high damage claims in patent litigations. The changes in the EU regarding the unitary patent are a 'game-changer' for SMEs. The introduction of an EU Unified Patent Court will have an impact on the reduction of litigation costs. Reduction of application and litigation costs for patent owners will create a more 'fertile' and easily accessible market and will work to the benefit of SMEs in the EU. This means more funds for both BPOs and SMEs to increase quality and growth and exactly for this reason they should encourage and lobby the EU software patent initiative.

The BPOs will cut costs while sharing the gains with the SMEs that will also be inclined to support the initiative, and leading to the fortification of the Union's software industry (which as mentioned above was on the Commission's agenda since 1997).

V.2. The Patent Troll

A patent troll is a company that uses patents as a business strategy. Patent trolls obtain patents from auctions made by bankrupt companies attempting to liquidate their assets, or they buy off 'sleeping patents'[67] of people or companies that have a scarcity of resources to pursue litigation after infringement. After obtaining a patent, these companies launch lawsuits and claim damages from infringing companies, or simply hold the patent without planning to practice the idea in an attempt to keep other companies' productivity at a standstill.

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[65] R. Krajec, 'Anti-Software Patent Movement and The Big Patent-Owning Software Companies on the Same Side?' (2012), at: http://www.krajec.com/blog/anti-software-patent-movement-and-the-big-patent-owning-software-companies-on-the-same-side (accessed 27 May 2013).

[66] 'Google wants companies to cross-license' (published by NETWORKWORLD, 13 March 2013), at: http://www.networkworld.com/news/2013/031313-google-wants-companies-to-cross-license-267673.html (accessed 27 May 2013).

[67] 'Sleeping patent' refers to cases in which a person or company have obtained a patent for an invention however the invention is not ready for market use, or the inventor has no resources to promote it, nor to go into litigation against infringements; and the result is that the patent is in a sort of 'limbo' zone. Definition derived from: N. Palomeras 'Sleeping patents: any reason to wake up', Working Paper No 506, IESE Business School, April 2003 at: http://www.iese.edu/research/pdfs/DI-0506-E.pdf (accessed 27 May 2013).

The patent trolls are a fascinating phenomenon, and this is why in the patent world, they are amongst the most influential profiteers. This 'vigilante' way of action, on the side of the patent trolls, creates a counterweight for the BPOs by keeping monopolists on their heels and if the benefits of having such companies are not immediately noticeable, slight legal modification might give these companies a better utilitarian role. The utilitarian role of the patent trolls is reconfirmed by the fact that patent trolls initiated 56% of all patent trials in 2012 in the US.[68]

Patent trolls usually target small and medium sized companies that do not have enough money to pursue litigation for infringements and they charge a big 'chunk' of the damages in cases in which they successfully claim damages on the patent owner's behalf. Alternatively, the patent owner is reimbursed for his patent in the beginning and then the patent troll can pursue their own course of action in order to get a return on their investment. In the US most big companies see patent trolls as a potential threat and that is an absolutely natural perceiving of one's competitors - the patent pirates.[69] There have been instances in which patent trolls became abusive and kept the big companies 'tiptoeing' around their patents and threatening with litigation in case of further infringements.

'Stop the Patent trolls' drain on US Economy![70] - Is the slogan that pretty much describes the position of the US big companies that continuously attempt to lobby Patent trolls into extinction. There are claims that US patent trolls are costing the US economy around $ 30 billion dollars a year.[71]

For a more stable software patent industry in the EU, the patent trolls practice should not be forbidden. *Drain on US Economy*? There is no loss to the state once individuals are simply defending their basic ownership right under a patent. The fact that some companies infringed existing "sleeping patents" was a risky strategy to begin with and patent trolls initiating lawsuits is a direct consequence of just that.

The lobbyist alienation against patent trolls, shows that BPOs perceive them as a threat and the primary reasons why companies do not like patent trolls is because they cannot enter into cross-license agreements with them to avoid license fees.[72]

patent trolls assist small and medium-sized companies (and individuals) and compensate for their lack of resources to employ proper legal experts to deal with their patents being infringed. This is why, in the EU, the legal framework should

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[68] '56 percent of all patent lawsuits are made by patent trolls' (published by ZDNet, 11 April 2013), at: http://www.zdnet.com/56-percent-of-all-patent-lawsuits-are-made-by-patent-trolls-7000013896/ (accessed 27 May 2013).

[69] Labelled as such in: C. Tyler, 'Patent Pirates search for Texas Treasure', *Texas Lawyer* (September 20, 2004), at: http://www.wsgr.com/PDFSearch/09202004_patentpirates.pdf (accessed 27 May 2013).

[70] 'Businesses to Congress: Stop the Patent Trolls' Drain on U.S. Economy', Press Release published by The Wall Street Journal, 16 April 2013), at: http://online.wsj.com/article/PR-CO-20130416-904564.html?mod=googlenews_wsj (accessed 27 May 2013).

[71] J. Bessen & M.J. Meure, 'The Direct Cost from NPE Disputes', *Boston University School of Law,* Working Paper No. 12-34, June 2012.

[72] Idem.

create a niche on the basis of the US patent troll business model. This niche will create a healthy business opportunity for law firms that want to recalibrate to assist companies defend their patents and in my view, it should be more perceived as a potential **service** targeting small and medium companies. If the patent trolls will be given the lacking legal instrumentality, the software patent industry will become more uniform. The first effect will be the better legal protection of SME intellectual property. Through this mechanism, the EU software industry will be more balanced because it creates a clear distinction between the two groups of competitors: BPOs and Patent trolls. The patent trolls, as a legal service provider, will gain the support of both SMEs and Open Source Software developers.

The legal scope for activity of EU patent trolls can be included in the EU software patent auxiliary acts and if successful it will save the EU from harmful illegal initiatives taken by patent trolls in the US.

V.3. Open Source

Open Source Software (OSS) is acknowledged as "*a kind of a public good*".[73] Software companies can benefit by borrowing OSS components, because of their availability, however OSS businesses do not have enough power to compete. Another potential danger for OSS companies is the recruitment of their staff by big software companies that are able to offer higher wages, Samsung hiring Linux employees is an example of this.[74] With an exponentially increasing demand for experts in programming,[75] OSS developers will dissolute and 'flee' to other companies either in forms of cooperation, mergers or individually. One of the main attribution that the OSS, in the form of the Linux foundation, have at the moment is that they form an opposition to the Big Patent owning companies in their efforts to lobby their way into full market monopoly.

These are the reasons why there is no solid future for OSS, it will either cease to exist or simply identify itself as a separate entity, excluding itself from the debate and maintaining its position as a 'trend'. This seems to be a trend and it can be concluded from the declarations of IBM and MySQL in which these stated that they would not use their patents against OSS. And indeed, despite the extensive number of patent infringement litigations in the US so far, there has not yet been any against OSS projects.[76]

VI. Final Thoughts

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[73] K. Fotinopoulos, 'The day after the Computer-Implemented Inventions Directive: who won the battle and when shall the war end?', *SCRIPTed – a Journal of Law, Technology and Society* 2007 (4:2), at: <http://www.law.ed.ac.uk/ahrc/script-ed/vol4-2/fotinopoulos.asp> (accessed 27 May 2013).
[74] J. Cloer, 'Samsung Talks About Its Aggressive Linux Talent Recruitment Strategy', (Linux website, 22 May 2013), at: http://www.linux.com/news/featured-blogs/185-jennifer-cloer/720243-samsung-talks-about-its-aggressive-linux-talent-recruitment-strategy (accessed 27 May 2013).
[75] 'Hiring Demand for Computer Programmers is up 26%: 220,000 New Jobs Posted Online in Past 30 Days' (published by New York PRWEB, May 24, 2011), at: http://www.prweb.com/releases/2011/5/prweb8474578.htm (accessed 27 May 2013).
[76] Ed Scanell, 'IBM says it won't assert patents against Linux kernel' (published by InfoWorld, 4 August 2004), at: http://www.infoworld.com/t/platforms/ibm-says-it-wont-assert-patents-against-linux-kernel-441 (accessed 27 May 2013).

Almost a decade has passed since the rejection of the EU CII Directive proposal. The software debate arguments that were invoked during the previous attempts to introduce EU software patents are outdated. The interests of parties have shifted and a well-designed legal reform may bring benefits to all parties. Substantial changes occurred and these can form the basis for a software patent reform in the EU.

It is clear that there is a distinction between copyrights and patents for software and despite the overlap, the two protect different aspects of a piece of software. This proves that both legal instruments have different scopes and that EU legislation will be incomplete until it adopts the EU software patent. The numerous patents granted by the EPO for Computer Implemented Inventions until now are a good indicator that there is market demand for a broadening of the legislative scope.

The US post-*Bilski* uncertainty in software patent legislation gives the EU a great opportunity to become an important participant in the global software industry. Timing is of importance and what is perhaps the most important consequence of the EU software patent adoption is that it would enhance the Union's position on the global software market, thereby placing it on equal footage with the US and Japan, which are currently global leaders in the field.

The timing is also perfect because of the recent adoption of the "unified patent" on an EU level. The EU achievements so far are constructive and the next natural step, after the foundation of the EU Unified Patent Court, would be to create a clear context for the emergence of a non-abstract EU software patent.

Regarding the 2-player scenario, the BPOs are likely to gain a lot from the EU software patent, however their gains will be shared by both the SMEs and the EU economy as a whole: more money spent by the BPOs, more jobs in the software sector and decreased application and litigation costs for SMEs.

The emergence of patent trolls can be kept under EU control through preventive policy changes at the EU level. Considering the patent troll failure in the US, the EU can not only limit the damages they could cause, but also create a legal scope for patent trolls and give them a utilitarian role in the industry. If patent trolls become service providing SMEs will have a stronger market position and this will lead to market equilibrium.

As consumers it is in our interest that the best possible products are available on the market at the best possible prices, and this can only be achieved in a system in which the producers are incentivised through regulations to pursue a healthy R&D and differentiate themselves in this way from competitors. Creativity must be promoted to the benefit of all interested parties.

As future employees, the market will diversify and based on the US model, more jobs will become available because of the scarcity of experts in the software industry. People will adjust to the demands of the job market and this will lead to the toning down of the current EU financial crisis.