

**SOFTWARE PATENTS IN
THE EUROPEAN UNION**

by

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M.A. in European Studies Programme, Thesis, 2007

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To my beloved Duygu

ABSTRACT

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Key Words: Software protection, protection of computer implemented innovations, Copyright protection of Software in EU, the draft directive on the enforcement of intellectual property rights

In recent years, there has been a continuous debate in the protection of the software (or computer implemented innovations) in the European Union. While the protection of the software has been harmonized by a directive in 1991, the different EPO practices and changing perceptions of software companies (especially US based MNC's) in the protection of software resulted in the Directive on the patentability of computer-implemented inventions and the draft directive on the enforcement of intellectual property rights. While the former has been rejected by the European Parliament, the latter is on the stage; it is a follow-up to the much-debated directive [2004/48/EC] on the enforcement of intellectual property rights, called IPRED 1. In addition to these developments, with the positioning of the European Patent Litigation Agreement (EPLA) which is proposed by the European Patent Office and aims at solving the jurisdictional problems during the cases against European patents, within the scope of European Union, protection of software has become one of the most disputed

issues in the European Union. Opponents and supporters have been lobbying since 2001 and no resolution has been reached yet and it seems that the discussion will take place in the following years.

ÖZET

AVRUPA BİRLİĞİ'NDE YAZILIM PATENTLERİ

MUSTAFA FUAT VARDAR

Avrupa Çalışmaları Yüksek Lisans Programı, Tez, 2007

Danışman: Doç. Dr. İzak Atiyas

Anahtar Kelimeler: Yazılımın korunması, bilgisayar uygulamalı buluşların korunması, Avrupa Birliği'nde yazılımın telif hakkı kapsamında korunması, fikri mülkiyet haklarının uygulanması hakkında taslak direktif

Son yıllarda, Avrupa Birliği'nde yazılımın (veya bilgisayar uygulamalı buluşların) korunması konusunda bir tartışma yaşanmaktadır. Yazılımın korunması 1991 yılında bir direktif ile düzenlenirken, bu konu hakkındaki Avrupa Patent Ofisi'nin farklı uygulamaları ve yazılım şirketlerinin (özellikle ABD'li çokuluslu şirketlerin) değişken algılamaları bilgisayar uygulamalı buluşların patentlenebilirliği hakkında Direktif ile fikri mülkiyet haklarının uygulanmasını hakkında taslak Direktifin sunulmasına neden olmuştur. İlk direktif Avrupa Parlamentosu tarafından reddedilirken, ikinci direktif gündemdedir; bu taslak direktif IPRED 1 [2004/48/EC] olarak bilinen fikri mülkiyet haklarının uygulanmasına ilişkin tartışılan direktifin devamı niteliğindedir. Bu gelişmelerin yanı sıra Avrupa Patent Ofisi tarafından öngörülen ve bir Avrupa patentinin dava edilmesinde ulusal mahkemelerde uygulama esnasında karşılaşılan sorunların çözüme kavuşturulmasını hedefleyen Avrupa Patentlerini Dava Etme Anlaşması'nın (EPLA) AB kapsamında konumlandırılmasıyla yazılımın korunması konusunu Avrupa Birliği'nde en çok tartışılan konulardan biri haline gelmiştir. 2001 yılından bu yana bu konunun muhalifleri ve taraftarları lobi yapmaktadırlar ancak henüz bir karara varılmamıştır ve tartışmanın önümüzdeki yıllarda da devam edeceği görülmektedir.

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Introduction

Traditionally, patents have been granted by governments as a way to protect the ownership of inventions and thus encourage innovation through limited monopoly on the result, while encouraging full disclosure of the invention to enrich the public knowledge and scientific culture. Even though the original reason for patenting was to prevent unauthorized use of an invention, today patent law may be better described as a way to protect the primary income sources of large corporations.

Intellectual property is the dominant form of property in today's global, high-tech world economy. Today in the computer world, patents enable their holders to share the income derived by others through using the invention, with the end user paying a premium for the use of a product or process subject to legal monopoly while copyright law protects computer programs only from being copied. It protects the underlying invention or the algorithm upon which the software is based while patent protects the output of the software. For example, a program for sending a text to a printer may be protected by copyright (which arises automatically as the software takes fixed form), but no copyright can be obtained for the underlying invention upon which the software is based. Any person who develops different software to achieve the same purpose, may market it without fear of being sued for infringement. This model started to encounter difficulties with the dramatic growth of the computer sector in the 1980s. As computer software – a fixed system of commands telling the computer what to do – became fundamental to a vast array of business and government interests and thus began to become a significant source of income, the software sector first looked to copyright law or authors' rights as it is known in Europe, to protect its products from copying and unauthorized use.

Today, dominant players in the software industry are no longer satisfied with protecting the ‘face’ of their products, which may be copied. They wish to ‘own’ the product of each inventive idea that underlies their product from the operating system to all its functions. They wish to eliminate the need to prove ‘copying’ and obtain ironclad ownership of every technical detail involved in the development of software. The change in perspective on software patents by the industry is mainly illustrated in a set of quotes by Bill Gates, founder of Microsoft. In 1991 “Challenges and Strategy memo of May 16, 1991”¹ he said “[i]f people had understood how patents would be granted when most of today's ideas were invented and had taken out patents, the industry would be at a complete standstill today.” After 14 years, his position in the debate has changed. In an interview held on 5 January 2005, he said “[t]here are some new modern-day sort of communists who want to get rid of the incentive for musicians and moviemakers and software makers under various guises. They don't think that those incentives should exist.”²

Developing software requires a much more detailed analysis of its special requirements – i.e. its concrete needs – compared to other technologies. The continuous flow of ideas makes software creation a social process. This situation is most clearly seen in the rise of Open Software, a movement which has grown as a reaction to the ‘absolute ownership’ approach of most (but not all) dominant economic players, encouraging an environment which is open to everyone and where people having necessary knowledge contribute to continuous improvement and innovation of software products.

¹ Gates, Bill. “Challenges and Strategy”, May 16, 1991, available at: <http://www.bralyn.net/etext/literature/bill.gates/challenges-strategy.txt>.

² The Editors of The New Atlantis. "Notes & Briefs," in Journal of Technology and Society, No. 8, Spring 2005, available at: <http://www.thenewatlantis.com/archive/8/soa/nb.htm>.

In the 21st century, computers and software pervade every aspect of life. The fear of being sued for IP violation, however, serves to discourage creative individuals from developing software or contributing to software. Otherwise, innovative companies will be deterred by the threat of infringement lawsuits from playing any economic role beyond agency to large established software patent holders. Contrary to the current belief that ideas are only the result of promised wealth, ideas develop in an open environment where curiosity and innovation are allowed to breathe and benefit from the proximity of other like-minded individuals. Where creativity and innovation are stymied by the existence of a patent and the threat of devastating lawsuits, society and progress can only suffer.

While software patents (or patentability of computer implemented innovations) have become one of the most debated subjects in IP worldwide, the issue has gained special importance for the European Union. Copyright protection for computer software was harmonized within the European Community (EC) through the Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs. Today the look and feel of a program as well as its underlying source code is thus protected similar to the way by which literary works are protected throughout the EU, i.e. by copyright. At first glance, IP protection, and in this case software protection is anticipated that the roles and responsibilities of the authorities are well defined with clear boundaries, which is not the case. The role of EPO (European Patent Office) and conflicts between EPC (European Patent Convention) and national law of the member states are the main conflicting areas of the IP protection in EU. EPO grants a package of national patents; there is no such thing as a “European patent” and therefore there have been problems when national patent law conflicts with patents granted through the EPO. Also EPO has

no link with the EU, but is rather an international organization with a membership that includes all members of the EU, plus other countries including Turkey.

In analyzing the EU, it is important to note that USA has a dominant position in software industry. Apart from few exceptions, it is hard to find a multinational corporation of EU origin. As mentioned above, software may be protected by patent in the USA; therefore, the US and US companies are pushing for harmonized, uniformed patent protection within the EU. One of the main problems in this approach is that it has a strong potential to stop all innovation, given the dramatic rise in patents obtained in the US and internationally by the dominant US software makers already. The current and pressing question is whether the EU will confirm this approach, whether it will decide if its current copyright approach to protecting software is sufficient to both encourage innovation for the benefit of society and protect the interests of software developers, today largely based in the US.

During the course of my research, important developments have occurred in the software patent initiative in the European Union. Still no decision has been taken, and the decision-making mechanism of the European Union has started to be questioned from both sides. When I decided to write my thesis on this topic, the Software Patent Initiative was one of the most debated subjects of European Competition politics. After the rejection of the proposed Directive by the Parliament, opponents called a victory while supporters maintained that it was just a break. The awakening of the initiative took place by the EPO's EPLA (European Patent Litigation Agreement) proposal. While it is proposed that the aim of the EPLA is to harmonize the judicial system of the patent system in the European Union, opponents criticized it from different perspectives

such as its negative effects on democratic accountability of the new courts (The EPLA foresees that the new court will be outside the existing judicial system of the EU).

The objective of this thesis is to analyze the latest software patent initiative which became one of the most debated subjects in the field of IP, in EU with all dimensions, parties and business world. It consists of four chapters, the first of which sets out the historical development of the software industry and its importance for the EU. It then describes the difference between patent and copyright protection of software. The second chapter describes the current legal situation regarding software patents in the United States, where the practice began. Some examples from US case law which enabled the patentability of software will be explained. In this chapter, international intellectual property agreements (especially TRIPS) will be analyzed. The historical development of the European Union's position on software protection is explained and it is followed by a comparison of software patents in the US and the EU. This chapter ends with the bilateral agreements which are a clear indicator of broader protection than defined in TRIPs with an aim to provide a broad array of patent provisions that favor developed countries. In Chapter three, recent software initiatives that take place in EU will be explained. This part consists of three main parts, which are the rejected directive on the patentability of computer-implemented inventions, EPLA (European Patent Litigation Agreement) Initiative and the draft directive on the enforcement of intellectual property rights. Chapter four provides a general critique of software patents from an economic, legal and business perspective. Finally, I will examine EU-specific issues, such as the effects of software patents on the European IT market, where EU companies do not have dominant position and which can only be hurt by the further monopolization of software technology that would result from software

patent harmonization. In this context, the effects of the growing role of business lobbying on the Commission will be discussed.

In the light of the evidences, the software patent initiative (including the rejected Directive on the patentability of computer-implemented inventions and proposed Directive on criminal measures which aims at ensuring the enforcement of intellectual property rights and EPLA) will be analyzed from both a theoretical and empirical perspective. Recent conflicts over the value of software patents that have arisen since 2000 between the EC Parliament and the Council and between the Free Software Alliance and multinational companies motivated me to write this thesis. Inevitably such conflicts will continue. This thesis argues that the EU should not accept patentability of software in the age of participatory information society.

1. Software Industry & Software Protection

The software industry was born out of collaboration among academics, government and private industry. In the 1960s and 1970s, software culture reflected the openness and the spirit of community and inquiry that existed within the academy.³

The evolution of the software industry is very important to understand because grasping the mentality of the software patents lies underneath a simple methodology: Adding bricks to the wall. Converging approach is well explained by Joaquín Seoane Pascual and Ramón García Fernández: “[t]ypical examples of program evolution can be found in word processors (WordStar, then Word-Perfect and Microsoft Word) or spreadsheets (Visicalc, then Lotus 123, then Excel). For example, Visicalc was the first modern spreadsheet. According to their authors, it is based on previous column based business data processing programs. The program 123 from Lotus was the next spreadsheet. Lotus observed that users wasted a lot of time repeating long sequences of operations. So, they added macros, a method to repeat a sequence of operations in a comfortable way. Later, Microsoft observed that the users were using the spreadsheets to store lists of data (till then it was believed that the main use was in finances). ... Due to this, if we have a look at the latest versions of spreadsheets or word processors, we will see that they have very similar functions, even though the menus or icons are different.”⁴ This is why the protection type in the software industry has a pilot role in the progress of the industry and if it were possible to patent the improvements, the converging evolution would be impossible.”⁵

³ Vaidhyathan, Siva. *Copyrights and Copywrongs: The Rise of Intellectual Property and How It Threatens Creativity*, NYU Press, 2003, p.154.

⁴ Pascual, J. S. and Fernández R. G. “Software Patents and their Impact in Europe”, 2000, available at: www.dit.upm.es/~joaquin/report_en.pdf, p. 11.

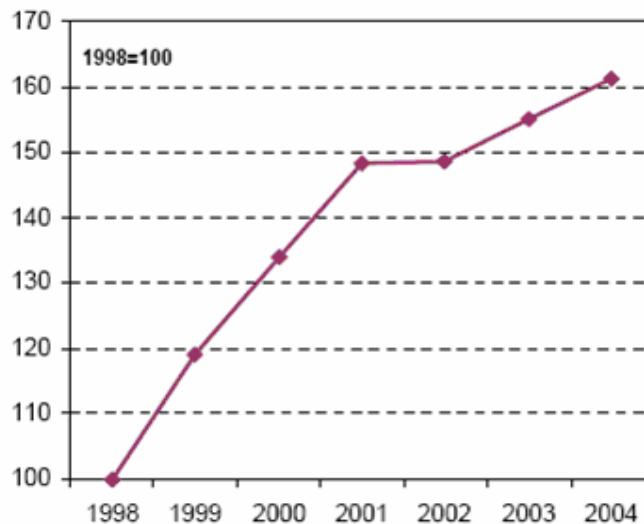
⁵ *Ibid.*

1.1. The Role of the Software Industry in the European Union

The development of the software industry has had a major impact on the whole European industry and provides a substantial contribution to the GDP and to employment. It has a spill over effect over the other industries since it provides necessary infrastructure for other industries and keep companies up-to-date.

Statistical information clearly represents the importance of the software industry in Europe. Computer services⁶ turnover grew very rapidly between 1998 and 2004, by 61%, there is an increase in the turnover of software industry as well as the share of it among all industries.

Graph 1: Evolution of computer services (NACE 72) turnover EU-25 1998-2004



Source: Eurostat (STS)

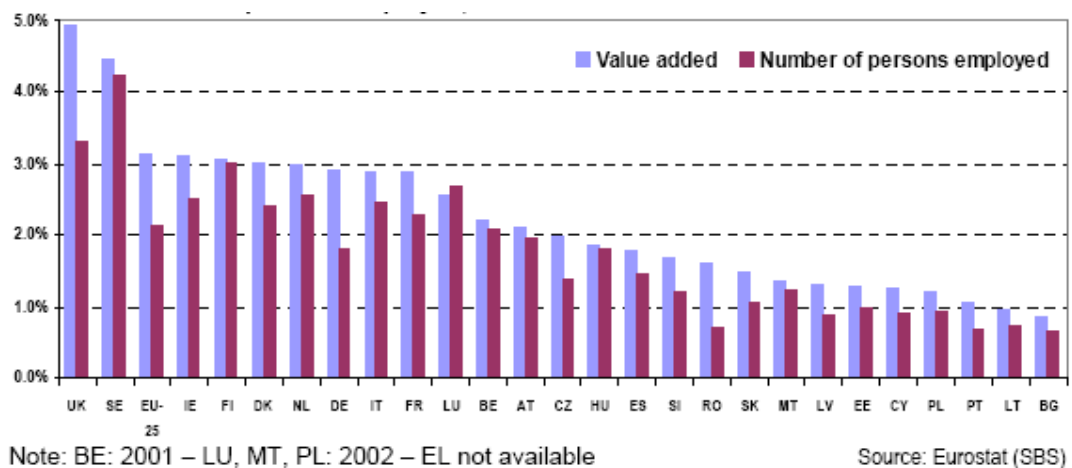
The software industry not only contributes to GDP, employment and tax revenues in Europe, but the use of software raises overall levels of productivity, efficiency and competitiveness for the region's industry. In 1999, jobs in the Western

⁶ Computer services refer to NACE (a statistical nomenclature) division 72 'Computer and related activities' which includes the following: Hardware consultancy, Software consultancy and supply, Publishing of software, Other software consultancy and supply, Data processing, Database activities, Maintenance and repair of office, accounting and computing machinery as well as other computer related activities

European packaged software sector contributed six times as much to GDP as those in consumer goods.⁷

A study by Datamonitor⁸ concluded that the number of packaged software workers in Western European countries would grow by between 24% and 71% from 1999 to 2003, with an average of 47%. A further conclusion is that each packaged software job creates two-four jobs in the downstream economy and one job in the upstream economy.⁹ This is a critical indicator since European economy as stated in the Lisbon strategy tries to empower its innovative capacity and strengthen its small and medium sized enterprises.

Graph 2: Importance of computer and related activities (NACE 72) in the non-financial business economy as a whole (NACE C-K, excl. J), in terms of value-added and number of persons employed, 2003 – in %



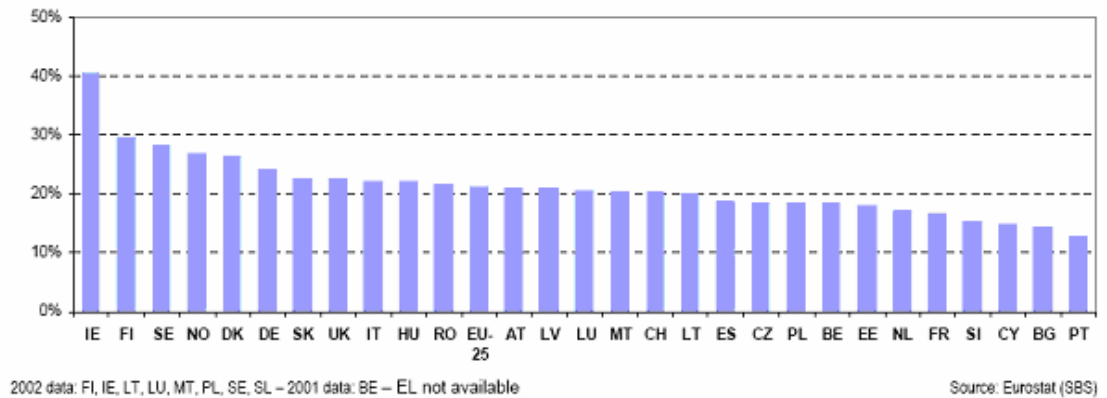
⁷ Business Software Alliance. “The Thriving European Software Industry”, 2002, available at: banners.noticiasdot.com/termometro/boletines/docs/consultoras/bsa/2002/bsa_europefinal2002.pdf, p. 3.

⁸ Datamonitor. *Packaged software in Western Europe: The economic impact of the packaged software industry on the combined economies of sixteen European countries*, London, September 2000.

⁹ Commission of the European Communities. *Proposal for a Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions*, Brussels, 2002, p. 2.

Another example to emphasize the role of software industry for the European Union is the importance of computer and related activities (NACE 72) in the non-financial business economy as a whole, in terms of value-added and number of persons employed. As it is depicted in Graph II, while there are differences among the member states, almost in all countries, the value-added generated by the software employees exceeds the number of employees. This is a clear indication of the effect of software on economic productivity.

Graph 3 :Turnover share of computer services (NACE 72) in total business services (NACE 72 and NACE 74), 2003 –in %



Turnover share of computer services in total business services is another indicator of the importance of software for EU. As shown in Graph III, computer services generated 21% of turnover in total business services (NACE 72 and 74). As such, it was the second largest business services activity after NACE 74.1 encompassing legal, accounting, auditing and business management services.¹⁰

¹⁰ Alajääskö, Pekka. “Provision and Export of Computer Services in Europe”, *Statistics in Focus*, Eurostat, Luxembourg, 2006, p. 3.

Graph 4: Turnover of computer services (NACE 72): client enterprises, by enterprise size class, 2003-in %



Source: Eurostat (SBS)

A look at the distribution of the turnover from computer services provided to enterprise clients by size of the service provider, shows that small and medium-sized (SMEs: 1-249 persons employed) computer service providers were predominant in many of these countries in 2003. They generated between 77% and 100% of the turnover in six countries, while the shares were lower in the UK (15%), Spain (41%) and Sweden (56%). However, it should be kept in mind that these results are partly reflective of the small size of countries participating in the development project: with SMEs generally being more dominant in smaller countries.¹¹

It is expected that IT sector will generate an additional 2 million jobs and 160 billion euros in tax revenues over the next five years. While software license revenue represents only 20% of total IT spending, it drives over half of the employment in the IT sector.¹² It is vital to evaluate the software debate in light of above mentioned statistics and the growing importance of it, especially for EU.

¹¹ *Ibid.* p. 5.

¹² European Software Association. “The Software Industry: A Key Driver for Economic Growth in Europe”, Brussels, 16 March 2006, available at: http://www.europeansoftware.org/pr_060316_economic_growth.html.

2. Current Legal Situation of Software Protection

Before explaining the current legal situation in different legislations such as USA, International Agreements, EU (both EPC and EPO), the basics of the software and the protection mechanism will be explained. The nature of software is explained in different ways, depending on one's approach towards software patents. Is it just a mere collection of 0's and 1's or are they complex and innovative code systems which are very hard to develop and need to be protected with all aspects? The distinction between these interpretations of software requires two distinct types of protection.

Trend in USA law is analyzed by means of important cases in order to understand the evolution of the software protection in USA. Cases, *Gottschalk v. Benson* (1972), *Diamond v. Diehr* (1981) and *State Street Bank & Trust Company v. Signature Financial Group* (1998) are detailed in this section. Following this, international protection of the software and the protection before the recent software initiatives in EU are studied. Bilateral Agreements are important for understanding the trend in not only software protection but also the strategy of the developed states, especially USA's in enforcing "their" intellectual property in other countries.

2.1 Software Protections

As the software industry blossomed in the 1980s, companies realized that there was commercial value in keeping the source code secret from their competitors (i.e. without formally recognized legislative forms of intellectual property, developers were forced to protect their software products through ‘trade secret’ law). Competing software companies could not replicate the effects of the object code without access to the source code.¹³ Recognizing the value of source code, the industry began to lobby their legislators for stronger protection of software.

The terminology and the basic elements of computer programs - source code, object code, and algorithms – must be set out to understand the issues behind software protection. Basically, source code is the set of instructions that human beings write in languages such as Fortran, Pascal, Cobol and C++. Today “compilers” translate source code (the code used by programmers to create software) into “machine language” or object code. The debate revolves around these definitions and the definition varies on the position of a party. Andrés Guadamuz González (2006) questions the nature of software, “[i]s software a literary work as Hamlet or should it be grouped under different category?”

According to him, “[t]he main problem behind the difference between copyright and patent protection of software is the definition of it since when it is categorized as a literary work, it must be protected by copyright and not patent.” While generally opponents of software patents support this idea, the proponents emphasize the fact that

¹³ Vaidhyathan, Siva. *Op cit.* p.154.

software is not merely a literary expression in which its lines of code have a function that is independent of the grammatical construction of the lines of code.”¹⁴

¹⁴ González, Andrés Guadamuz. *The Software Patent Debate*, *Journal of Intellectual Property Law & Practice*, University of Edinburgh - AHRC Centre for Studies in Intellectual Property and Technology Law, Vol. 1, No. 3, Edinburgh, 2006, pp. 2-3.

2.2 Copyright and Patent Protection of Software

The type of protection given to software is the basis of considerable debate, since patent protection and copyright protection differ significantly in terms of scope, protection and duration. Most countries have expanded the definition of a "literary work" to include computer programs.¹⁵ This was mandated by Article 10(1) of Trade Related Aspects of Intellectual Property (TRIPS) of the 1995 World Trade Agreement (WTA).¹⁶ Like other creations protected by copyright, protection has been harmonized in the EC with Council Directive (91/250/EEC)¹⁷ and extends for 70 years as of the death of the author. In the words of the European Patent Office, "[c]opyright automatically protects source and object code from being copied. But code which is developed independently, even if it achieves the same effect, would not be a breach of your copyright. A patent, on the other hand, would protect the innovative solution or effect delivered by the software, providing it makes a technical contribution."¹⁸

A patent is an exclusive privilege granted by the state to an inventor to make, use or sell an invention for a set number of years in exchange for full disclosure of his/her invention (today harmonized at 20 years by TRIPS)¹⁹. A software-related patent claims that feature, function or processes are embodied in a computer program and

¹⁵ Duhames Online Legal Dictionary, available at: <http://www.duhaime.org/dictionary/dict-c.aspx>.

¹⁶ Hintjens, Pieter. "What's wrong with software patents?," 2006, available at: <http://heironymousoward.blogspot.com/2006/10/whats-wrong-with-software-patents.html>.

¹⁷ Office for Official Publications of the European Communities, Council Directive of 14 May 1991 on the Legal Protection of Computer Programs, 1993, p. 5, available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31991L0250:EN:HTML>.

¹⁸ The Patent Office, *Patents & Software: Fact & Fiction*, The Computer Implemented Inventions Directive Explained, 2004, p. 2, available at: www.patent.gov.uk/about/ippd/issues/cii.pdf.

¹⁹ Duhames Online Legal Dictionary, *Op Cit*.

these are executed on a computer.²⁰ It is much more expensive because it always requires the services of a lawyer trained in patent law and the scientific field in question, and international applications required considerable and expensive translation skills than copyright (which requires no formality and arises automatically upon the fixation of the creation) or trade secret which is maintained simply through the efforts of the holder to keep the source code out of the hands of competitors).²¹

Copyright does not protect programs with the same effect if they are written with different source codes. But patent protection is available both for the source code and its result. This should not mean that they cannot protect at the same time. As previously discussed in the Working Paper²² of the European Parliament Directorate-General for Research patent law and copyright are defined as complementary legal regimes and depending on the type of invention, software copyright can effectively protect software inventions as well.

Copyright protects ‘original expression’ – in the case of computer software: the original program – against direct copying. Patent aims protect inventive products and processes, in the case of a software related invention: the exclusive right to use, the product or process. Patents can be invoked even against independent inventors of the same product or process. In every sense they create monopolies – that’s what they are about. Copyright, on the other hand, cannot prevent independent creators from recreating the same or similar work.”²³ Basically, an algorithm and its effect or result,

²⁰ Syrowik, David R. and Cole, Roland J. “A Primer on Software-Related Patents and the Software Patent Institute”, Section 2. Software-Related Patents, available at: <http://www.spi.org/primsrpa.htm>.

²¹ Hintjens, Pieter. *Op Cit*.

²² Bakels, Reinier and Hugenholtz P. Bernt. “The patentability of computer programmes Discussion of European-level legislation in the field of patents for software”, *Directorate-General for Research Working Paper*, Luxemburg, 2002, p. 5.

²³ *Ibid*.

for instance a pop-up window, may be protected under patent law. But for copyright, even full copy paste is not a reason for a lawsuit.

When does (copyright / patent) infringement take place? According to Ben Klemens, “[i]f users cut and paste another person’s code into their own without permission, that act is a clear-cut copyright violation. But what if two people independently write the same code? Typewriters would need a thousand years to hammer out an exact copy of *Hamlet*, but if two programmers needing a pop-up window both wrote code exactly matching; it would be no surprise at all. In the patent world, every such coincidence is a lawsuit in the making; in a copyright regime, multiple inventors will not be able to harass each other, because independent authorship is indeed a valid defense for copyright cases.”²⁴ Thus, in software industry the probability of infringement of a patent is higher than copyright violation and for EU case the situation is ambiguous since while software is protected through copyright, EPO grants national software patents, which means two types of protection is applicable in EU with EC Directive and in EPO, a non-EU Organization.

²⁴ Klemens, Ben. *Math that can't be Patented*, Brookings Institution Press, 2006, p. 8.

2.3 Current Legal Situation in USA

The U.S. Patent and Trademark Office (USPTO) historically has been reluctant to grant patents on inventions relating to computer software. In the 1970s, the USPTO avoided granting any patent if the invention utilized a calculation made by a computer. Their rationale was that patents could only be granted to processes, machines, articles of manufacture and compositions of matter. Patents could not be granted to scientific truths or mathematical expressions of it.²⁵ According to U.S. Law, for an application to be patented, an invention should be new, inventive and useful and produce a “concrete, useful and tangible” result.²⁶

Court decisions related to the protection of software depict the evolution of the protection of the software in USA. It can be stated that there are basically three important US Supreme Court decisions on the subject of software protection: *Gottschalk v. Benson* (1972), *Diamond v. Diehr* (1981) and *State Street Bank & Trust Company v. Signature Financial Group* (1998).

In *Gottschalk*²⁷, the Court found that a program written to convert signals from binary-coded decimal form into pure binary form on a digital computer was essentially a mathematical algorithm and thus not patentable. It is stated by the court that “[r]espondents' method for converting numerical information from binary-coded decimal numbers into pure binary numbers, for use in programming conventional general-purpose digital computers is merely a series of mathematical calculations or

²⁵ Bitlaw, “The History of Software Patents,” available at:
<http://www.bitlaw.com/software-patent/history.html>

²⁶ Unlike European Community, under U.S. patent law no requirement for “technical character” exists.

²⁷ Findlaw, U.S. Court of Customs and Patent Appeals decision on *Gotschank v. Benson*, available at:
<http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=409&invol=63>.

mental steps and does not constitute a patentable "process" within the meaning of the Patent Act, 35 U.S.C. 100 (b). pp. 64-73.”

In *Diamond v. Diehr*²⁸, the court changed its position regarding the issue of patentability of mathematical algorithms, stating “[i]t is now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.” The court reasoned that incorporating mathematical formula or algorithms into an invention was not alone grounds for denial. After this decision, patent attorneys learned to write software patent claims to emphasize the idea of physical transformations that produce useful, tangible results.²⁹ The Court in *Diamond* took a substantial step towards the patenting of software by deciding to consider the invention as a whole, including mathematical formulae or algorithms. The Court stated that in the *Gottschalk* case, the invention at issue was a new mathematical formula or algorithm while it was a process in which a mathematical formula or algorithm in the *Diamond* case, so these two were different from each other in terms of their essence. The Court in *Diamond* did not view respondents' claims as an attempt to patent a mathematical formula, but rather to be drawn to an industrial process.

During the years following *Gottschalk* and *Diamond*, a series of inconsistent decisions plagued the Court of Custom and Patent Appeals. In cases such as *In re Freeman* (1978)³⁰, the court struggled to accurately apply the holdings from cases such as *Gottschalk* and *Diamond*. As a result of the inconsistency, the court started to

²⁸ Findlaw, U.S. Court of Customs and Patent Appeals decision on *Diamond v. Diehr*, available at:

<http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=450&invol=175>

²⁹ Hunt, Robert M. “You Can Patent That? Are Patents on Computer Programs and Business Methods Good for the New Economy?”, *Business Review*, 2001, p. 18, available at: www.phil.frb.org/files/br/brq101bh.pdf.

³⁰ U.S. Court of Customs and Patent Appeals decision on *Freeman's invention*, available at: <http://digital-law-online.info/cases/197PQ464.htm>.

implement a two-step analysis in determining the patentability of software patents. The first question the court must ask is whether the invention directly claims mathematical formulae or algorithms. If so, the second question is whether the invention involves formulae or algorithms in some physical process. If the answer to the second question is yes, the claimed invention is for statutory subject matter and thus patentable.

State Street Bank & Trust Company v. Signature Financial Group represented another great shift in how a mathematical formula, embodied within a software program, is to be handled. In the State Street Bank case, the claimed invention was a financial system which would make all the necessary calculations for maintaining a partner fund. Due to the complexity and the speed at which these calculations needed to be performed, it was necessary and proper to have this process performed by a computer. The Court in State Street Bank dismissed both the mathematical algorithm exception and the business method exception. It stated that “[t]oday, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result "-a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” The Court also reasoned that as long as a "tangible result" was reached, mathematical formulae or algorithms should be patentable. As a result, the State Street Bank Case has removed exceptions for mathematical algorithms and has defined that the focus for patentability in the United States is "utility", which is defined as "the essential characteristics of the subject matter" and the key to patentability is the production of a "useful, concrete and tangible result".

It is important to note that in the United States, there is one harmonized body of jurisprudence for patent enforcement: the case law of the Federal Circuit Court of Appeals. The Federal Circuit was formed in 1982 to bring a greater degree of predictability to the resolution of patent appeals. This effort appears to have been successful. The number of cases upholding patent validity has increased, with the result being an increase in the number of patent cases brought and an increase in reliance upon patent protection by technology based companies.³¹

In this section, the evolution of the software patent protection in the USA is explained. The changing perspective from copyright protection to patent protection of the software and the problems raised, constitute a valuable input for EU to know what should be done or not.

³¹ Moetteli, John. "The Patentability of Software in the U.S. and Europe", Switzerland, 2005, p. 4, available at: www.patentinfo.net/patentsearchersnet/download/THE_PATENTABILITY_OF_SOFTWARE_IN_THE_US_AND_EUROPE.pdf.

2.4 International Dimension

In this section, international protection of the software will be analyzed briefly, since while there exists agreements for harmonization between countries or countries and unions such as EU and USA, international agreements are not found sufficient for level of protection.

The international framework for issues related to the patentability of the software and computer related inventions are set in WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). All members of the WTO are expected to comply with TRIPs by harmonizing their national law accordingly and providing the requisite level of enforcement as set out in TRIPS. The EC is bound by TRIPS, as approved by Council Decision 94/800/EC of 22 December 1994 concerning the conclusion on behalf of the European Community, of the agreements reached in the Uruguay Round multilateral negotiations (1986-1994).³² All member states of the EU are also signatories to TRIPS.

Article 27 and Article 10 defines the scope and the type of protection for software. Article 27 paragraph 1 of TRIPs³³ defines the scope of patent protection and states that "[p]atents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. [...] patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced."

³² "Activities of the European Union, Summaries of Legislation-External Trade, Adoption of the WTO Agreements", available at: <http://europa.eu/scadplus/leg/en/lvb/r11010.htm>

³³ World Trade Organization. Uruguay Round Agreement: TRIPS, Part II — Standards concerning the availability, scope and use of Intellectual Property Rights, Sections 5 and 6, available at: www.wto.org/english/docs_e/legal_e/27-trips_04c_e.htm

As mentioned above, Article 10(1) defines the type of protection for computer programs and provides that “[c]omputer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)”. Article 27/1 does not mandate patent protection of computer programs per se (especially since they are specifically protected under copyright law) nor does it require patentability of business methods, as opposed to the claims of the supporters of software patentability.³⁴

While TRIPS harmonize software protection to some degree, there is a need for harmonization of software protection within the EU and generally supporters of the software patentability in favor of the idea that the European patent system must follow U.S. developments automatically and they supported the idea that even further interpretation of the degree of harmonization is required than stated in TRIPS by the WTO. Article 27 (the scope of the protection) and Article 10 (the type of the protection) are interpreted in different ways and these interpretations depend on the position of the parties and unfortunately international agreements do not present a meeting point for the counter parties.

³⁴ But this is not so clear since Article 27(1) of TRIPS is interpreted in an opposite way in some source like “they can’t discriminate against technologies (except, in some respects, in the field of biotech). This would seem to require the patentability of software, even business methods, under international law.” *Ibid.* p. 3.

2.5 European Union

As defined before, computer services industry is one of the strategic industries of the European Union, setting productivity and innovation as pillars of growth in 21st Century. The Lisbon Strategy is important to take into consideration. In “Establishing a European Area of Research and Innovation,”³⁵ a document setting out the goals of the Lisbon Strategy, the importance of patents is recognized:

*“Given the significant role played by research and development in generating economic growth, employment and social cohesion, the Union must work towards the objectives set out in the Commission's communication "Towards a European Research Area". Research activities at national and Union level must be better integrated and coordinated to make them as efficient and innovative as possible, and to ensure that Europe offers attractive prospects to its best brains. The instruments under the Treaty and all other appropriate means, including voluntary arrangements, must be fully exploited to achieve this objective in a flexible, decentralized and non-bureaucratic manner. At the same time, innovation and ideas must be adequately rewarded within the new knowledge-based economy, particularly through patent protection.”*³⁶

The protection of the computer software was harmonized across the member states by the Computer Software Copyright Directive in 1991³⁷ (However the protection granted by the Member States, did not have the same standards and was not as effective as desired by the Community). Article 1(1) of this Directive states that: “[m]ember states shall protect computer programs by copyright as literary works within the

³⁵ Lisbon European Council 23 -24 March 2000, Presidency Conclusions. Available at: http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm.

³⁶ Lisbon European Council 23 -24 March 2000, Presidency Conclusions, Article 12. Available at: http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm.

³⁷ Office for Official Publications of the European Communities, *Op. cit.*

meaning of the Berne Convention for the Protection of Literary and Artistic Works.”³⁸ It is defined that for the areas of this Directive, the term ‘computer programs’ shall include their preparatory design material.³⁹ American-style lobbying on a massive scale accompanied the legislative process of the Software Directive. The Parliament rejected it twice and the discussion period lasted approximately two years before its adoption on 14 May 1991.⁴⁰ In implementing this Directive, some Member States have chosen to incorporate software protection directly into their existing copyright laws while others have chosen to enact separate provisions to protect software as a literary work.⁴¹

The European Patent Convention (EPC) and the rules of practice of the European Patent Office (EPO) govern European patent practice, including jurisprudence as to statutory subject matter.⁴² The European Patent Office (EPO) grants European patents (not EU patents) for the contracting states to the European Patent Convention (EPC), which was signed in Munich on 5 October 1973 and entered into force on 7 October 1977. It is the executive arm of the European Patent Organization, an intergovernmental body set up under the EPC, whose members are the EPC contracting states. The Office receives over 178 000 patent applications per year, has published over one million patent applications and has nearly 6 000 personnel.⁴³ While EPO uses the term European Patents, the patents do not have any connection with the European

³⁸ Office for Official Publications of the European Communities, *Op. cit.* p3

³⁹ Office for Official Publications of the European Communities. *Op. cit.*

⁴⁰ Ateş, Mustafa. *The Software Copyright Protection under European Union Law*, SPO, Ankara, 1999, p.3.

⁴¹ Ateş, Mustafa. *Ibid.*

⁴² Office for Official Publications of the European Communities. *Op. cit.* p. 5.

⁴³ Information on the EPO, available at: http://www.european-patentoffice.org/epo/pubs/brochure/general/e/epo_general.htm.

Community. EPO has no legal connection with the EU. As of December 2006, there were 31 members of the European Convention.⁴⁴

Article 64 states that "...European patent shall, subject to the provisions of paragraph 2, confer on its proprietor from the date of publication of the mention of its grant, in each contracting state in respect of which it is granted, the same rights as would be conferred by a national patent granted in that State and any infringement of a European patent shall be dealt with by national law."⁴⁵ While infringement is therefore governed by national law, the validity of a patent granted through the EPO is governed by the EPC. The EPC specifically excludes computer programs as patentable inventions in Article 52,⁴⁶ from patentable subject matter:

- (a) discoveries, scientific theories and mathematical methods;
- (b) aesthetic creations;
- (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
- (d) presentations of information.

Computer-implemented inventions should have a technical character and solve a technical problem in order to be accepted new and patentable.⁴⁷ This provision of the EPC is expected as the major difference between USPTO and EPO view of software protection.

As for TRIPS, the EPO is not a party to TRIPS and is therefore not bound by TRIPS (EPO is an international organization and only states may join TRIPS). Also

⁴⁴ Information on the EPO member states, available at: <http://www.european-patent-office.org/epo/members.htm>.

⁴⁵ European Patent Office, European Patent Convention, Article 64 - Rights Conferred by a European Patent, available at: <http://www.european-patent-office.org/legal/epc/e/ar64.html#FOOTNOTE-38>.

⁴⁶ European Patent Office. *Ibid*.

⁴⁷ European Patent Office. "Computerimplemented Inventions and Patents Law and Practice at the European Patent Office", p. 3, available at: www.epo.org.

European Community is not a signatory to the EPC, and it is neither in, nor a part of it, and cannot dictate what is and is not patentable.⁴⁸

Ambiguity arises because of the territorial character of the EPC, since it is not a part of the EU (what will a company do when it issues a patent from EPO?) Article 3 of the Convention explains the territorial effects. The grant of a European patent may be requested for one or more of the Contracting States.⁴⁹ The enforcement of IP rights is bound to individual member states of the EPC. This means that there are 31 different legal jurisdictions (25 of which are EU nations). The Courts of Member States enforce the patents but have interpreted the patent laws differently (Each country interprets its own law, under which the patent is granted). The result is a risky and complex legal environment with many cross-border forum shopping and delay tactics.⁵⁰

The definition of technicality has changed gradually and the trend in EPO is towards wider patentability. While the term was “technical contribution” before, in the EPO Guidelines, it changed into “technicality.”⁵¹

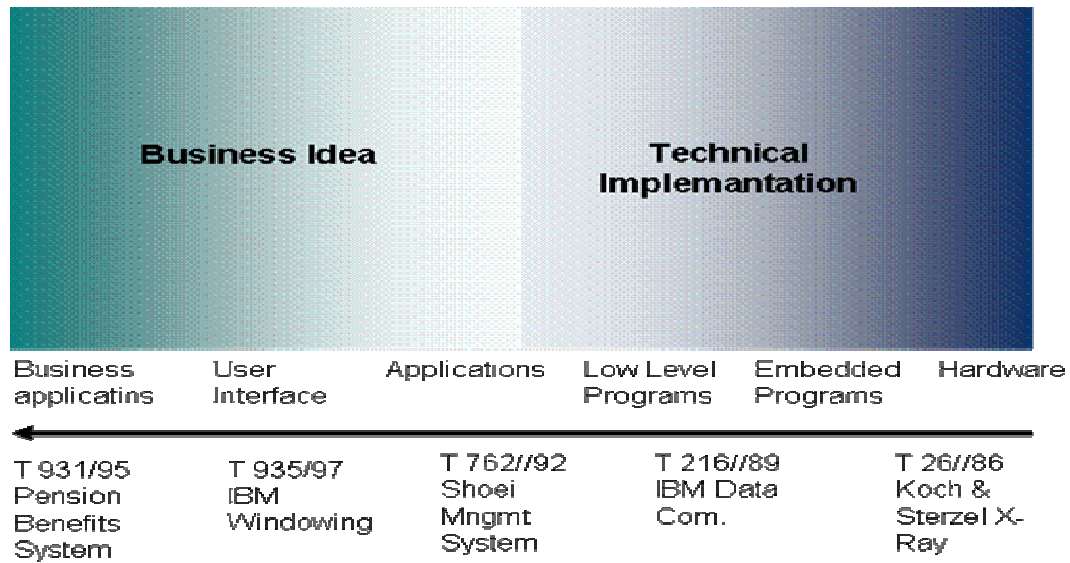
⁴⁸ Moetteli, John, *Op Cit.* p. 6

⁴⁹ European Patent Office. “European Patent Convention Article 3 - Territorial effect”, available at: <http://www.european-patent-office.org/legal/epc/e/ar3.html>.

⁵⁰ Moetteli, John, *Op Cit.* p. 7.

⁵¹ Helsinki Institute for Information Technology. “Patents in Europe”, available at: www.hiit.fi/de/core/PatentsInEurope.pdf.

Graph 5: The relationship between technical implementation and business idea



Generally, technical contribution will be found in two ways: computer running the program operating some external apparatus in which a technical change is produced; or the program causing the computer itself to operate in a technically different way.⁵² Both technical contribution and technicality are ambiguous terms and no matter how you define them and it is open to discussion.

To summarize, in EPO practice inventions, which are related to computer programs or in which such programs constitute an essential element, are subject to the general rules of patent law. And in the case of patentability of software, the question is whether or not the invention is of a technical nature.⁵³ But it is important to note that, while “technicality” is set as a prerequisite, wide interpretation of it ends up with patented software, even in the cases like web shop.⁵⁴

⁵² Software Patents, “The Technical Contribution Myth”
<http://www.softwarepatents.co.uk/current/technical-contribution.html>

⁵³ Hart, R., Holmes, P. and Reid J. “Study Contract ETD/99/B5-3000/E/106: The Economic Impact of Patentability of Computer Programs”, p. 9, available at: ec.europa.eu/internal_market/indprop/docs/comp/study_en.pdf

⁵⁴ The case will be analyzed in detail in the following sections.

2.6 Difference between USA and Europe

The real difference between the patent protection of software in USA and Europe (not EU since software is protected by copyright in EU, in this part the differences between USPTO and EPO will be mentioned)⁵⁵ is that in Europe the invention has to be of a technical character whilst in the USA the mere fact that the invention uses a computer/software makes it of the technological arts, if also useful, concrete and tangible results are provided. The U.S. Patent Office Guidelines specifically identify that the utility of an invention must be within the technological arts. A computer related invention must be within the technological arts.

The U.S. does not have statutory exclusions for inventions and it identifies four categories of patentable subject matter: process, machine, manufacture and composition of matter. The Supreme Court has identified three categories of subject matter that do not fall within the boundary of the statute: "laws of nature, natural phenomena and abstract ideas." But in the case of Europe, as mentioned, the European Patent Convention has specific exclusions which include programs for computers and methods of doing business. The Technical Board of Appeal has defined what is meant by the exclusion of programs. In the view of the Board, a computer program claimed by itself is not excluded from patentability, if the program when running on a computer or loaded into a computer, brings about, or is capable of bringing about a technical effect which goes beyond the "normal" physical interactions between the program (software) and the computer (hardware) on which it is run.⁵⁶

⁵⁵ Software is protected by copyright in EC while patent protection is applicable with EPO. In this section, the difference between USA and Europe under the EPC will be analyzed.

⁵⁶ Bakels, Reinier and Hugenholtz P. Bernt, *Op Cit.* p. 8.

The term “technical” constitutes the so called difference between EPC and US practices. The key to the patentability of inventions under the EPC is the identification of the technical contribution the invention makes. It appears that technical contribution is more restrictive than the production of a useful, concrete and tangible result. The European system, however, on the point of claim scope may be considered as broader than the US in that claims for computer programs not on a carrier are acceptable.⁵⁷ But as mentioned before, while technicality is stressed as a prerequisite for patentability, practices (USPTO’s Amazon One Click and EPO’s patented web shop) are different from each other, which bring EPO and USPTO into the same line.

⁵⁷ Hart, R., Holmes, P. and Reid J., *Op. Cit.* p. 23.

2.7 Bilateral Agreements

In an effort to further attainment of internationally harmonized patent laws which clearly mandate the protection of computer programs, the developed countries, especially US have directed its attention away from TRIPS towards bilateral agreements with various countries whereby these countries will provide for a broad array of patent provisions that favor developed countries' industries, including software.

Currently, Intellectual Property is harmonized by TRIPS which was discussed before. TRIPS set out the rules for the general copyright protection of software and it imposes to all members of the WTO a minimum, relatively high, standard of IPR. There was a considerable debate in the late 1980s and early 1990s about whether the TRIPS provisions should be negotiated through this organization rather than WTO, but the developed countries felt they did not have sufficient power in the organization and therefore pushed for a WTO forum for the new harmonizing TRIPS measures, and they won. WIPO (World Intellectual Property Organization) was established by the WIPO Convention in 1967 with a mandate from its Member States to promote the protection of IP throughout the world through cooperation among states and in collaboration with other international organizations. WIPO currently has 184 member states and is responsible for promoting the progressive development and harmonization of IP legislation, standards and procedures among its Member States. This includes further development of international laws and treaties regarding patents; trademarks, industrial designs and geographical indications; and copyright and related rights.

Article 3 of the Convention Establishing the World Intellectual Property Organization sets the basics of the type and limits of the protection is defined in the Article 3:

- (i) *to promote the protection of intellectual property throughout the world through cooperation among States and, where appropriate, in collaboration with any other international organization,*
- (ii) *to ensure administrative cooperation among the Unions”*⁵⁸

While the “collaboration” is stated in the article, lack of enforcement directed developed countries or unions like EU to more effective and stricter enforcements, they enacted TRIPS. When developed countries did not suffice with the standards set in TRIPS, they signed bilateral agreements with third countries to implement higher IPR standards than defined in TRIPS. This is what is meant as “TRIPS-plus” world.

Developed countries have followed suit in forming bilateral agreements, usually under the rubric of ‘free trade agreements’ (FTA) with developed and developing countries alike. There are an increasing number of bilateral agreements between individual developed Asian countries and for example, non-Asian countries. Singapore has signed FTAs with New Zealand, Japan, Australia, US, European Free Trade Association and Jordan. Thailand has signed agreements with US, New Zealand, Australia, China, Japan, etc. Malaysia and US agreed on a framework for a bilateral agreement in May 2004 (the list of subjects includes services liberalization, facilitation of trade and investment, promotion and protection of investment and IPRs). Malaysia and Japan are negotiating for a closer economic partnership, and Malaysia and Australia

⁵⁸ Article 3 of the Convention Establishing the World Intellectual Property Organization.

are contemplating a bilateral FTA⁵⁹. Scholars of IP such as Peter Drahos have interpreted this as an attempt by, developed countries to impose a stronger and more expansive worldwide intellectual property system to assure their control over the knowledge economy.⁶⁰ The attempt of developed countries', especially USA's, to align third countries' IP laws with theirs is interpreted that this will eventually increase the trade deficit between countries and secure the dominant position of the developed ones.

When does the problem arise? Main problems related with the FTA appear, as the gap between the trade deficits of the countries increases. If, for instance, Country A is the net exporter of software to Country B, the FTA will eventually become more beneficial for Country A while the costs become a burden on Country B.⁶¹ The main argument of the parties which are against the FTAs, arises from the positioning of the developed countries among each other, which is defined as these (developed) countries only seek to ensure TRIPS standard compliance among their free trade partners, but do not aim at obtaining more knowledge monopolies in other IPR net-importing markets. So it is going to be more accurate to comment on US "push" on FTAs while taking into consideration the fact that the US is by far the world's largest exporter of goods and services with intellectual property (IP) embodied in them.⁶²

⁵⁹ Khor, Martin. "Bilateral/Regional Free Trade Agreements: An Outline of Elements, Nature and Development Implications", 2005, p. 1, available at: http://www.bilaterals.org/article.php3?id_article=2722&var_recherche=software+patent

⁶⁰ Drahos, Peter. "Expanding Intellectual Property's Empire: the Role of FTAs", available at: http://www.bilaterals.org/IMG/doc/Expanding_IP_Empire_-_Role_of_FTAs.doc.

⁶¹ Pastor, Rafael. "The Impact of Free Trade Agreements on Intellectual Property Standards in a Post-TRIPS World", available at: http://www.bilaterals.org/article.php3?id_article=4311&var_recherche=software+patent

⁶² Gittins, Rose. "Selling off a Slice of our Country", 2004, p. 1, available at: <http://www.smh.com.au/articles/2004/08/10/1092102450919.html>.

2.7.1 Disadvantages of FTAs Compared to Multilateral Trade Agreements

It is generally recognized that bilateral agreements, especially between a developing and a developed country, are not the best option for developed countries and that multilateral negotiations and agreements are preferable. The reason for this is that US or a developed country always has superior bargaining power, (because they understand the material which they themselves authored in their own interests and because their negotiators are much better informed and skilled and because the US always has both carrot and stick, while a lone developing country has nothing). This is one of the main criticisms of FTAs are the imbalanced power for bargaining, due to the situation of less developed countries' economies, their weaker political situation, and their weaker negotiating resources.⁶³ Another important point, which is generally mentioned, is the differences between WTO and FTAs. In WTOs, even though a developing country does not have a good card in its hands, it is not obliged to open up its markets (or undertake other obligations) to the same degree as developed countries. However, these “development principles” are usually absent in FTAs, or they are only reflected in longer implementation periods for the developing country.⁶⁴ This is generally defined as unequal treatment and has another “show up” in the case of intellectual property since there were many “flexibilities” and options open to developing countries in interpreting and in implementing obligations in these areas. In the case of WTOs, the case is just the opposite of the FTAs. Peter Drahos⁶⁵ has explained the roadmap followed in going far beyond the initially set conditions by TRIPS:

⁶³ Pellegrini, François, “Software Patents in Europe”, 2003, available at: www.abul.org/brevets/conferences/swpat_stu_en1_20030711/swpat_stu_en1_20030711.pdf.

⁶⁴ Khor, Martin. *Op cit.*

⁶⁵ Drahos, Peter. *Op cit.*

1. The entrenchment in international agreements of a principle of minimum standards (WTO).
2. A process of forum shifting to venues that are more adequate to promote higher IPR standards: from the World Intellectual Property Organization (WIPO) to the WTO.
3. Co-ordinating bilateral and multilateral IPR strategies (signing FTAs with higher IPR standards than TRIPS)

The extension of protection that is defined in TRIPs and entrenchment in the conditions in WTO's or WIPO's standards or FTA's are interpreted by Rafael Pastor as "USA's *divide and conquer policy*" whose main objective is to reward countries that are willing to accept their terms on IPR standards and ignore or retaliate against those that do not.⁶⁶ As of 2005, there are 19 FTAs with G20⁶⁷, 7 with Ex-G20. There are proposed FTAs with some of these countries. The US is severely criticized as it has also been using a combination of unilateral pressure and bilateral trade agreements to pressure developing countries to distance themselves from the G20.

⁶⁶ Pastor, Rafael. *Op cit.* p. 33.

⁶⁷ The G-20 is an informal forum that promotes open and constructive discussion between industrial and emerging-market countries on key issues related to global economic stability.

2.7.2 Recent Examples from Bilateral Agreements

The Free Trade Initiatives between USA – Malaysia and USA – Australia may be shown as two recent examples of Bilateral Agreements. In Malaysia, ongoing talks on the collaboration between Malaysia and USA on software patents and pharmaceutical patents faced many opponents within Malaysia. The Federation of Malaysian Manufacturers (FMM)⁶⁸ opposes the agreement claiming that such a move would not have a positive impact on trade facilitation and market access for Malaysian manufacturers and states that the “[a]greement is too risky since US initiative is far beyond of Americans seek to extend patents beyond what is accepted globally under the World Trade Organization”.⁶⁹ The main criticism of The Federation of Malaysian Manufacturers shows similarities with the European based criticisms against software patents: US intention to set the rules of the game, which is establishing US standards for patents.

Another recent example for an FTA is the one between USA and Australia. Main criticism is directed by the Linux Australia and *Open Source Industry Association* that “[t]he effects would be felt by all developers, not merely those who worked with open source software.”⁷⁰ This bilateral agreement shows that, US even uses bilateral agreements against other developed countries. The harmonization of software patent protection is objected by many groups since the type of protection between these two countries and developers are afraid of the fact that degrading Australia's patent system

⁶⁸ Damodaran, Rupa. “Malaysian manufacturers wary of US move on patents”, Business Times, p. 1, available at: http://www.bilaterals.org/article.php3?id_article=5600&var_recherche=software+patent

⁶⁹ Damodaran, Rupa. *Op cit.* p. 2.

⁷⁰ Sydney Morning Herald. “Software groups warn of FTA dangers”, 1 August 2004, p. 1, available at: http://www.bilaterals.org/article.php3?id_article=353&var_recherche=software+patents.

to match the US approach will handicap Australian local developers needlessly."⁷¹ More examples can be provided since developed countries try to move towards stricter control on IPR via FTAs.

It is generally accepted that harmonization of IPRs between two countries may become an advantage for one of these countries if there is a trade deficit between them. The so-called harmonization then becomes a way of opening new doors for the companies of developed states to the markets of less developed states. The costs accrued become the losses of the nation not only in direct ways such as increased royalty and IP license payments (resulting loss in foreign exchange loss) or higher prices of the protected products, but also in indirect ways such as decreased access to knowledge which is extremely important in the software industry.⁷²

⁷¹ ZDNet, "Australian Linux bodies blast US free-trade deal", August 2004, p. 3, available at: http://www.bilaterals.org/article.php3?id_article=366&var_recherche=software+patents.

⁷² Kohr, Martin. *Op cit.* p. 13.

3. Recent Software Patent Initiatives in Europe

In this section, recent software patent initiatives in Europe will be discussed.

There are three initiatives:

1. Directive on the patentability of computer-implemented inventions
2. EPLA (European Patent Litigation Agreement) Initiative Intellectual property rights
3. The draft directive on the enforcement of intellectual property rights

Following the consultation on the 1997 Green Paper on the Community Patent and the Patent System in Europe, the patentability of computer-implemented inventions became one of the priority issues identified in early 1999, on which the European Commission should rapidly take action. It was envisaged that a Directive harmonizing Member States' law on the issue would remove the ambiguity. Furthermore, it was stated that in parallel with this action at the Community level, the contracting states to the EPC (European Patent Convention) would need to take steps to modify Article 52(2) (c) of the Convention, especially to remove computer programs from the list of non-patentable inventions. Pursuant to this goal, the European Commission proposed a Directive on 20 February 2002 in order to harmonize the patent laws of the EU member states and to establish the application of the EPO practice concerning patenting computer-implemented inventions on condition that certain requirements are fulfilled. The proposed directive omitted business methods from the issue of patentability since business methods are not patentable in the European Patent Convention and the patent laws of various European states; however it was rejected at a large majority on 6 July 2005.

European Patent Litigation Agreement aims at harmonizing the protection and change the country-by-country basis protection type and set up a European Patent Court" competent to decide on infringement relating to European patent. While it is EPO initiative, EPLA featured prominently next to the community patent, harmonization and mutual recognition of national patents, and general issues.⁷³ The EPLA is debated from various aspects like democratic accountability and possible breaches with of Article 292 EC Treaty, which means *acquis communautaire*.

The criminal measures for the enforcement of intellectual property rights constitute the final stage of software patent initiative in EU. Recently, there are two initiatives IPRED 1 (Intellectual Property Enforcement Directive -2004/48/EC) which became directive and IPRED 2,⁷⁴ in draft statute. Draft directive has important implications on the software industry since it introduces criminal sanctions for violations and together with IPRED 1.

⁷³ Public Hearing: Speeches and PPT Presentations, available at:

http://ec.europa.eu/internal_market/indprop/patent/hearing_speeches_en.htm

⁷⁴ Proposal for a European Parliament and Council Directive on criminal measures aimed at ensuring the enforcement of intellectual property rights and Proposal for a Council Framework Decision COM(2005)276 final 12 June 2005, available at: http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2005/com2005_0276en01.pdf.

3.1 Directive on the patentability of computer-implemented inventions

The European Union's Directive on the patentability of computer-implemented inventions (2002/0047/COD) was a significant milestone in the history of the software protection among EU members. It basically involves the patenting for computer implemented invention within the limits of criteria defined.

The idea behind the directive was to harmonize member state patent laws related to the computer implemented inventions. Not all member states of the European Union allow the patenting of software in their patent laws. The pressure for harmonization was brought to bear on the Commission through lobbying by international software companies, USA and EPO to assure that all member states allowed software patents. As it will be defined in the following sections, certain member states opposed to the patentability of software because of different objections, patents' effect on open source development, small and medium sized enterprises, etc. Also some of their laws might have prohibited it, and even if they didn't, they didn't want to be forced to allow it.

Why are software and software patents so important? Software grew to gargantuan importance, especially for the US, which was becoming a 'knowledge economy' in which everything was done by computers. The software is patentable in USA but it is not in EU. And while EPO requests for patents on inventions which "contain" software it has some problems. The main problem with the EPO is that it grants "national patents". Therefore, when one of these national patents hits its national territory (i.e. it becomes, e.g. a German patent) and if German law is hesitant about software patents, someone may claim it is 'invalid'. The problem is that, EPO determines 'invalidity', not the member state to which the patent arrives. So the result is

a deadlock situation. Had the patent applicant gone directly to Germany patent office, he might not have obtained his patent (if German law doesn't allow patenting of software), but since EPO granted it and EPO controls validity (member states, as you will remember, determines infringement, but not validity for patents coming through EPO) it remains valid, because EPO case law says "no software as such, but only if it is part of another invention." This Directive addresses this situation by harmonizing national patent laws with respect to the patentability of computer-implemented inventions and by making the conditions of patentability more transparent.⁷⁵

While those who opposed to the directive asserted that software could not be patented, the supporters did not agree with this idea because the proposal did not state that the current scope of computer program patentability should be extended and the business methods in software would be patentable. They claimed that it would be possible to patent only the computer programs which contribute technical matters. The word "technical" was one of the disputable issues of the directive, "technical" does not have a clear meaning and the "technical contribution" was defined as "a contribution to the state of the art in a technical field which is not obvious to a person skilled in the art." Nonetheless, the European Patent Office, the patent offices of various states and courts in Europe have used this word in order to determine what can and cannot be patented. The European Parliament could not define the word technical clearly, which shows that trying to find a clear meaning for the word is difficult.

The European Parliament accepted the directive, after significant amendments on September 24, 2003. In the amended directive, there were some restrictions on software patentability. The most important amendments are presented below:

⁷⁵ Commission of the European Communities, *Op cit.* p.3.

- *A definition of the "technical" requirement for patentability which distinguishes between abstract information-processing processes and specific kinds of physical processes (only the latter are "technical");*
- *A blanket rule that patents cannot be used to prevent interoperability between computer systems.*

Groups in the Parliament did not have a common opinion about the amendments, but it can be said that, while socialist were generally in favor of them, conservatives were opposed. Of the 120 amendments tabled by Parliament, only 21 were retained by the Council. The Austrian, Italian and Belgian delegations abstained while Spain voted against the proposal.⁷⁶

Pursuant to the co-decision procedure, a proposal can be enforced as law on condition that it is approved both by the European Parliament and the Council of Ministers (representing national governments). On 18 May 2004, the Council resubmitted the compromise version to the Parliament. The agreed version allowed the patentability of computer-implemented inventions (so long as the inventions have a "technical character") and overturned most of Parliament's amendments. Critics of the Directive claimed that the condition that inventions should be of a "technical character" was not an objective criterion and it would be possible that software could be patented without any exceptions. Moreover, the supporters of the Directive were of the opinion that the amended version was also ambiguous in fulfilling the original purpose of the Directive. However, the Council approved this decision on March 7, 2005⁷⁷ and the amended proposal was submitted to the Parliament again.

⁷⁶ Euractiv "Council clashes with Parliament on software patents", 19 May 2004, available at: <http://www.euractiv.com/en/infosociety/council-clashes-parliament-software-patents/article-117930>.

⁷⁷ BBC News Website, "EU Ministers Endorse Patent Law", 7 March 2005, available at: <http://news.bbc.co.uk/1/hi/technology/4325215.stm>.

On November 16, 2004, the government of Poland announced that it would not "support the text that was agreed upon by Council on 18 May 2004."⁷⁸ The FFII (Foundation for a Free Information Infrastructure), the Internet Society Poland, and NoSoftwarePatents.com, also agreed with those who opposed the Council directive and stated that the draft of Directive on Software Patents of 18 May 2004 lost qualified majority in EU Council on 1 November 2004 and therefore can not be legitimately adopted.⁷⁹ The Minister of Economic Affairs of Belgium, Marc Verwilghen stated on 7 December 2004, that the Council would not take any decision until 2005 since there was no further "qualified majority". In the Council's Committee of Permanent Representatives meeting of 13-15 December, it was decided, however, that there was a qualified majority and that the Council would formally adopt the revised version of the Directive.⁸⁰

There was no common position among countries. Belgium abstained, France wanted further amendments to the Directive, the Parliament of the Netherlands asked their representative to reject, and Hungary and Latvia were opposed, whereas Poland was also opposed until the recent diplomatic pressure of USA. Germany was not decided and stated that some improvements should be made in the directive. As reservations were indicated and since especially Poland was opposed, the Council's vote was postponed for an "indefinite" period.

On 2 February 2005, the European Parliament's Legal Affairs Committee (also known as the 'JURI' Committee), voted to ask the Commission to restart the legislative

⁷⁸ Euractiv "Software patents law up in the air after Poland pull out", 19 November 2004, available at: <http://www.euractiv.com/en/infosociety/software-patents-law-air-poland-pull/article-132419>.

⁷⁹ Müller, Florian. "Draft of EU Directive on Software Patents of 18 May 2004", available at: www.nosoftwarepatents.com/docs/041101qm.pdf. 2004.

⁸⁰ Council Of The European Union, "Provisional Agenda for 2077th Meeting of the Permanent Representatives Committee", 10 December 2004.

process on the controversial directive on the patentability of computer-implemented inventions taken by 19 votes in favor, 1 against and 1 abstention.⁸¹ On February 17, the JURI's request was confirmed by the Parliament's Conference of Presidents (the President of the Parliament and the leaders of the political groups), the request was decided to be submitted to the European Commission. On 24 February 2005, the European Parliament unanimously supported a plenary motion inviting the European Commission to review its proposed directive on the patentability of computer-implemented inventions (however it refused this invitation by the parliament on February 28).⁸²

In the council meeting, dated March 7, the "common position" was on the agenda again as an "A-item" for adoption without discussion. This initiative of the Council Presidency invoked severe criticism by the opponents of the directive.⁸³ Denmark asked this to be taken out of the agenda in the Competitiveness meeting. Violating the procedures of the Council, the President showed the "administrative reasons" to reject this request. The representative of Denmark recorded the rejections of Denmark instead of objecting formally. The common position was thus adopted without debate, and referred to the European Parliament for a second reading, with dissenting statements and caveats from a number of countries. In the event, only Spain had

⁸¹ European Union, eGovernment News "EU: European Parliament's Committee calls for new start on software patents directive", 04 February 2005, available at:

<http://ec.europa.eu/idabc/en/document/3842/330>.

⁸² European Union, eGovernment News "EU: Uncertain future for EU software patents directive", 25 February 2005, available at:

<http://ec.europa.eu/idabc/en/document/3842/330><http://ec.europa.eu/idabc/en/document/3930/330>.

⁸³ Foundation for a Free Information Infrastructure addressed critical questions to the Presidency - "What happened on March 7th regarding Software Patents?" 15 March 2005, available at: <http://lists.ffii.org/pipermail/news/2005-March/000279.html>

actually voted against: Austria, Belgium and Italy abstained (which has the same effect as voting against, given the way Qualified Majority Voting works).⁸⁴

The directive was debated at the legal affairs committee of the European Parliament in June 2005, and it was objected that the directive be revised.⁸⁵ The committee voted on 21 June 2005, and Council version of the directive was decided not to be amended and this event is interpreted as a great victory of big technology groups such as Nokia, Siemens and Philips.⁸⁶ The report of the committee was submitted to the Parliament on 5 July 2005 for a discussion by all MEPs. The proposal was rejected at a large majority (648 votes to 14 with 18 abstentions.) on 6 July 2005. In accordance with the co-decision procedure, the rejection was the end of the legislative process and the directive proposal was not enforced as a law. It is stated that the directive is effectively 'dead', as the Commission stated it would not submit another proposal.⁸⁷ The consequence was inevitable when we consider the reasons for which proponents did not want that software patents would be restricted with exceptions, and that the opponents were already against the concept of software patentability. This decision was considered as a criticism of Council of the European Union and the European Commission by the Parliament.

The rejection had different effects on different parties, but it was welcomed by all. For instance, one of the parties that supported the software patents, the Business

⁸⁴ Wearden, Graeme and Loney, Matt. "Last-gasp attempt to block patent directive", 04 March 2005, available at:

<http://news.zdnet.co.uk/itmanagement/0,1000000308,39190297,00.htm>.

⁸⁵ European Parliament. News Report "Latest on computerised inventions" 21 June 2005, available at: [http://www.europarl.europa.eu/omk/sipade3?PUBREF=-//EP//TEXT+PRESS+NR-20050621-](http://www.europarl.europa.eu/omk/sipade3?PUBREF=-//EP//TEXT+PRESS+NR-20050621-1+0+DOC+XML+V0//EN&L=EN&LEVEL=2&NAV=X&LSTDOC=N)

[1+0+DOC+XML+V0//EN&L=EN&LEVEL=2&NAV=X&LSTDOC=N](http://www.europarl.europa.eu/omk/sipade3?PUBREF=-//EP//TEXT+PRESS+NR-20050621-1+0+DOC+XML+V0//EN&L=EN&LEVEL=2&NAV=X&LSTDOC=N).

⁸⁶ Buck, Tobias. "IT groups win EU ruling on patents", Financial Times, 20 June 2005, available at: <http://www.ft.com/cms/s/329cb864-e1bb-11d9-9460-00000e2511c8.html>.

⁸⁷ European Union. eGovernment News "EU: Uncertain future for EU software patents directive", 08 July 2005, available at: <http://ec.europa.eu/idabc/en/document/4432/330>.

Software Alliance (BSA) said it respected the Parliament's decision: "Although we would have welcomed a harmonization of laws throughout Europe, at least the intellectual property protection that innovators had yesterday will remain the same tomorrow and that is critical for European competitiveness while the FFII described the vote as a "great victory."⁸⁸ The rejection of the proposal by the Parliament means that national laws of states will not be harmonized in the way US and main MNCs wanted. Parliaments of states might enforce laws for granting patents on computer-implemented inventions, if they allow such patents in their national laws.

⁸⁸ *Ibid.*

3.2 EPLA (European Patent Litigation Agreement) Initiative

EPLA (or formally Draft Agreement on the establishment of a European Patent Litigation System) is a draft text for an optional protocol to the European Patent Convention which “... would commit its signatory states to an integrated judicial system, including uniform rules of procedure and a common appeal court.”⁸⁹ It doesn't just cover the software patents and the EPLA is currently one of the hottest issues that Commission of European Internal Market has dealt with. The directive was proposed on 12 July 2005 by the Commission of the European Communities.

The reason behind the EPLA is the non harmonized structure of the rights conferred by a European patent as it is stated in Article 64 of the European Patent Convention “[a]ny infringement of a European patent shall be dealt with by national law”.⁹⁰ The primary objective of the EPLA is to set up a European Patent Court which would have jurisdiction over the validity and infringements of European patents (including actions for a declaration of non infringement, actions or counterclaims for revocation and actions for damages or compensation derived from the provisional protection conferred by a published European patent application).⁹¹

EPLA is criticized from different perspectives. One of them is the proposed jurisdiction mechanism. The EPLA would change the judicial system in Europe for patent litigation. Any dispute involving a patent granted by the European Patent Office (EPO) would go before a new European Patent Court (EPCt). Kevin Mooney, a partner

⁸⁹ European Patent Office, "Legislative Initiatives in European patent law", EPLA - European Patent Litigation Agreement, available at <http://patlaw-reform.european-patent-office.org/epla/>

⁹⁰ Any infringement of a European patent shall be dealt with by national law" Article 64(3) EPC available at: <http://www.european-patent-office.org/legal/epc/e/ar64.html>

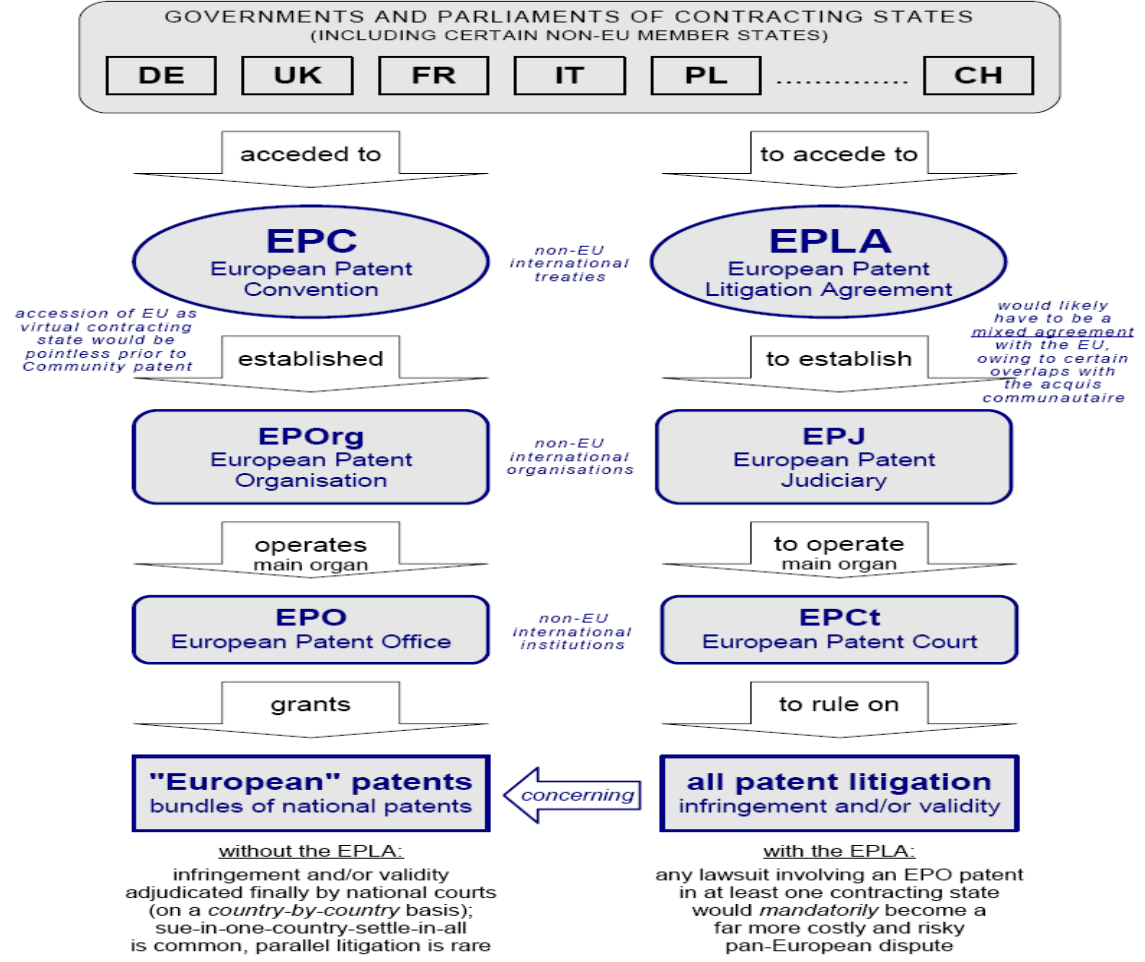
⁹¹ European Commission, DG Internal Market and Services “Consultation and public hearing on future patent policy in Europe” available at: http://ec.europa.eu/internal_market/indprop/docs/patent/consult_en.pdf

with Simmons and Simmons and president of the European Patent Lawyers Association (EPLAW), dismissed French proposals to have any patent court within Europe's existing jurisdictional framework as unworkable: "The last thing you would want is to have the ECJ ruling on patents," he said.⁹² The democratic accountability of the proposed patent system should be explained briefly. The new system proposes a court which will not be a part of the existing European jurisdictional system. As the opponents claim, this initiative consequently harms the democratic accountability, since the new court will not be controlled by the European Union. France, Italy and Spain constitute the opponents camp of the crisis while Germany and UK are on the other side. Basically, while France opposes it claiming that EPLA raised serious issues for the country from a constitutional point of view, Germany opposed giving the European Court of Justice jurisdiction in patent matters. The EPLA would be likely to infringe the *acquis communautaire* as it is not an EU regulation.⁹³ The EPLA is advocated as an alternative EPO model to the Community Patent, which gives the EU less say and preserves the institutional role of the EPO/EPC (no EU regulatory bodies/frameworks).

⁹² Barraclough, Emma. "McCreevy dashes hopes for European patent court", in *Managing Intellectual Property*, available at: <http://www.managingip.com/default.asp?page=9&PubID=198&SID=666575&ISS=23067&>

⁹³ "No Lobbyists As Such The War over Software Patents in the European Union" available at: <http://www.no-lobbyists-as-such.com/florian-mueller-blog/ecj-epla/>

Graph 6: The Changes that EPLA is expected to bring⁹⁴



The illustration above clearly defines the above effects of EPLA and EPC on software industry. European Patent Litigation Agreement aims to establish European Patent Court at the end, which will deal with infringement and/or validity cases of the European Patent that is a bundle of national patents. There are two major problems related to these initiatives. The first one is, as defined above, the democratic accountability of the non-EU institutions. EPLA and EPC are non-EU international treaties which will establish non EU organizations, EPO and EPJ that rules on non-EU institutions EPC and EPO. Not all bodies will be controlled by the EU’s democratic

⁹⁴ “The EPLA Road to Software Patents” available at: <http://www.no-lobbyists-as-such.com/The%20EPLA%20Road%20to%20SwPats%20v1.3.pdf>

processes; an EPO patent in at least one contracting state will become mandatory in all EU countries. The current positioning of the EPO from the standpoint of software patents is expected to create the second problem. EPO's scope of software patents will be applicable through EPLA. This is what is generally mentioned as "US-style software patents are legal in Europe."⁹⁵ From the perspective of software infringements, it is commonly accepted that the consequences of the EPLA would be much worse than software patent directive would have been. The EPLA would create a framework in which software patents would most likely become enforceable on a large scale and in which patent holders would find it much more attractive to litigate than now.⁹⁶

The interim report, prepared by the Legal Service of the European Parliament in February 2007 once more, stated the effects the European Patent Litigation Agreement on *acquis communautaire*. It was stated "[w]here common rules have been adopted, the Member States of the European Community no longer have the right, acting individually or even collectively, to undertake obligations with non-member countries which affect those rules. The other critical conclusion reached was that Article 98 of EPLA would *prima facie* constitute a breach of Article 292 EC Treaty⁹⁷ (Article 98 of the proposed EPLA says: "any dispute between Contracting States concerning the interpretation or application of this Agreement which is not settled by negotiation shall be submitted, at the request of one of the States concerned, to the Administrative Committee, which shall endeavor to bring about agreements between the states concerned"⁹⁸ while Article 292 EC imposes on the Member States of the European

⁹⁵ EPO decision on case on "Data transfer with expanded clipboard formats" for Microsoft is an example for US Style Patent granted in Europe, available at: <http://legal.european-patent-office.org/dg3/pdf/t030424eu1.pdf>.

⁹⁶ Mueller, Florian. "Analysis of the Situation Concerning the Latest Patent Policy Initiative at the European Level and its Relevance to the Issue of Software Patents", available at: <http://www.no-lobbyists-as-such.com/PATSTRATanalysis0604.pdf>

Community an obligation to respect the exclusive nature of the Court's jurisdiction to resolve disputes concerning the interpretation and application of provisions of Community law.⁹⁹ The issue rises because of the scope of 98 that violates Article 292 of EC Treaty.)

⁹⁷ “Interim Legal Opinion” 02.02.2007, available at:

http://www.ipeg.com/_UPLOAD%20BLOG/Interim%20Legal%20Opinions%20Legal%20Service%20EP%20Feb%201%202007.pdf

⁹⁸ European Digital Rights “EPLA found illegal by the EP Legal Service” available at:

<http://www.edri.org/edriagram/number5.4/epla>

⁹⁹ “Interim Legal Opinion” 02.02.2007, available at:

http://www.ipeg.com/_UPLOAD%20BLOG/Interim%20Legal%20Opinions%20Legal%20Service%20EP%20Feb%201%202007.pdf

3.3 The draft directive on the enforcement of intellectual property rights

The draft directive on the enforcement of intellectual property rights¹⁰⁰ is a follow-up to the much-debated directive [2004/48/EC] on the enforcement of intellectual property rights, called IPRED 1. The need for an IPRED 2 was announced by then-Internal Market ex-Commissioner Frits Bolkestein on the same day when IPRED 1 was approved by the EU Parliament reasoning that the criminal sanctions were omitted from the IPRED 1 (in order to agree on the directive before latest enlargement on May 1 2004). Bolkestein said criminal sanctions that were removed were essential in the fight against counterfeiting and piracy.¹⁰¹

This proposal for a Directive aims at completing the previous Directive 2004/48/EC of 29 April, "on the enforcement of intellectual property rights", which harmonizes the civil and administrative measures set out by the member States to fight the breach of IP rights. Therefore, the proposal set additional provisions in order to strengthen and improve the fight against counterfeiting which were laid down in Directive 2004/48/EC.

The definition of "any infringement of intellectual property rights" is criticized as a loose term and is considered open to discussion. As European Consumers' Organization mentions "[a] consumer downloading music from the Internet to make a

¹⁰⁰ Proposal for a European Parliament and Council Directive on criminal measures aimed at ensuring the enforcement of intellectual property rights and Proposal for a Council Framework Decision COM(2005)276 final 12 June 2005 available at: http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2005/com2005_0276en01.pdf.

¹⁰¹ Ermert, Monika. "EU IP Enforcement Directive Questioned On Procedure", in Intellectual Property Watch, available at: <http://www.ip-watch.org/weblog/index.php?p=354&res=1024&print=0>.

private copy for personal and non-commercial use may be interpreted as infringement and may be prosecuted at all.”¹⁰²

The criminal sanctions are also found disproportionate when many member states do not allow such measures even in terrorism trials.¹⁰³ With regard to criminal sanctions, there are two critics. First, the criminal law requires very clear boundaries. Not being able to know beforehand whether one commits a criminal offence or not is unacceptable both morally and in terms of justice and human rights. Also in case of infringement, the right holder is usually interested in compensation (civil law), not punishment (criminal law). Criminal law must be reserved for criminals, otherwise it risks losing all authority, effectiveness and respect.¹⁰⁴ The Commission's "harmonization" is based on non-harmonized terms and even non-harmonized rights. Second, the imposed measures do not force any particular harmonization. A "Common Market for Crime" which can be regulated by the Commission is still a long way off. This is why the directive also received a lot of attention in the member states, like Netherlands, because this is the first time Brussels interferes with criminal measures without granting veto right to member states.¹⁰⁵ As Jonas Maebe, FFII board member, criticized: *"Does the Commission really intend to criminalise Europe's entire software industry? Can it name even one computer program which does not infringe on a single*

¹⁰² Beuc Press Release, 14.10.2006, available at: <http://212.3.246.142/Common/GetFile.asp?ID=11191&mfd=off&LogonName=GuestEN, 2003.73>

¹⁰³ Foundation for Information Policy Research. "Final chance to get the IP Enforcement Directive right," Article 8, available at: <http://www.fipr.org/copyright/ipr-enforce-plenary.html>.

¹⁰⁴ *Ibid.*

¹⁰⁵ *Ibid.*

patent granted by the European Patent Office? It seems they want to replace the Lisbon goals with an Alcatraz program."¹⁰⁶

When the positions of different parties are analyzed, telecoms operators, internet companies, consumer organizations such as BEUC or Civil liberties groups fear that the ordinary people may be affected from IPR directive because of downloading and sending a digital photo online or by mobile phone for non-commercial purposes. This “fear” effect will lead to decreased use. According to the FIPR (Foundation for Information Policy Research), headed by prominent Cambridge scholar Ross Anderson, the directive would stifle competition by shifting the balance in favor of the incumbents and against competitors trying to break into the market. He claims that especially small and medium sized enterprises will suffer since the new directive will eventually harm the innovation and research processes of firms.¹⁰⁷ While the main arguments of opponents (criminal sanctions for infringement) are set out above, proponents like Microsoft, SAP, the Business Software Alliance, UNICE (an umbrella organization of various big industry associations from all over Europe), the EPO, the patent extremists in certain national governments, the associations of lawyers in general and patent attorneys in particular push for the EPLA but there are exceptions like such as Sun Microsystems and the free software community

¹⁰⁶ “EU Commission proposes to criminalize European Software Industry,” available at: <http://wiki.ffii.org/Ipred2Pr060512En>.

¹⁰⁷ Euractiv. “Enforcement of Intellectual Property Rights”, 17 August 2004, available at: <http://www.euractiv.com/en/infosociety/enforcement-intellectual-property-rights/article-117513>.

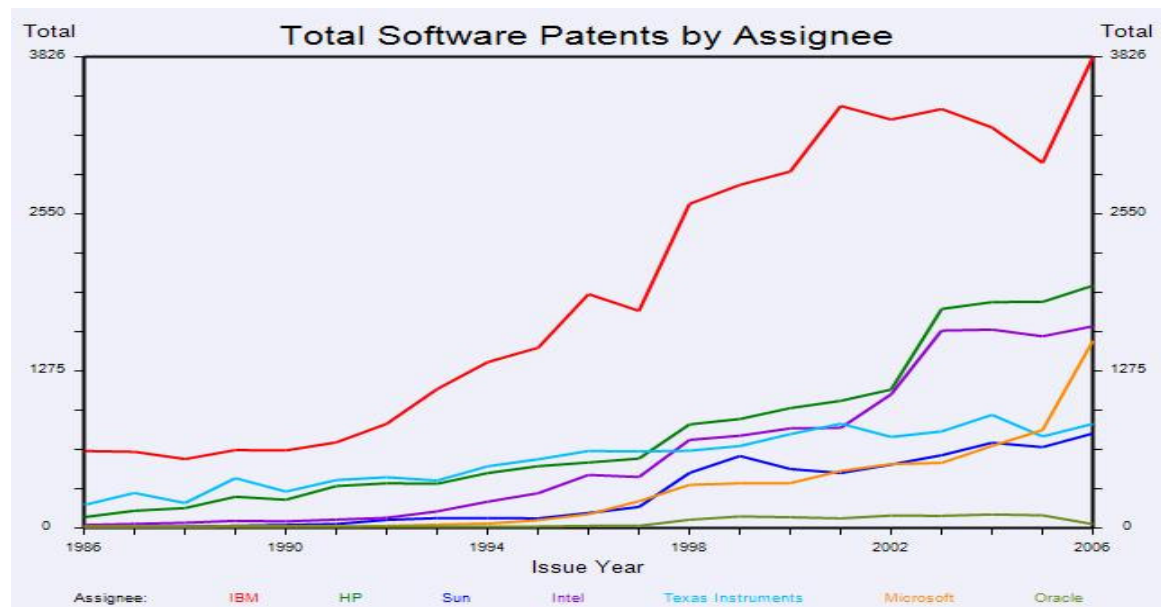
3.4. Pre Conclusion on Recent Software Initiatives in European Union

Recent software patent initiatives in Europe have been in EU's agenda for approximately 7 years. Directive on the patentability of computer-implemented inventions was rejected by the European Parliament after debated for 4 years. Now the draft directives on the enforcement of intellectual property rights and draft Agreement on the establishment of a European Patent Litigation System (EPLA) have been questioned. The criminal measures and EPO's role in EU's judiciary system has been criticized much more seriously than the rejected directive and it is hard to predict the consequences of these draft directives.

4. Main Criticism of Software Patents

One of the most general criticisms towards software patents is its use for strategic purposes. Mainly big multinational companies use software patents like strategic weapons to use against each other when necessary. Actually, the big companies have entered into patent pools with each other whereby they agree not to sue each other and only go after the innovators/smaller companies.

Graph 7: Total Software Patents by Assignee in the United States



US law is unique in that it requires all patents to be filed in the name of an individual inventor, even though it may be a corporate invention. The main objective of US law is to protect the small companies and thus it necessitates them immediately 'assign' (i.e. grant away to) patent. But when we look at the numbers, the situation is far different.¹⁰⁸

¹⁰⁸ In the EPO case, data do not have the patent assignee's name and the trend analysis cannot be performed.

Data show that IBM is the main patent assignee in the USA and it is followed by HP and Intel. The overall data show us that there exists a positive correlation between patents granted by each of the firms and there is a boom in patent cases after 1990s. According to the data, ten years ago, only a few thousand software applications were filed each year and IBM obtains 1800 patents and \$1 Billion each year in royalty income (averaging \$555k per year, per patent)¹⁰⁹ and the aggressive use by IBM of its patent portfolio is often referred as the IBM Tax¹¹⁰.

Gary L. Reback¹¹¹ in Forbes article tries to explain the problems related with strategic patenting with his real story *“My own introduction to the realities of the patent system came in the 1980s, when my client, Sun Microsystems--then a small company--was accused by IBM of patent infringement. Threatening a massive lawsuit, IBM demanded a meeting to present its claims. Fourteen IBM lawyers and their assistants, all clad in the requisite dark blue suits, crowded into the largest conference room Sun had.*

...After IBM's presentation, our turn came. As the Big Blue crew looked on (without a flicker of emotion), my colleagues--all of whom had both engineering and law degrees--took to the whiteboard with markers, methodically illustrating, dissecting, and demolishing IBM's claims. We used phrases like: "You must be kidding," and "You ought to be ashamed." But the IBM team showed no emotion, save outright indifference. Confidently, we proclaimed our conclusion: Only one of the seven IBM patents would be deemed valid by a court, and no rational court would find that Sun's technology infringed even that one.

¹⁰⁹ Moetteli, John, *Op. cit.* p. 3.

¹¹⁰ Pellegrini, François, *Op. cit.* p. 17.

¹¹¹ Gary L. Reback has been named one of the "100 Most Influential Lawyers in America" by the National Law Journal. Reback, Gary L. "Patently Absurd", Forbes, 24.06.2002, available at: <http://www.forbes.com/asap/2002/0624/044.html>

An awkward silence ensued. The blue suits did not even confer among themselves. They just sat there, stonelike. Finally, the chief suit responded. "OK," he said, "maybe you don't infringe these seven patents. But we have 10,000 U.S. patents. Do you really want us to go back to Armonk [IBM headquarters in New York] and find seven patents you do infringe? Or do you want to make this easy and just pay us \$20 million?"

After a modest bit of negotiation, Sun cut IBM a check, and the blue suits went to the next company on their hit list."¹¹² The above mentioned occasion is a clear indicator of the situation and highlights how patents can be used as strategic weapons against small firms. This is why some smaller companies that focus entirely on developing patents rather than products are an even better fit for survival in a "patent-cluttered environment." In contrast to Oracle, which views strategic patenting as an unfortunate last resort, other companies aggressively seek to build large patent portfolios and to use them to extract benefits from competitors. For instance, IBM acquired nearly one hundred times as many patents as Oracle during the 1990s although IBM's, R&D budget is only about five times as large as Oracle's. IBM expresses their strategy as it gives them the freedom to do what they need through strategic patenting from the fees that it receives from its 9,000 active patents..¹¹³

So what is patent economy which gives larger companies a wider space and larger profits and how it works? Software patent economy is based on the principle that revenues from patents exceed the cost of development of a patent and cost of infringing a patent. Software patent economy is explained by François Pellegrini with a simple Formula:

¹¹² Reback, Gary L. *Op cit.*

¹¹³ Bessen, James. "Patent Thickets: Strategic Patenting of Complex Technologies", 2003, p. 3, available at: <http://www.researchoninnovation.org/thicket.pdf>.

Profit = [Sales – Develop (cost of development software)] + [Revenue (from patent) – Cost#1 (Cost of issuing a patent) – Cost# 2(Cost of infringement of a patent)]. He claims that the Cost#2 is nearly equal to 0 for the large software companies which eventually make money out of the system. But the result is just the opposite for the small firms which have to pay for the system.¹¹⁴

Patent trials are also one of the problematic areas and they are so expensive that it is cheaper to pay for a patent that the defendant does not consider valid, than to prove invalidity at trial. Defending a software patent trial in the United States usually costs around half a million dollars. This article in the Wired magazine explains these problems very well: [...] According to Stanford University Professor John Barton, patent infringement suits are among the most expensive kind of litigation in the US today, with the average cost of a patent suit being \$500,000 per side per claim. Not surprisingly, the cost of insurance to protect companies against patent infringement is equally steep: \$50,000 per product with a \$50,000 deductible in the case of multimedia software, says Rob Lippincott, president of the Interactive Multimedia Association, a trade organization for large and small multimedia publishers. “These kinds of numbers are basically intolerable”, says Lippincott, adding that the cost of merely defending an infringement will wipe out most small software houses, whether they win or lose.”¹¹⁵

What about Europe? The European Commission estimates that the cost of registering a patent across the European Union today is 50,000 Euros – up to five times higher than in the United States or Japan¹¹⁶ and over 50,000 software patents have been granted by

¹¹⁴ *Ibid.* p.14.

¹¹⁵ Pascual, J. S. and Fernández R. G. *Op. cit.* p.1616.

¹¹⁶ Eureka Innovative Engineering Design “Euro patent finally gets agreement”, 10 March 2003, available at:
http://www.eurekamagazine.co.uk/article/index.aspx?articleid=uWtCQgfzjhee1-NHZr4KnzITdhmqqh1v-K_Tsi4UZkA.

the EPO. The cost of fighting a patent suit can be up to 500,000 Euro.¹¹⁷ It is evident that figures are too high for the software market in which SMEs constitute a significant portion.

Another impractical aspect of using patents to protect software is that searching millions of pages of software code to avoid patent conflicts before planning and programming computer code might terminate any effective development. Furthermore, a person who enjoyed a patent on a particularly valuable program may inhibit the use of computers to the disadvantage of both users and manufacturers.¹¹⁸ This nature of software patents decreases the quality of work during R&D since firms focus on searching patents rather than developing better programs.

The relationship between R&D and software patents is perhaps the most debatable subject. This debate is not a subject matter of software patents; it covers all kinds of patents. For instance, a recent study claims that R&D spending does not necessarily increase profits also undermines repeated calls by governments in the UK and Europe for more corporate investments to close the transatlantic technology gap with the US.¹¹⁹ The combination of our research results is difficult to reconcile with the hypothesis that software patents increased R&D incentives. It would require several coincidences: Rising patent propensity must result from a very large increase in the

¹¹⁷ The Foundation for a Free Information Infrastructure. “Corporate Information,” available at: <http://www.ffii.org/Corporate>.

¹¹⁸ Gratton, Éloïse. “Should Patent Protection Be Considered for Computer Software-Related Innovations?”, in *Computer Law Review and Technology Journal*, Vol. VII, Canada, 2003, p. 237.

¹¹⁹ Barry Jaruzelski, Kevin Dehoff, and Rakesh Bordia. “Smart Spenders: The Global Innovation 1000,” *Strategy + Business*, Winter 2006, available at: <http://www.ipeg.com/UPLOAD%20BLOG/2006%20Booz%20Allen%20Global%20Innovation%201000%20Preprint.pdf>.

productivity of R&D that occurs in only a handful of industries (but not the software industry) and yet without regard to the hardware/software distinction.¹²⁰

The redesign of a known fact constitutes another aspect of the software patent debate. The long, complicated definition of a simple process to grant a patent is usually faced in the software patents and law offices direct the applicants to this. From Martin Kretschmer's article, an excerpt of the instructions a lawyer's office wrote for its clients can be good example:

[Question] What should I consider in deciding whether to apply for a patent?

[Answer] First, consider whether the invention provides a commercial advantage. If so, patent protection may be necessary to protect your investment. Don't belittle your invention. Although an invention may seem straightforward to you, it still may be patentable. You should avoid self-censoring. You could not only lose valuable rights, but a competitor might obtain a patent on your invention. In such a case, you would incur substantial expense defending against it. "¹²¹

Without hesitation, the decreasing legal standards to apply for patents have the biggest share in the "boom" of patents granted. As it has become easier to issue a software patent, it has become a strategic decision to apply for a patent before "others" do. Robert Merges, the Director of the Berkeley Center for Law & Technology mentioned "[m]ost everybody in the software industry thinks that the standards for patents have become so low that anyone could just about patent anything¹²² Amazon's "One-Click Purchasing on the Internet" (No. 5,960,411 granted Sept. 12, 1997) is a

¹²⁰ Bessen, James and Hunt, Robert M. "An Empirical Look at Software Patents" Working Paper No. 03-17/R, Philadelphia, 2004, p. 40, available at: www.researchoninnovation.org/swpat.pdf.

¹²¹ Pascual, J. S. and Fernández R. G. *Op. cit.* p. 7.

¹²² Kobylarz, Xenia P. "Vaunted Legal Scholar Switches Sides in Supreme Court Patent Case" in IP Law & Business, 11-27-2006.

good example of the decreasing quality of software patents.¹²³ Web shop case is an example of decreasing standard for EU. The web shop was taken under protection by 20 different patents, like “Selling things over a network using a server, client and payment processor, or using a client and a server”, “Use of TV as metaphor for selecting different video fragments” or “order a gift for someone via the Internet by providing his/her email address”.

For the EU, it is critical to acknowledge that US firms are dominant in the European software market and the implementation of US style software patent mechanism will favor US firms rather than European firms. Software patents strengthen large players from outside the EU at the expense of small and medium-sized European enterprises. With the exception of SAP, Europe's software industry consists of SMEs. Moreover, Europe as the birthplace of key open-source projects and as an early-adopter market for open source has an opportunity to create growth and new jobs related to open source.¹²⁴ Thus, the dominant position of big multinational US companies in the software industry is defined as one of the major risks that European economy faces. It is highly probable for European SMEs to face patent suits like IBM – Sun Microsystems Inc. in US. The Euro Chambers (Association of European Chambers of Commerce and Industry) outlines its positions on Position Paper on Patentability of Computer Implemented Inventions: [s]oftware protection should continue to be secured by a copyright regime and hence patent protection of pure software cannot be accepted.¹²⁵

¹²³ Hartman, et al. “Method and system for placing a purchase order via a communications network,” available at: <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fmetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=5,960,411.PN.&OS=PN/5,960,411&RS=PN/5,960,411>.

¹²⁴ “Job Market & Economy”, 25.08.2006, available at: <http://www.nosoftwarepatents.com/en/m/dangers/market.html>.

¹²⁵ Eurochambers. “Position on Patentability of Computer Implemented Inventions”, Eurochambers Position Paper, Brussels, 2005, p. 2.

Likewise, PriceWaterhouseCoopers highlighted the risk of software patents for European ICT market in the study “Rethinking the European ICT Agenda”, where it states that software patents that open doors to the protection of software with non technical features have negative effects on innovation and a competitive software industry in which US dominance is increasing since 1950’s. Only very few European companies have prepared themselves for the consequences of a software patent regime. Another important note from the study is that *small enterprises are strongly opposed* to software patents, which is against the idea that software patents are beneficial for the SMEs and supported by them.¹²⁶

New members to the EU will be particularly hard hit by software patents because they are in need of growth industries (and due to the level of education in the former Soviet block countries, software development could represent an important growth sector) and dominant software vendors would be hesitant to incur the costs of translation into these additional languages if there were no important markets. There are basically two major problems related to the new members, the need for growth in the industry which is not mature as Westerns, as defined before and language problem. Only a few software vendors translate their software into such languages, there always exists some open-source developer in each country who will sooner or later translate an open-source program, even if it is used by a very limited number of people who speak the respective language.¹²⁷ The effect of the software patents on open source movement is expected to hit new member states since translation of the software to mother languages will have the risk of patent infringement.

¹²⁶ PriceWaterHouseCoopers. “Rethinking the European ICT Agenda Ten ICT-Breakthroughs for Reaching Lisbon Goals”, The Hague, 2004, p. 52, available at: ec.europa.eu/information_society/eeurope/i2010/docs/rethinking_the_european_ict_agenda.pdf.

¹²⁷ “Eastern Europe”, 27.11.2006, available at: <http://www.nosoftwarepatents.com/en/m/dangers/eastern.html>.

Conclusion

Copyright protection gives much wider space to software developers while it becomes harder for a software developer to create a new application without any patent infringements. Generally, software patents are harmful to the software industry and, in particular, to the European software industry, which is composed of small and medium sized companies and is currently weak. The structure of the European software industry might be affected by software patents which reduce instead of promoting competition and favor big companies (non-European) which have a large number of patents and specialized legal teams.

This means that, if software patents are allowed and measures are not taken to prevent the patenting of obvious software developments, the European countries will have to accept a multitude of trivial patents, filed by large non-European companies. This will present a permanent problem for European SMEs, since the risk of accidental infringement is high and programming is made more difficult if programmers are forced to search for patents in connection with each problem which should be solved. Software patents are harmful because of the effects they would have on interoperability between European-based innovations and the dominant patents held by non-European firms. New applications having functions similar to the existing ones could not be developed, and this would make it difficult and even prevent to compete. The issue came to be important especially when electronic commerce in Europe is concerned. The vast majority of successful software is successful because programs are useful and of high quality, rather than new and brilliant.

The software is debated much more than it has ever been in Europe. From the opponents side, street demonstration, conferences, web based blogs, e-initiatves (like no software patents.com) are taking place. Supporters of the software are also very active in the debate. The visits and the conferences by Bill Gates, the Chairman of Microsoft, is a clear indication of the motives. The latest effort of the European Commission and the rejections by the Parliament increased lobbying activities of the multinational corporations like Microsoft, which employs 10,000 people in Europe, 600 at its European manufacturing headquarters in Sandyford, southeast of Dublin.¹²⁸ (It is not surprising that Charlie McCreevy, the European Commissioner for Internal Markets who promised this summer to present a plan for action by the end of the year, is from Ireland)

EPO had excluded the patentability of software in 1973, it was unimportant at the time because patents weren't a big issue and neither was software. But more than 20,000 patents were granted up to now in and the directives aimed at to define the role of EPO in the EU. And when we consider criminal sanctions and the proposed position of the EPO, it is apparent that most problematic intellectual property subject area of the EU will become harder to solve. And taking everything into account, European Union should stay away from the patentability of the software which will harm not only software developers in the short run, but also knowledge based EU economics in the long run.

¹²⁸ O'Brien and Kevin J., "Years of deadlock on EU patent bring some new thinking, International Herald Tribune", available at: <http://www.iht.com/articles/2006/11/08/business/patents.php>.

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Annex: Software Protection in Turkey

According to Turkish Copyrights Act, in order to for intellectual creations to be protected, they must be classified as work. Turkish Copyrights Act was amended with the enactment of Law No. 4110, effective June 12, 1995. This Amendment adds computer software to the category of scientific and literary works in Article 1 of Copyrights Act. In addition to this, software must be originally created by its owner in order to be copyright protected. But, absolute originality is not sought for the legal protection, it is sufficient to be created by a worthy effort and not to be copied from any other software.

Copyright law grants protection to expression of software which is fixed in a tangible medium. The ideas underlying the software exclude copyright protection. Therefore, some elements of software, such as program flow, source and object code and audiovisual feature of user interface are in the scope of Copyrights Act. Other elements, which are algorithms and functional features of user interface, are not able to utilize copyright protection from the Ministry of Culture.

In Decree Law No. 551 pertaining to the protection of Patent Rights Non-Patentable subject matter and inventions are stated which are:

- a) Discoveries, scientific theories, mathematical methods;
- b) Plans, methods, schemes/rules for performing mental acts, for conducting business/trading activity, and for playing games.
- c) Literary and artistic works, scientific works, creations having an esthetic characteristic, computer programs.

d) Methods involving no technical aspect, for collecting, arranging, offering/presenting and transmitting information/data.

e) Methods of diagnosis, therapy and surgery applying to human or animal body.¹²⁹

Turkish Patent Act was revised on June 24, 1995, to harmonize Articles 52/I-3 of European Patent Convention, which excludes software as a patentable invention. According to Topaloğlu, this provision must be narrowly interpreted as recent EPO case law and algorithms in technical character may be granted patent. Actually, because of the reason that algorithm contains process, it is able to satisfy prerequisites, sought by Turkish Patent Act, that they have industrial application and have to be a new invention. In addition to this when a software-related invention, which is a component of technical process or machinery, is accepted patentable, an indirect patent protection may be provided.¹³⁰

One of the most interesting differences is that computer programs have been regulated under the same group with the creations having an aesthetic, literature and art works and scientific works. Moreover, different from the regulations in the EPC, literature and art works and scientific works are also listed where computer programs are included. Besides, while only the expression (conveyance) information is mentioned in the EPC, procedures “not having a technical aspect about gathering, organizing, presenting and conveying information” are explained in the Turkish regulation. In this manner, it not only is a more detailed provision but it also clearly highlights the non-technical aspects of the procedures. While the regulation in the Turkish legislation can be interpreted more likely as computer programs are excluded form the scope of patents and they can be subjected to patents as an exception, this cannot be said about EPC

¹²⁹ Decree-Law No.551 pertaining to the Protection of Patent Rights, available at: http://www.tpe.gov.tr/dosyalar/EN_khk/Patent_DecreeLaw.pdf

¹³⁰ Topaloğlu, Mustafa. Bilgisayar Programları Üzerindeki Haklar ve Bu Hakların Korunması, Turkish Informatics Foundation, Istanbul, 1997, p. 133.

easily. Furthermore, the issue regulated under paragraph e, is directly regulated under the framework of applicability in industry in another paragraph in the German Law. EPC has regulated this issue in a separate paragraph under the scope of patentable inventions in Article 52 however, it is stated that these are not the type” of inventions applicable in the industry in the scope of the first paragraph.”¹³¹

¹³¹ Aksu, Mustafa. Bilgisayar Programlarının Fikrî Mülkiyet Hukukunda Korunması, Beta Publishing, Istanbul, February 2006, p. 172.