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Software Patents

A study on the patentability of software inventions.

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Abstract

The primary objective of the thesis will be to focus on patent protection of software under the European Patent Convention, by analyzing the different approaches that the European Patent Office has taken into consideration since the mid-1980s. These approaches are derived from the different decisions that emanate from the Technical Boards of Appeal of the European Patent Office. The thesis will examine the most relevant decisions illustrating the juridical tendencies and basis that have been utilized to decide over the patentability of computer programs. The analysis will conclude with the latest approach taken by the Technical Board of the European Patent Office. The study will examine the patentability requirements of inventions in general established within the European Patent Convention. Sources that will be utilized to carry out this research will include case law, legislation, specialized legal commentary; journals and books. The present study sustains that computer programs may be patented as long as they comply with all the general requirements of an invention prescribed under the European Patent Convention together with the condition established by case law called the technical character requirement. Nevertheless, due to the fact that the Technical Boards of Appeal are not bound by previous case law, the current position could keep evolving as it relies on the stance of the European Patent Office on patentability of computer programs which is seems to be influenced by the changes in the technological world ..

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Chapter 1

1.Introduction to the study

This thesis brings together two different fields, they comprise of the field of intellectual property and the technology field where my main focus will be in software inventions. Since the turn of the century the software field has experienced tremendous growth, with the introduction of smart phone applications and even software for specific purposes that never existed before. With practically every individual owning a device that runs at least one type of software and even industries such as the automobile and airplane industries, replacing majority of their workers with machines that run on software specifically made for them, the software industry has seen an exponential growth. software is being utilized for industrial processes previously performed by people more and more each day.

The innovation in the software industry has brought with it the need for protection and this is where intellectual property and more specifically in this case patents comes in to offer protection to the various individuals and organizations that put time, effort and skill into invention this software programs.

Intellectual property rights provide protection to intangible property, which in the case of software are the ideas and creations of the individuals mind that are synthesized through a computer program. The nature of software makes it unique, this study will seek to examine how the patentability of software programs or of computer implemented inventions¹ (CII) under the European Patent Convention has been envisaged.

The thesis is comprised of five chapters. The first chapter is conceived as an introductory chapter to this study. It will begin by presenting the objective, research questions and the methodology applied within the thesis. Consequently, it will present a general idea of intellectual property giving a legal overview of the notion of software. This will be crucial for anyone that is not familiar with technical aspects of computer programming and its science.

Following will be the second chapter of the study; the aim will be to provide a description of software patent protection. It will also provide a brief history on the history of patent protection in the European Union while giving argument in support and against the protection of software by use of patents. The third chapter will consider the patentability requirements of an

¹ This term is recognized by EPO as the official term which comprises computer programs and other programmable apparatuses.

invention under the European Patent Convention and give a background on the exclusion of software patents. Following that, the fourth chapter will concentrate on the study of the three main approaches reflected in the case law of the Technical Boards of Appeal of the European Patent Office. Starting from, the 1980s to the current approach.

The final chapter will conclude the study taking into account past and present developments while also looking at possible future developments regarding the patentability of software under the European patent framework

1.1 Objective of the study

The main objective of the thesis will be to focus on patentability of software under the European Patent Convention, by examining the different approaches that the European Patent Office has taken into consideration. These approaches are rooted in the different decisions from the Technical Boards of Appeal of the European Patent Office. The thesis will examine a select number of decisions illustrating the juridical proclivities and basis that have been employed to decide the patentability of computer programs. The study will conclude with the latest approach taken by the Technical Board of the European Patent Office.

1.2 Research Questions

Is software patentable under the European Patent Convention?

What are the requirements for patentability under the European Patent Convention?

What are the different approaches taken by the European Patent Office regarding the patentability of computer programs?

What is the current position of the European Patent Office on the patentability of software?

1.3 Research Methodology

The study will consider the patentability requirements of inventions in general established within the European Patent Convention. Consequently, after studying the patentability requirements, a case law analysis will be performed on relevant decisions taken by the Technical Board of Appeal of the European Patent Office on patentability of computer programs. The analysis will reflect the past approaches and attempt to preview the development of case law in order to demonstrate the different criteria employed by the EPO while evaluating the patentability of software. The thesis will employ various sources while carrying out the research such as case law, legislation, specialized legal commentary, journals and books.

1.4. Intellectual Property

In order to discuss the patentability of computer software one has to have an understanding of what intellectual property is. WIPO defines intellectual property as “*Creations of the mind, mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.*”² Thus intellectual property rights are the legal right given to the inventors or creators of products.

Intellectual property law does not only concede rights to the right-holder but it also deters others from taking unfair advantage of the creator’s product, and providing remedies should this happen.³

The term “intellectual property” or “intellectual property rights” will be utilized interchangeably throughout whole thesis.

In order to vivify the continuous interaction of intellectual property rights with our everyday lives I will provide a scenario to depict the everyday situation. As you are reading this thesis, the literary content that is the author’s creation is protected by copyright. Simultaneously you are probably reading it on a computer using software that is protected by design and patents rights, sitting on a chair that is protected by designs rights. You may also be taking notes using a pen or pencil that has a design or mechanism that was protected by patents at some point and probably has a trademark embossed on it.

This is to show that we come across and make use of objects protected by intellectual property rights several times each day in one way or another either through necessity or just by chance.

In a bid to fully comprehend the meaning of IPR, the distinction between intangible property and the tangible object in which they are manifested need be explained. Intellectual property rights are considered to be of a different form and separate from property rights in tangible goods. This diverse nature can be explained by the following example: a person that writes and sends a letter to a friend describing his adventures during his trip to Asia. Once the recipient has received the letter, he may store this letter and conserve all property rights over the physical letter and the ink. He can also dispose of this letter, destroy it and even when he dies it will be part of his inheritance. Despite the recipient having personal property rights in the letter as a

² World Intellectual Property Organization, ‘What is Intellectual Property?’ <http://www.wipo.int/about-ip/en/> accessed 5.4.2017

³ D I Bainbridge, *Intellectual Property* (7th edn Pearson Longman, Essex 2009)

physical object, the author (sender) retains intellectual property rights over the literary content of the letter. This IP confers the author the power to impede the recipient from copying the content or from posting it on the internet.⁴

This difference may be difficult to comprehend at first, but what need be clear is the situation of the person that possesses rights over intangibles (IPR). She is entitled to limit what the owners of personal property can do with the things they own, because it contains intangible property. For example, the author of a book has an intangible right over its content (creative expression). In this situation the main question that arises in determining the boundaries between intangible property and personal property is: how was the object of the property to be identified and its limits to be defined? This question is easy to answer when we deal with personal and real property because the limits are defined by the physical objects over which the right holder exercises his property. While the physical barriers of intangible property do not exist, an alternative system was created to establish parameters for the property in question. This system contains certain deposit and registration techniques of representation, legal concepts and requirements, depending on the nature of the intangible property.⁵

Moreover, an important aspect to consider is that the rights conferred to protect ideas and information that are created within an intellectual activity that are of commercial value.⁶ This is the main reason why in the industrialized world ideas are becoming a sophisticated way for a successful economic future, relying on complex legal and political activities designed to strengthen the various types of protection for ideas of this nature.⁷ An additional feature is that the property rights granted are essentially negative; this means that they prevent others from doing certain things, e.g. regarding the actions of a counterfeiter, imitator or a pirate, from exploiting or using them without the permission (license) of the owner. This does not imply that intellectual property does not grant positive entitlements that permit the right owner to be granted a patent or register a trademark.⁸

Another important aspect is the territorial nature that intellectual property rights possess. IPR only operate within the territory in which they are granted. Due to the increase in trade of goods

⁴ L Bently and B Sherman, *Intellectual Property Law* (3rd edn OUP, New York 2009)

⁵ *Ibid* 2

⁶ W R Cornish, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (4th edn Sweet & Maxwell, London 1999)

⁷ *Ibid*

⁸ *Ibid*

that contained different kinds of intangible property, countries began to explore ways to protect their goods through IPR. At first it was done by bilateral treaties, but towards the nineteenth century, mostly European countries started to enter multilateral agreements. The two most important being the Paris Convention for the Protection of Industrial Property of 1883 and the Berne Convention for the Protection of Literary and Artistic Works of 1886.

During the twentieth century, the protection provided by these treaties became insufficient forcing developed countries to adopt stronger regulations in this matter.

The World Intellectual Property Organization (WIPO) was created in 1967 by a Treaty signed in Stockholm the same year, replacing the United International Bureau for the Protection of Intellectual Property (BIRPI).⁹ Following this process, a treaty called Trade Related Aspects of Intellectual Property Rights (TRIPS) was adopted and the product of a more aggressive stance led by the United States Government towards protection of IPR. This convention was signed in Marrakesh in April 1994 and it was incorporated into the legal framework of the General Agreement on Tariffs and Trade (GATT).¹⁰

1.5 The Notion of Software

1.5.1 Defining Software

The term “software” will be used as a synonym to the terms “computer programs” or “programs for computers”. The definition of computer programs adopted by WIPO in its Model Provisions for the Protection of Computer Software is the following: *“computer program” means a set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result.*¹¹

With respect to the concept of computer programs, it was stated that a distinction was made in the Model Provision regarding computer programs and software. This distinction relates to the broadness of the term “software” because it includes the concepts of program descriptions and supporting material all in one.¹²

⁹ World Intellectual Property Organization, ‘A Brief History’ <http://www.wipo.int/aboutwipo/en/history.html> accessed 5.3.2017.

¹⁰ L Bently and B Sherman, Intellectual Property Law (3rd edn OUP, New York 2009).

¹¹ World Intellectual Property Organization, Model Provision on the Protection of Computer Software, Section 1 (i) Cited in: Kim G. Hansen, ‘Software Patents in Europe’ (2004) 47 Stockholm Institute for Scandinavian Law 179

¹² Kim G. Hansen, ‘Software Patents in Europe’ (2004) 47 Stockholm Institute for Scandinavian Law 179

The adoption of a broader concept of computer program, which comprises the preparatory material utilized in the process of designing the program, has been enshrined within a wide range of legislations and conventions around the world. This is the case of Article 1.1 of the Computer Programs Directive of the European Community, which establishes the following notion: the term “computer programs” shall include their preparatory design material.¹³ To understand what is meant by design material we must extract this concept from the seventh recital of this Council Directive, it indicates the following notion for preparatory design material; [...] whereas the term (the word term relates to computer programs) also includes preparatory design work leading to the development of a computer program provided that the nature of the preparatory work is such that a computer program can result it at a later stage.¹⁴ Important international conventions such as the TRIPS Agreement adopted in 1994 and the WIPO Copyright Treaty adopted in Geneva 1996 do not contain definitions of computer programs or software whatsoever.

1.5.2 Essential Terminology

The definitions indicated will be used continuously throughout the thesis and will aid in the understanding of the subject matter.

*Computer: a machine that can follow instructions to alter data in a desirable way and to perform at least some operations without human intervention. Computers represent and manipulate text, graphics, symbols and music, as well as numbers.*¹⁵

*Source code: is the symbolic code that is written by a programmer in a computer language, such as C or BASIC, and is generally decipherable by humans.*¹⁶

*Object code: is the executable machine language, consisting of binary strings (zeros and ones), that the computer actually uses to perform its actions.*¹⁷

*Algorithm: as a prescribed set of well defined, unambiguous rules or processes for the solution of a problem in a finite number of steps.*¹⁸

¹³ Council Directive 91/250/EEC on the Legal Protection of Computer Programs, 14 May 1991, Article 1.1

¹⁴ Council Directive 91/250/EEC on the Legal Protection of Computer Programs, 14 May 1991 .

¹⁵ B Pfaffenberger, Webster’s New World Computer Dictionary (10th edn Wiley Publishing, Indiana 2003)

¹⁶ Ibid

¹⁷ Ibid

¹⁸ Ibid 476 334

Chapter 2

2. Protection Of software patents

2.1 Definition of patents

The online dictionary defines a patent as, ' a government authority or license conferring a right or title for a set period, especially the sole right to exclude others from making, using, or selling an invention.'¹⁹ The World Intellectual Property Organization, defines a patent as 'a document, issued, upon application, by a government office or a regional office ,acting for several countries, which describes an invention and creates a legal situation in which the patented invention can normally only be exploited ,manufactured, used, sold, imported, with the authorization of the owner of the patent. "Invention" means a solution to a specific problem in the field of technology. An invention may relate to a product or a process. The protection conferred by the patent is limited in time ,generally 20 years'²⁰

From these two definitions it is clear that a patents main aim is to give the inventor the exclusive right to exploit the invention. Also we see that the protection is only for a set period of time ,20 years, after which the right is exhausted. This right has to be conferred by a government authority and anyone who wishes to exploit this invention would need the permission of the patent owner.

2.2 Software patent protection

The term software patent is considered to be misleading although frequently utilized. According the EPO the correct term is computer-implemented inventions (CII) and gives the following definition is given: *A computer-implemented invention is one which involves the use of a computer, computer network or other programmable apparatus, where one or more features are realized wholly or partly by means of a computer program.*²¹

In Europe, computer programs are explicitly incorporated as excluded subject matter within the EPC, unlike the patent regimes of U.S.A and Japan. Patent eligibility is governed by the European Patent Convention within Article 52, 56 and 83. These three Articles establish the

¹⁹ Online Dictionary

²⁰ WIPO Intellectual Property Handbook: Policy, Law and Use. Chapter 2: Fields of Intellectual Property Protection WIPO 2008 <http://www.wipo.int/export/sites/www/about-ip/en/iprm/pdf/ch2.pdf> visited 3rd March 2017

²¹'Patents for Software? Law and Practice at the European Patent Office' (2012) European Patent Office <http://www.epo.org/service-support/publications/issues/patents-for-software.html> accessed 1st March 2017

patentability requirements of novelty, inventive step, industrial applicability and sufficient disclosure. These requirements will be studied in great detail in the next chapter.

The advancements in Europe regarding general patentability can be categorized into three different stages.

The first stage is before the 60s and its main characteristic was that each European country possessed legal patent frameworks that were unique to themselves.

During the second stage in the 1960s, Europe began harmonizing its patent systems and the Patent Cooperation Treaty was adopted in 1970.

Before the adoption of the European Patent Convention, software was patentable in the UK under the 1949 Patent Act. This was reflected in the *Nymeyer* case.²² Germany also adopted a liberal stance, in 1973 before the signing of the EPC the German Federal Patent Court issued a decision regarding patentability of computer programs.²³ The case related to an invention that converted decimal numerals to binary numerals, identical to what was held un-patentable a year before by *Gottschalk v. Benson* in the U.S. The German decision held that the invention possessed technical character because it was an application of technical means to accomplish a technical purpose.²⁴

The last stage begins after the European Patent Convention in 1973 was signed and became effective in 1977. Before 1977 both the U.K and Germany revised and adapted their patent laws to match the substantive provisions of the EPC. As of 1981 both countries contained substantially identical provisions to Article 52 of the EPC.²⁵ During this process, Germany accepted the UK's "inventive step approach" and discarded its "technical character approach". Meanwhile, the patentability of computer-implemented inventions was still problematic; this triggered the establishment of a working group in 1984 to study this problem. The working group came to the conclusion that the EPO should consider the inclusion of technical character to determine whether a claimed invention falls within excluded subject matter under Article 52(2)

²² P Leith, *Software and Patents in Europe* (Cambridge University Press, Cambridge 2007) 11-18

²³ L Ford, 'Alchemy and Patentability: Technology, 'Useful Arts,' and the Chimerical Mind-Machine' (2005) 42 *Californian Western Law Review* 49, 100. The case is cited as *Bundespatentgericht* , [BPatGE] [German Federal Patent Court] May 28, 1973, reprinted and translated in 5 *Int'l Rev Indus Prop & Copyright* L 211, 213 (1974)

²⁴ *Ibid*

²⁵ *Ibid* 103

EPC. Shortly, the Guidelines for Examination were amended to include the “technical character approach.”²⁶

The concept of technical character has also been enshrined in the Rules 27 (1) and 29 (1) of the EPO.²⁷ The expression technical character and technical effect has been left to the EPO Boards of Appeal to construe. A number of different decisions have been reached considering the interpretation and application of the requirement of technical character. The first case that dealt with this is VICOM of 1987. According to decisions T 1173/97²⁸ and T 935/97²⁹ the Board held that the technical character of an invention was generally accepted as an essential requirement for its patentability.

2.2.1 Patentability of Software in Europe

Arguments in favor and against the patentability of software have been brought forward with the supporters and critics both giving their reasons as to why software should or should not be patented. Many of these arguments take into thought the unique characteristics of the software market, the unique features of software itself and policies considerations.

2.2.1.1 Arguments in favor of patenting software

Martin Goetz, the first man to receive a software patent in 1968 for an improvised data sorting algorithm he developed, has over the years emerged as one of the leading voices for the preservation of software patents.

Goetz disagrees with the definition of programs as mere ideas. He claims that programs, although containing ideas on processes, for example how to encrypt data, are still components on a machine, and are therefore covered under the current patent laws. Goetz agrees that many of the software patents that have been granted over the years should not have been given. He argues that although there are problems with the current software patent standards, reforms, rather than abolishment, should be the focus of the debate.³⁰

2.2.1.1.1 Problem with copyrights

The issue Goetz has with the abolishment of patents is that copyright protection really offers no protection to software at all. He states that a copyright really only “stops someone from literally

²⁶ M Kikuchi, ‘Patent Eligibility of Computer Software Patents in the United States, Europe and Japan’ (2009) 16.3 CASRIP Newsletter

²⁷ E Szattler, ‘Patentability of Computer Programs’ (2007) 1 Masaryk U J L & Tech 97, 100

²⁸ T 1173/97 (Computer program product/IBM) of 1.7.1998

²⁹ T 0935/97 (Computer program product II/IBM) of 4.2.1999

³⁰ Pioneer Goetz rebuts software patent critics - <http://www.zdnet.com/article/pioneer-goetz-rebuts-software-patent-critics/> - Visited 20th April 2017.

copying your code. It in no way protects any inventive concept, including ideas, program logic, algorithms, systems, methods, concepts, or layouts”.³¹

2.2.1.2 Arguments against the patenting of software

In 1851 the Economist³² wrote:

‘The privileges granted to inventors by patent law are prohibitions on other men, and the history of inventions accordingly teems with accounts of trifling improvements patented, that have put a stop, for a long period, to other similar and much greater improvements... Every patent is a prohibition against improvements in a particular direction, except by the patentee, for a certain number of years; and, however beneficial that may be to him who receives the privilege, the community cannot be benefited by it.’

Many have argued that software patents should be banned because they stifle innovation; they argue that if programs are merely ideas then, they are not patentable.

In 2013 Michelle Boldrin and David K. Levine published a case against patents³³, wherein they highlighted the lack of empirical evidence to suggest that patents have any positive effect on innovation. They asserted that history showed the eruptive growth of most industries, as well as the innovation of technology that comes with it, is a derivation of the competitive environment. Seeing as inventions are as a result of social influence. It can be said that a patent doesn’t go to those who invent but rather to those who file for the patent.

2.2.1.3 Common ground

The only issue that both sides agree on is that the current laws regarding software patenting need to be revised. The billions spent by software companies on and avoiding litigation is comparable to industrial waste. Patent accumulation and hoarding has led to the creation of companies or people that exist solely to amass patents for financial gain.

These entities, aptly dubbed “Patent trolls”, buy up as many patents on software as they can with no intention of innovating, using, or distributing the software. The reasoning behind amassing these patents is to belligerently pursue litigation against any company that crosses the net of program rights they own, and that is how patent profiteering is done. Since there is nothing illegal about what these companies do there is no way to avoid costly settlements or litigation.

³¹ Ibid

³² The Economist , <http://www.economist.com/news/business-and-finance/21660753-our-leader-patents-1851-right-property-inventions> visited 19th April 2017

³³ Journal of Economic Perspectives Volume 27, Number 1.

Chapter 3

3. PATENTABILITY UNDER THE EUROPEAN PATENT CONVENTION

The objective of this chapter will be to study the substantive requirements contained within Article 52 of the EPC. These prescribed conditions lay down the criteria in order to determine the patentability of a claimed invention.

Article 52 (1) states:

European patents shall be granted for any inventions, in all fields of technology, provided that they are

1) new;

2) Involve an inventive step and;

3) are capable of industrial application.

Paragraph (2) establishes certain categories of subject matter that are excluded from patent protection and paragraph (3) of the same Article contains the “as such” clause. Both of these norms will be dealt with in the requirement of patentable subject matter.

3.1 Requirement of Novelty

Novelty is an essential requirement for every patentable invention to comply with. Novel is defined as of a new kind; different from anything seen or known before by the thesaurus online dictionary .Therefore an invention can only be considered novel if it is not known or made available to the public .For an invention to be novel it should not be part of the state of the art as stated in article 54 of the EPC ³⁴ .It is considered that an invention is available to the public when all the technical features of the claimed invention in combination must have been communicated to the public, or laid open for inspection.³⁵ It was thought to be doubtful as to whether there has been a disclosure to the public. This was taken care of by the Board of Appeals of the EPO by stating that “public” in this context refers to a “skilled person”. It states in the decision T 0877/90 that: *had the oral disclosure taken place before a circle of persons, all of whom were unable to*

³⁴ EPC article 54 (1)

³⁵ Case G 0002/88 Mobil/Friction reducing additive [1989] E.P.O. reasons par. 24

*understand its technical teaching, it could be argued that the disclosure had not been made available to the public because the teaching would not have been understood by the audience.*³⁶

An identical norm establishing the requirement of novelty is found in Section 2 (1) of the UK Patents Act of 1977.³⁷ Prior art is comprised by all the knowledge that existed prior to the patent filing or priority date of a patent application, whether it was performed through an oral or written disclosure.³⁸

This same idea is repeated in Article 54 (2) EPC: *The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.* The state of the art available during the examination phase before the EPO will mainly consist of the documents listed in the search report as stated by the proper patent office.³⁹ This is to show that the examination for novelty takes into account not only the prior art but also the general knowledge existing within the particular field, therefore the examination for novelty of an invention will take into account the time of the filing. The examiners cannot take into use their own general knowledge unless it can be proven.⁴⁰ Common general knowledge is the body of knowledge which the person skilled in the art is deemed to know as part of the background of a certain field of technology.

Common general knowledge is comprised by:⁴¹

a) Basic general knowledge as well as the information contained in basic handbooks, monographs and textbooks on the subject in question. As an exception it can also be the information contained in patent specifications or scientific publications.^{42,43}

b) It cannot be expected for a skilled man to perform a comprehensive search of the literature covering the whole state of the art.⁴⁴ Subject matter does not necessarily belong to the common general knowledge because it has been disclosed in the state of the art, especially in the

³⁶ Case T 0877/90 T-cell growth factor/HOOPER [1992] E.P.O reasons par. 11

³⁷ United Kingdom Patent Act Section 2(1)

³⁸ WIPO, Intellectual Property Handbook: Policy, Law and Use (2nd edn, WIPO Publication 2004) 19

³⁹ E.P.O, Guidelines for Examination, Part G Patentability, Chapter IV, Section 1

⁴⁰ E.P.O, Guidelines for Examination, Part G Patentability, Chapter IV, Section 1

⁴¹ Case T 890/02 Bayer/Chimeric gene [2004] E.P.O. reasons par. 3

⁴² E.P.O., Guidelines for Examination, Part F, Chapter II, Section 4.1

⁴³ Case T 51/87 Merck/Starting compounds [1988] E.P.O. reason par. 9

⁴⁴ G. Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 99

particular case when the skilled man has to carry out a comprehensive search to obtain the information, it cannot be considered to belong to common general knowledge.⁴⁵

c) The information found while performing the search must unambiguous and utilized in a direct and straightforward manner without any further research work.

There are two methods used to establish the prior art notion .The first one is that the prior art shall be defined by what is known within the country where the patent has been filed. This implies that the knowledge if the creation in other countries will be excluded while examining the prior art in the said country as long as the invention in question had not been imported into the country where the file for the patent has been made .

The other method used is to define prior art is through the discrimination between the printed publications and other types of disclosures that may include oral or prior use, also the location where they were disclosed .If the disclosure was made by publication then the document must have been made available to the public and contain specifically the subject matter of the invention for the novelty to be removed. When it comes to oral disclosure, it is not necessary for the disclosure of the subject matter to be recorded, but this method also includes lectures and broadcasts. Disclosure by prior use is considered to be public and a visual act, such as sale demonstration, visual display, unrecorded television broadcasts and public use.⁴⁶

In the matter of novelty and determination of prior art, the EPO establishes in its Guidelines for Examination that: There are no restrictions whatever as to the geographical location where or the language or manner in which the relevant information was made available to the public; also no age limit is stipulated for the documents or other sources of the information.”⁴⁷The EPO follows the second criteria as to the fact that it establishes that main means of disclosure is through a document, but also recognizes when the state of the art is made available to the public by use or any other way’ which includes, public, oral and disclosures through the internet.⁴⁸

⁴⁵ E.P.O., Guidelines for Examination, Part G, Chapter IV, Section 2.2.

⁴⁶ World Intellectual Property Organization, Intellectual Property Handbook: Policy, Law and Use (2nd edn WIPO Publication, 2004) 19

⁴⁷ E.P.O., Guidelines for Examination, Part G, Chapter IV, Section 1

⁴⁸ Ibid section 7

3.2 Requirement of an Inventive Step

With respect to the requirement of inventive step, it essentially implies whether or not the invention is considered to be obvious in the eyes of a person having ordinary skill in the art. Ordinary skill implies the level of skill that requires implementation is that of an average person with skills in the determined art. This makes it one of the most difficult requirements to determine in the substantial examination.⁴⁹ Article 56 of the EPC establishes the norm when assessing the inventive step, it states: *An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art.*

The EPO guidelines clearly state that the criteria employed to determine elements of novelty and inventive step are totally divergent from each other. Nevertheless, the question “is there an inventive step?” only arises if the invention is novel.⁵⁰ Therefore it is not enough for the claimed invention to be novel, but it must possess two different characteristics. The first characteristic requires the idea or process to be “inventive”, meaning the result of a creative idea, and it must be achieved through a step, hence a noticeable one. A clear difference must be seen between the claimed invention and the state of the art. The second characteristic, consisting of a significant and essential advance to the claimed invention. The insertion of the inventive step requirement in patent legislation, no matter the country, assures that the protection will not be given to what is already known as part of prior art, or to any process or product that the skilled person in the art would consider as obvious.⁵¹

So what is considered to be obvious to a person skilled in the art?

The EPO Guidelines clearly state that the question to consider once the claim is filed, taking into consideration the art know at the time, is whether before the filing or priority date, it would have been obvious for the person skilled in the art to arrive at something falling within the terms of the claim.⁵² In this case it would mean that the skilled person would come up with a similar or identical technical problem to be solved as the one portrayed in the terms of the claim. If this occurs the claim would be denied for lack of inventive step, The guidelines continue by saying: *[...] The term "obvious" means that which does not go beyond the normal progress of technology*

⁴⁹ World Intellectual Property Organization, Intellectual Property Handbook: Policy, Law and Use (2nd edn, WIPO Publication 2004) 20

⁵⁰ E.P.O Guidelines for Examination, Part G, Chapter IV, Section 1

⁵¹ World Intellectual Property Organization, Intellectual Property Handbook: Policy, Law and Use (2nd edn, WIPO Publication 2004) 20

⁵² E.P.O Guidelines for Examination, Part G, Chapter VI, Section 2

*but merely follows plainly or logically from the prior art, i.e. something which does not involve the exercise of any skill or ability beyond that to be expected of the person skilled in the art. In considering inventive step, as distinct from novelty [...] it is fair to construe any published document in the light of knowledge up to and including the day before the filing or priority date valid for the claimed invention and to have regard to all the knowledge generally available to the person skilled in the art up to and including that day.*⁵³

Further, the concept of inventive step as in the case of novelty is an objective concept because when assessing the inventive step the case history is irrelevant and plays no part. This principle was established in various cases but the most important case was T 024/81 Basf/Metal Refining.⁵⁴⁵⁵ In another decision T 248/85 BICC/Radiation Processing, the Technical Board emphasized the obligation of objectivity while assessing the inventive step. It prescribed that in order to achieve the objectivity by using the problem and solution method in assessing the inventive step, it must be assured by starting out from the objectively ruling state of the art, in the light of which the technical problem is determined which the invention addresses and solves.⁵⁶

3.2.1 The Problem and Solution Approach

The EPO established a specific approach towards the evaluation of obviousness called the “problem and solution” approach. This consists of pre-determined steps through which the claimed invention must fulfill for it to be confirmed as non-obvious, as part of the assessment of the inventive step. The approach was developed to ensure objective evaluation of inventive step and avoid ex post facto analysis of the prior art.⁵⁷ Moreover, the term “problem” indicates that the skilled person in the art is confronted with some task, not that the solution need necessarily involve great difficulty.⁵⁸⁵⁹ The following relating to this approach is established by the EPO guidelines:⁶⁰

In the problem-and-solution approach, there are three main stages:

(I) determining the "**closest prior art**",

⁵³ Ibid section 4

⁵⁴ G. Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 99

⁵⁵ Case T 024/81 Basf/Metal Refining Official Journal E.P.O [1983] 133

⁵⁶ Case T 248/85 BICC/Radiation processing [1986] E.P.O. reasons para 9.1

⁵⁷ .P.O., Case Law of the Boards of Appeal, 6th edn, 2010, I.D.2, point 2, p.163

⁵⁸ Graham Ashley (23-24 March 2011). Case law of the EPO boards of appeal: a review by internal and external experts, Inventive step, Part 3: (New) problem/task. Munich, Germany: European Patent Office. 0:46 to 1:04 minutes in. Retrieved 2017.04.20

⁵⁹ Case T 641/00 Comvik/Two identities [2002] E.P.O reasons par. 5

⁶⁰⁶⁰ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.

- (ii) Establishing the "**objective technical problem**" to be solved, and
- (iii) Considering whether or not the claimed invention, starting from the closest prior art and the objective technical problem, would have been **obvious** to the skilled person.

This approach has been applied in countless cases to eliminate the problem of hindsight; i.e. taking into consideration the issues of inventive step by reference to the invention itself rather than from the prior art.⁶¹ In theory, the problem and solution approach is to be applied to assess the inventive step, exceptionally some alternative approach could be adopted, but the reasons for departing from this method should always be stated.⁶² In order to apply this approach the problem must be of a technical character or based on actual knowledge of technical problems and ways to solve them technically that the skilled person would, at the priority date, is expected to possess.⁶³ In other words the inventive step has to be preceded by the determination of the technical problem which the invention addresses, and the technical problem must be assessed objectively in the light of the closest state of the art.⁶⁴

3.2.1.1 Determination of the Closest Prior Art

Article 56 EPC indicates that the inventive step shall be assessed with reference to the state of the art, this implies the whole sphere of documentation of the prior art. The EPO Guidelines prescribe that in the process of selecting the closest prior art to the invention in question, the first consideration is that it should be directed to a similar purpose or effect, or at least belong to an identical or closely related technical field as the claimed invention.⁶⁵

In the decision T 273/92 the Board of Appeal determined that according to the established case law, a document could not qualify as prior art simply because of its similar composition of the products.

According to Board of Appeals member Graham Ashley, the expression "appropriate starting point" is probably more suitable than the expression "closest prior art". As the assessment of the inventive step could initiate from more than one piece of prior art or document. The problem and solution approach may need to be applied from different starting points, because there might be more than one highly relevant document that can provide suitable starting points for the

⁶¹ G. Tritton and others, *Intellectual Property in Europe* (3rd edn Sweet & Maxwell, London 2008) 100

⁶² E.P.O., *Case Law of the Boards of Appeal*, 6th edn, 2010, I.D.2, p.16

⁶³ *Ibid*

⁶⁴ Case T 606/89 *Unilever/Detergent composition* [1990] E.P.O reasons par. 2

⁶⁵ *Ibid*

assessment.⁶⁶ This is also mentioned in the EPO guidelines: *In some cases there are several equally valid starting points for the assessment of inventive step. If a patent is to be granted, it may be necessary to apply the problem and-solution approach to each of these starting points in turn. In matter of refusal, it is sufficient to show, that the claimed subject-matter lacks an inventive step using one of the pieces of prior art.*⁶⁷

It has also been established by the Board of Appeals that for a piece of prior art to be considered an appropriate starting point, it must be publically available. Prior art that was 65 years old was considered to be an unrealistic starting point in the case T 479/00.⁶⁸ In another case T 1408/04; old prior art was taken into account because it was considered to be realistic regarding the facts of the particular case.⁶⁹ Another vital aspect concerns the period by which the closest prior art must be assessed by the skilled person. The guidelines dictate that the assessment must be done on the day before the filing or priority date valid for the claimed invention.⁷⁰

3.2.1.2 Determination of the Technical Problem

The second stage consists of determining the way the technical problem must be solved in light of the selected prior art. The first step in this stage is to examine the application and the closest prior art by comparing both of these two elements. The difference obtained between the claimed invention and the closest prior art also known as the distinguishing feature(s) of the claimed invention, identifies the technical effect resulting from this difference, hence making it possible to formulate the technical problem.⁷¹ In simple words, the formulation of the technical problem is reached by subtracting the features in common of the claim in question from the prior art.⁷²

The norm that has been cited in many cases regarding the determination of the technical problem is found in Rule 42(1) (c) EPC which regulates the content of the patent description and prescribes that it must be disclosed *[...] in such terms that the technical problem, even if not*

⁶⁶ Ibid

⁶⁷ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.1

⁶⁸ Case T 479/00 Viganali/Colouring ceramics [2002] E.P.O reasons par. 3.2

⁶⁹ T 1408/04 [2006] E.P.O reasons par. 2 <http://www.epo.org/law-practice/case-law-appeals/recent/t041408eu1.html> and Graham Ashley (23-24 March 2011). Case law of the EPO boards of appeal: a review by internal and external experts, Inventive step, Part 2: Starting point and relevant BoA decisions. Munich, Germany: European Patent Office. 6:20 to 9:45 minutes in. (retrieved 2017.04.23)

⁷⁰ 211 E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.1

⁷¹ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.2

⁷² 213 Graham Ashley (23-24 March 2011). Case law of the EPO boards of appeal: a review by internal and external experts, Inventive step, Part 3: (New) problem/task. Munich, Germany: European Patent Office. 0:00 to 0:15 minutes in. Available at: https://ecourses.epo.org/wbts_int/caselaw_en/a001_popups_sub2_sub2_pres_b3video.html (retrieved 4.4.2017)

*expressly stated as such, and its solution can be understood, and state any advantageous effects of the invention with reference to the background art.*⁷³

The following case law produced by the Boards has recognized that the objective criteria must be utilized to formulate the technical problem, which is the problem that can be seen to have been solved in the light of the closest prior art which may be different from the art which was at the disposal of the inventor.⁷⁴ The criteria to formulate the technical problem shall always be taken in the light of the closest prior art from the perspective of the skilled man in the art, which can be different from the prior art that was available to the inventor.

When applying the “problem and solution” approach, the objective technical problem which is deduced through the analysis of the claimed invention and the closest prior art, can be defined in the following way: the aim and task of modifying or adapting the closest prior art to provide the technical effects that the invention provides over the closest prior art.⁷⁵

To help apply this definition in practice I will share a practical example given by Mr. Graham .It can be summarized in the following way:

“It is tempting to say that the problem is to actually create the difference, let’s suppose that the problem is feature x. It’s easy to say let’s formulate the problem to create feature x, but this is not the way to do it. The problem is to create the effect of feature x.” For example: How should the technical problem be described of a new golf club that is made of a determined alloy or shape? The technical objective problem to be solved is not to create the titanium head of a golf club or a particular shape. The problem to be solved is to hit the golf ball ten meters further than prior art golf clubs, because that is the effect of the new head. This objective problem must be formulated without hindsight and without specifically saying that it’s to create a different feature. The problem that is to be formulated must be a technical problem; hence one cannot take into account non-technical features in the formulation of the problem.”⁷⁶

⁷³ The European Patent Convention, 14th edn, 2010, Rule 42 (1)(c)

⁷⁴ E.P.O., Case Law of the Boards of Appeal, 6th edn, 2010, I.D.4, 4.1 , Case T 575/95 [1997] E.P.O point 3.2

⁷⁵ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.2

⁷⁶ Graham Ashley (23-24 March 2011). Case law of the EPO boards of appeal: a review by internal and external experts, Inventive step, Part 3: (New) problem/task. Munich, Germany: European Patent Office. 2:00 to 3:30 minutes in. retrieved 2017.03.15

3.2.1.3 Reformulation of the Problem

Normally, what may happen is that the objective technical problem is not identical as the problem underlined in the claim by the inventor when assessing the inventive step.⁷⁷ This may require for reformulation of the problem by the patentee. This occurs when the problem, based on facts gotten from the prior art, is revealed in the course of the proceedings, which can present differences from the prior art available to the applicant when the application was filed. The EPO Guidelines declare that where the originally stated problem, comprising a product, process or method, shows some advance, but there is no evidence that the claimed advance of the subject matter is made over the closest prior art uncovered in the search; rather, there is only evidence with respect to a more distant related prior art or none at all. The original problem must be reformulated.⁷⁸

The formulation of the technical problem must not contain any pointer to the technical solution. The inclusion of a part of the claimed technical solution described in the statement of the problem must, when the state of the art is evaluated in the light of the problem, necessarily result in an ex post facto view being taken of inventive step.⁷⁹ This principle was established in cases T 229/85 and T 99/85.⁸⁰ This is to mean, the inclusion of a portion of the technical solution as part of the problem will be subtracted from the inventive step and not be taken into consideration.

It is important to note that in case of reformulation of the problem Article 123(2) EPC will not preclude it, following what was established in decision T 13/84: A reformulation of the problem which then may become necessary is not precluded by Article 123(2) EPC if the problem could be deduced by the person skilled in the art from the application, as filed, when considered in the light of the prior art which is nearest to the invention.⁸¹ The Article in question prohibits amending a patent application by containing subject-matter beyond the content of the application, as filed, but the reformulation does not fall within its scope.

Concerning the interpretation of the term “technical problem” the Guidelines express that it must be taken in a broad manner. Meaning this does not always imply that the technical solution is a technical improvement over the prior art, because the problem can be to find a simple alternative

⁷⁷ Ibid, 6:00 to 6:12 minutes in. retrieved 2017.03.15

⁷⁸ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.2

⁷⁹ Ibid

⁸⁰ E.P.O., Case Law of the Boards of Appeal, 6th edn, 2010, I.D.4.1.3

⁸¹ Case T 13/84 Sperry/Reformulation of the problem [1986] E.P.O reasons par. 11

solution to a known device or process, providing an identical or similar effect, or making it more cost effective.⁸²

3.2.1.3 could/would Approach (Obviousness)

The third step consists of determining whether there is any teaching in the prior art as a whole, that would have prompted the skilled person to face the objective technical problem, to modify or adapt the closest prior art, while taking into consideration that teaching. Hence, as to arrive at something falling within the terms of the claims and coming to the same solution established by the invention. The fundamental aspect of this stage is whether the skilled person not just could have arrived at the invention by adaption or modification of the closest prior art, but would have no other option because the prior art incited him to reach the same solution to the objective problem or in expectation of some improvement or advantage. According to EPO case law implicit prompting or implicitly recognizable incentive is sufficient to determine that the skilled person would have combined the elements extracted from the prior art.⁸³

In case T 301/01 the purpose of the “could/would approach” is described and also recognized that it is inherent to the problem-solution approach: The main purpose of the approach is to distinguish purely theoretical combinations of features from the prior art (the "could") from such combinations which are indicated to the skilled person on the basis of the technical result he had set out to achieve (the "would"). Seen in this light the "could/would approach" is nothing more than a re-statement of one aspect of the underlying guiding principle of the examination of inventive step in the European Patent Office, namely that of problem and solution.⁸⁴

This stage can be formulated through the following explanatory perspective:⁸⁵

The EPO when assessing must consider whether:

- a) The skilled but un inventive person could have come up with the invention. Essentially considering the degree of cleverness of the invention;
- b) The skilled but un inventive person would have come up with the invention. Essentially considering whether the skilled person would have been incited to have improved the prior art in expectation of some improvement or advantage.

⁸² E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 5.2

⁸³ Ibid section 5.3

⁸⁴ Case T 301/01 [2003] E.P.O reasons par. 2

⁸⁵ G Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 103

This approach was first utilized in case Rider/Simethicone tablet.⁸⁶ When applying the “would” test special attention should be taken regarding when there is no positive technical Contribution to the prior art. In T 273/02 it was held that the “could/would approach” only applies if the “would” only involves technical considerations. If this is not the case the claimed invention could be rendered obvious.⁸⁷

This last stage of the problem solution approach completes the assessment of the inventive step, in which the non-obviousness of the claimed invention must be established for it to be considered an invention, as long as the other requirements are met.

3.2.2 Analysis of Prior Art

The Guidelines warn that an invention that can appear obvious at first sight might in fact involve an inventive step. Normally when a new idea has been formulated, it is presented theoretically through a description of apparently easy steps, from the basis of something known. The examiner should be aware of ex post facto analysis of this kind. The Guidelines make it clear that when collecting documents in a search report, the examiner must always consider that the documents produced in this search have been obtained with foreknowledge of what matter constitutes the alleged invention. The Guidelines continues saying that the examiner must visualize the overall state of the art in the eyes of the skilled person when assessing the applicant’s contribution, and he should seek to make a “real life” assessment of this and other relevant factors. Additionally, during the assessment the examiner should always take into consideration all that can be possibly known concerning the invention, this includes relevant arguments and evidence submitted by the applicant.⁸⁸

The examiner should be aware when assessing the inventive step of this claimed invention, by interpreting and combining prior art documents that have been influenced by the problem solved by the invention (how the idea can be arrived at), where the problem was neither mentioned or suggested in those documents. This approach constitutes an ex post facto analysis that shall be avoided. Many Boards of appeal decisions have taken this situation into consideration warning of its inadmissibility.⁸⁹

⁸⁶ Case T 002/83 Rider/ Simethicone Tablet [1984] E.P.O head note II and G Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 103

⁸⁷ Ibid and Case T 273/02 Toshiba/IC card [2005] E.P.O reasons par. 8.7

⁸⁸ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 8.

⁸⁹ E.P.O., Case Law of the Boards of Appeal, 6th edn, 2010, I.D.5.

The Board of Appeal has stated that the principal purpose of the problem-solution approach is the objective assessment of inventive step and consequently any ex-post facto analysis. This decision clearly states that the correct application of the problem and solution approach avoids the use of hindsight knowledge of the invention for assessing the inventive step.⁹⁰

Person Skilled in the Art The skilled person is an ordinary practitioner having all the general knowledge, irrespective of language, having no inventive capacity, and is a completely fictitious person.⁹¹ He should also be presumed to have had access to everything in the "state of the art", in particular the documents cited in the search report, and to have had at his disposal the means and capacity for routine work and experimentation which are normal for the field of technology in question.⁹²

3.3 Requirement of Industrial Applicability

The industrial applicability condition relates to the idea that the invention must have the ability to be applied for practical purposes, and not only be purely theoretical. If the invention is a product, any person should be able to make the product and if it is a process or part of a process, it should be possible to be carried out in practice. The term industrial must be interpreted in its broadest sense,⁹³ meaning activities carried out continuously, independently and for financial gain.⁹⁴ Article 57 of the EPC expresses: An invention shall be considered as susceptible of industrial application if it can be made or used in any kind of industry, including agriculture.

For an invention to possess industrial applicability the condition of being made or used in any kind of industry, with the inclusion of agriculture sector, must be met.⁹⁵ The concept of industry signifies that an activity is conducted continuously, independently and for financial gain.⁹⁶ Following this decision it was decided that enterprises in the cosmetic field, such as cosmetic salons and beauty parlors, form part of the "industry" encompassed in the sense of

⁹⁰ Case T 970/00 Murata Manufacturing/Acousto-optic deflector device [2004] E.P.O reasons par. 4.1.2

⁹¹ Graham Ashley (23-24 March 2011). Case law of the EPO boards of appeal: a review by internal and external experts, Inventive step, Part 4: Assessing the obviousness of the claimed solution. Munich, Germany: European Patent Office. 0:00 to 1:00 minutes in. retrieved 4.4.2017

⁹² E.P.O., Guidelines for Examination, Part G, Chapter III, Section 1

⁹³ WIPO, Intellectual Property Handbook: Policy, Law and Use (2nd edn, WIPO Publication 2004) 19

⁹⁴ G. Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 110

⁹⁵ The European Patent Convention, 14th edn, 2010, article 57

⁹⁶ Case T 144/83 Dupont/Appetite suppressant [1986] E.P.O reasons par. 6

Article 57 EPC.⁹⁷ The term "Industry" should be understood in its broad sense as including any physical activity of "technical character".⁹⁸ The application of Article 57 will not exclude many more inventions than those already considered as un-patentable subject-matter according to article 52 (2). Nevertheless it has been decided by the Technical Board that if a claimed invention does not comply with the generally accepted laws of physics, this situation would be in violation of Article 57 and 84 EPC 1973. This relates to the fact that it could not be utilized for a practical purpose and not complying with Article 83 EPC, hence lacking industrial applicability.⁹⁹

3.4 Patentable Subject-Matter (invention)

The EPC does not contain a definition of the term "invention". For the claimed subject matter to be regarded as an invention it must simply fall within the patentable subject matter. The requirement of patentable subject-matter is established by law (convention) and it is usually defined in terms of exception to patentability, in other words by making list of non-patentable subject matter.¹⁰⁰ Article 52(2) EPC prescribes that certain categories shall not be considered an invention; (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.¹⁰¹

The exclusions made above are only in so far as the claimed invention relates to determined excluded subject matter "as such".¹⁰² The excluded subject matter "as such" reinforces the fact that an invention that complies with the requirements of the EPC must be a technical invention.¹⁰³ In the words of the EPO; an invention within the meaning of Article 52 can only be made up of those features which contribute to its technical character.¹⁰⁴ The European Patent Convention (EPC) does not define what is understood by an invention or technical character,

⁹⁷ Ibid reasons para 5

⁹⁸ E.P.O., Guidelines for Examination, Part G, Chapter VII, Section 3

⁹⁹ E.P.O., Case Law of the Boards of Appeal, 6th edn, 2010, Section I.E.1 and Case T 541/96 [2001] E.P.O reason par. 6.1

¹⁰⁰ WIPO, Intellectual Property Handbook: Policy, Law and Use (2nd edn WIPO Publication 2004) 18

¹⁰¹ EPC art 52(2)

¹⁰² G. Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 91

¹⁰³ Ibid

¹⁰⁴ Case T 0641/00 Comvik/ Two identities [2006] E.P.O reasons par. 6

thus for this function has been left to be established on a “case by case” basis by the courts, the different national patent offices, the EPO, and the national and EPO Board of Appeal.¹⁰⁵

3.4.1 Technical Character as an Inherent Requirement of Article 52

As mentioned above, the technical requirement prevents the patentability of claimed inventions that are not of a technical nature. Along these lines, the invention must be of “technical character”, meaning that it must reveal to be part of a technical field, must be involved with a technical problem and must present technical features, in terms of which the matter for which protection is required can be defined in the claim.¹⁰⁶ The term “invention” enshrined in Article 52 (1) EPC together with Article 52 (2) and (3) of EPC, has been interpreted by the jurisprudence of the Boards as implying a requirement of technical character to be complied in order to be a patentable invention. Hence the term “invention” is to be construed as “subject-matter having technical character.”¹⁰⁷ According to decisions T 1173/97¹⁰⁸ and T 935/97¹⁰⁹ the board established that within the EPC the technical character of an invention was generally accepted as an essential requirement for its patentability.¹¹⁰ The board stated in T 931/95:

However, having regard to the case law of the boards of appeal and taking into account the frequent use of the term "technical" in the EPC and the Implementing Regulations, which are an integral part of the EPC, and having due regard to the context in which the term "technical" is used there, the board is of the opinion, contrary to the appellant's, that the requirement of technical character is inherent to the notion "invention" as it occurs in Article 52(1).

Thus the board concludes that:

Having technical character is an implicit requirement of the EPC to be met by an invention in order to be an invention within the meaning of Article 52(1) EPC, following decisions T 1173/97 and T 935/97.¹¹¹

¹⁰⁵ K G Hansen, ‘Software Patents in Europe’ (2004) 47 Stockholm Institute for Scandinavian Law 173, 183 -184

¹⁰⁶ G. Tritton and others, Intellectual Property in Europe (3rd edn Sweet & Maxwell, London 2008) 113 and E.P.O., Guidelines for Examination, Part G, Chapter I, Section 2. viewed together with rule 42(1)(a), (c) & rule 43(1) of Implementing Regulations to the Convention on the Grant of European Patents.

¹⁰⁷ Case T 258/03 Hitachi/Auction Method [2004] E.P.O reasons par. 3.1

¹⁰⁸ Case T 1173/97 IBM/Computer program product I [1998] E.P.O

¹⁰⁹ T 0935/97 (Computer program product II/IBM)

¹¹⁰ E.P.O., Case Law of the Boards of Appeal, 6th edn, 2010, I.A.1.1.

¹¹¹ Case T 931/95 PBS Partnership/ Controlling pension benefits system [2000] E.P.O reasons par. 6

In favor of summarizing the main principles utilized by the boards in this matter, the technical board of appeal in T 154/04 stated the following:

- Having technical character is an implicit requisite of an "invention" within the meaning of Article 52(1) EPC (requirement of "technicality").
- Article 52(2) EPC does not exclude from patentability any subject matter or activities having technical character, even if it is related to the items listed in this provision since these items are only excluded "as such".
- For examining patentability of an invention in respect of a claim, the claim must be construed to determine the technical features of the invention, i.e. the features which contribute to the technical character of the invention.¹¹²

The analysis of the requirement of technical character or technical effect in computer programs and computer implemented inventions (CII) will be dealt with in chapter 4. The study will be carried out through an analysis of European Patent Office case law. The particular study will include landmark decisions of the Technical Board of Appeal board that created the actual view point of the EPO regarding this matter, reflecting the mutations of the different approached experienced during the past decade or so.

3.5 Further Requirements

The Guidelines for Examination of the European Patent Office explicitly mention in order to grant a patent the examiner must take into close consideration the following two requirements established within the EPC.¹¹³

Art 83 EPC: The European patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

The most important effect of non-compliance with this requirement refers to the impossibility of carrying out the invention due to the fact that it is contrary to the established laws of physics. This norm interpreted in the light of Art. 52(1) EPC makes the claimed invention not susceptible of industrial application, as dealt with in chapter 5, regarding the requirement of industrial applicability of the invention.

¹¹² Case T 154/04 Duns Licensing Associates/Estimating sales activity [2006] E.P.O reasons par. 5 In this case there were 6 main principles summarized, but only three that relate to technical character have been transcribed.

¹¹³ E.P.O., Guidelines for Examination, Part G, Chapter I, Section 2.

The other requirements are dealt with in Rule 42(1) (a), (c) and Rule 43(1). In particular, rule 42(1) (a) determines that the invention must be of “technical character” to the extent that it must relate to a technical field. Regarding letter (c); the subject-matter must involve a technical problem, even if this technical problem is not stated explicitly (as such). As to rule 43(1), the invention must contain technical features that must be defined in the claim.¹¹⁴ As to this last requirement, the “technical features of the invention” shall not contain any statements of non-technical character, for example: commercial advantages of the invention. Nevertheless statements of this kind will be permitted, if they assist in defining the invention.¹¹⁵

3.6 Exclusion of Software Patents

3.6.1 Article 52 (2) and (3) of the European Patent Convention

Under this title special attention to the exclusion clause within Article 52 (2) and the “as such” clause under Article 52 (3) will be studied. These clauses are essential and taking jointly into consideration while assessing the abovementioned patentability requirements. The role of the interpretation the “as such” clause has played regarding the patentability of computer software will be discussed in the approaches mentioned in the following chapter.

3.6.2 Background for the Exclusion of Software Patents under Article 52(2) & (3)

Article 52 (2) (c) and (3) of the EPC state:

(2) The following in particular shall not be regarded as inventions within the meaning of Paragraph 1:

(c) Schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;

(3) Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

¹¹⁴ Ibid

¹¹⁵ Ibid, Part F, Chapter IV, Section 2.1.

According to Article 52 (2)(c) in combination with Article 52(3) implies that programs for computers are an excluded subject matter, but only to the extent to which a European patent application or patent relate to it “as such”. Given this apparently clear prohibition contrary to the patentability of computer programs in the European Patent Convention, it could be assumed that this prohibition would be an easy and clear legal prescription to apply in practice. But this assumption has proven to be harder to grasp, given the necessity of the judges in the EPO and in the members states of engaging in word gymnastics in order to reconcile the wording of the convention and the real life practicalities that software patents have acquired.¹¹⁶This exclusion of computer programs can be explained by a generally accepted view in practice at the moment of the adoption of the EPC in 1973, before the age of mass production of micro-processors.¹¹⁷ This prohibition stands along schemes, rules, and methods for performing mental acts, playing games or doing business, all of them should be precluded from patentability “as such”. The expression “as such” and the interpretation that have followed have been the essence of the litigation in this area.¹¹⁸

This change of view has been pinned on the pressure from the computer industry and the liberal position adopted by the U.S patent system in granting patents for computer programs and business methods, where they are implemented by computer programs as their vital element. The reaction of the European Patent Office was materialized through the amendment of its Guidelines in 1985, making it clear that they would allow claims involving use of a computer program as long as the invention makes a technical contribution to the state of the art.¹¹⁹This technical contribution, also called technical effect, is not defined in the EPC, but has become of vital importance in the field of software related inventions since it was introduced by the European Patent Office Guidelines for Examiners. The technical effect requirement has been held to be an implicit requirement by the case law of the EPO Boards of Appeal. This condition will be studied within the various approaches in the following chapter of the thesis.

The EPO Guidelines of 1978 concerning the patentability of computer software states: If the contribution to the known art resides solely in a computer program then the subject matter is not

¹¹⁶ I J Lloyd, *Information Technology Law 2011*, (6th edn OUP, Oxford 2011) 306

¹¹⁷ W. Cornish & D. Llewelyn, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (5th edn Sweet & Maxwell, London 2003) 777-778

¹¹⁸ I J Lloyd, *Information Technology Law 2011*, (6th edn OUP, Oxford 2011) 309

¹¹⁹ W. Cornish & D. Llewelyn, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (5th edn Sweet & Maxwell, London 2003) 778

patentable in whatever manner it may be presented in the claims. For example, a claim to a computer characterized by having the particular program stored in its memory or to a process for operating a computer under control of the program would be as objectionable as a claim to the program per se or the program when recorded on magnetic tape.¹²⁰

The EPO in 1985 as mentioned previously considered amending its old Guidelines replacing them with a new version, in order to give clear guidance in this respect. This new version makes it clear that the requirement for a computer program to be patentable is that it must produce a technical effect or contribution. This statement following the idea that the patentability of an invention should be denied merely cause it involves a computer program in its implementation.¹²¹ This amendment followed the first pivotal decision made by the Technical Board of Appeal regarding computer programs VICOM/Computer Related Inventions. It is unfortunate that case law that emanated from the EPO has not been clear with regards to the patentability of computer software. It is very irregular and the approaches have changed during the years since the VICOM case.

¹²⁰ I J Lloyd, Information Technology Law 2011, (6th edn OUP, Oxford 2011) 309-310 and E.P.O Guidelines for Examination (1978), Part C, Chapter IV, Section 2.1 <http://eupat.ffii.org/papers/epo-gl78/>> accessed 25th March 2017

¹²¹ I J Lloyd, Information Technology Law 2011, (6th edn OUP, Oxford 2011) 311

Chapter 4

4. APPROACHES TAKEN BY THE EPO ON DETERMINING THE PATENTABILITY OF SOFTWARE

Three different approaches have been used by the EPO to determine patentability over the course of years. In this chapter I will discuss each approach pointing out its key elements. I will also use case law to demonstrate the different approaches with regards to the interpretation of article 52 of the EPC by the boards of appeal since 1987. Finally I will end with a side-by-side analysis of all the approaches ending with the most current one. You will observe that most of the approaches are pegged on the inventive step within the criteria for patentability. The first position is comprised by the “contribution approach”, the second relates to a more modern perspective called the “technical character approach”, and the last point of view constitutes the “any hardware approach”.

4.1 Contribution Approach

The main question that this approach addresses is “what is the technical contribution the claimed invention makes to the known art?”¹²² If the invention as a whole makes a contribution to the known art and this contribution does not find itself in the excluded field, patentability will not be denied merely on the ground that the computer program is involved in its implementation.¹²³ Hence an invention that included a computer program could be patentable so long as the invention as a whole was technical.¹²⁴ This approach was initially established by the VICOM decision.

4.1.1 T 208/85 VICOM/Computer-Related Invention

This case and its decision is important due to the fact that it was the first decision that established the way in which the Board of Appeal interpreted the exclusion of software enshrined in the EPC. The claims that related to this particular case before the Board, referred to a method of digitally processing images and to an apparatus using a conventional computer for

¹²² T 208/84 VICOM/Computer-Related Invention, [1986] E.P.O. reasons para. 16

¹²³ Ibid

¹²⁴ L Bently and B Sherman, Intellectual Property Law (3rd edn OUP, Oxford 2009) 425

carrying out that method.¹²⁵The Examination Division of the EPO rejected the application made by VICOM, on the grounds that the method claim related to a mathematical method and this method running on a computer program was not patentable by virtue of article 52(2) and (3), in other words it related to a mathematical method and/or a computer program as such.¹²⁶ The Board of Appeals in order to decide the issue on whether the method claimed is excluded from patentability “as such” reasoned in the following way. The VICOM Board stated that the sole fact that a mathematical formula or algorithm is carried out in numbers and the result it creates is in a numerical form (abstract process), produces no direct technical effect by the method as such. In contrast, it was reasoned that if the algorithm is utilized in a technical process and the process carried out on a physical entity (*which may be a material object but equally an image stored as an electric signal*), by technical means, producing some kind of change in that entity. The technical means might include a computer comprising hardware or a general purpose computer.¹²⁷ The Board continues by stating: “[...]even if the idea underlying an invention may be considered to reside in a mathematical method a claim directed to a technical process in which the method is used does not seek protection for the mathematical method as such.”¹²⁸

The main principal of the technical contribution approach was: [...] *an invention which would be patentable in accordance with conventional patentability criteria should not be excluded from protection by the mere fact that for its implementation modern technical means in the form of a computer program are used. Decisive is what technical contribution the invention as defined in the claim when considered as a whole makes to the known art.* Finally, it would seem illogical to grant protection for a technical process controlled by a suitably programmed computer but not for the computer itself when set up to execute the control.

4.1.1.ISOftware conceived as a machine

Since the decision in VICOM and throughout the 1980s until the late 1990s a common fiction was imposed which consisted of viewing software as a machine, and not as software itself.¹²⁹In VICOM the Board tried to locate the mathematical formula or algorithmic process used in a

¹²⁵ T 208/84 VICOM/Computer-Related Invention, [1986] E.P.O

¹²⁶ Ibid

¹²⁷ Ibid reasons para 5

¹²⁸ Ibid reasons para 6

¹²⁹ P Leith, ‘Patenting Programs as Machines’ (2007) 4.2 Script-ed 214, 220

computer program into a machine-like framework of protection, without first considering that Software was a new and radical form of technology. The Technical Board was more concerned in distinguishing between an abstract concept and technical signals creating a highly artificial distinction. The person skilled in the art (programmer) would not have conceived the method as an abstract method, on the contrary, he would realize that the essence of the invention is the processing of the data structure by means of an algorithm, and picture nothing more to it.

Therefore if the computer implemented invention was conceived as a machine, and functioned as one, it received the protection of the patent system. Meaning the patentable invention was in the machine that was part software and part hardware.¹³⁰ This approach worked for many inventions but for those inventions based in software needed some manipulation of the described process was required. This machine-like vision of software was defeated in the late 1990s with two important decisions T 935/97 IBM/Computer program product II and T 1173/97 IBM/Computer program product.¹³¹ These two decisions will be dealt with under the technical character approach

4.2 Technical Character approach / Defeat of the contribution approach

The two aforementioned decisions regarding IBM clearly marked a considerable shift in the viewpoint of the EPO Board of Appeals presided by Van Den Berg. They established a distinction between an invention that can be protected in software/hardware terms or as software on its own.¹³² Hence, recognizing the patentability of software and delivering a new interpretation of Article 52 EPC and its exemptions.¹³³ A possible cause for the abandoning of the contribution approach could be the lack of legitimacy and vagueness of this approach. In order for a claim to be considered an invention the examiner had to confirm the presence of an inventive step for it to qualify as an invention. This does not follow the logic dictated by the EPC, where the first step is to first establish if the claim is patentable subject matter and only then assess the novelty, inventive step and industrial applicability.¹³⁴

¹³⁰ Ibid

¹³¹ P Leith, *Software and Patents in Europe* (CUP, Cambridge, 2011) 30-31

¹³² A Grosche, 'Software Patents, Boon or Bane for Europe?' (2006) 14 *Int'l J L & Info Tech* 257, 273

¹³³ P Leith, *Software and Patents in Europe* (CUP, Cambridge, 2011) 31

¹³⁴ R M Ballardini, 'Software Patents in Europe: the Technical Requirement Dilemma' (2008) 3 *JIPLP* 563, 565

4.2.1 T 935/97 IBM/Computer program product II

This decision related to the appeal against a decision of the Examining Division that rejected a patent application. This application referred to a data processing system for the display of information in the form of a window, in a way such that any information displayed in one window was configured to remain visible and not obscured when second window is opened, thus moved automatically to a new position to avoid obscuring the initial window.¹³⁵

The Board only takes into consideration claims 7 to 10 which referred to the computer program product.¹³⁶ ¹³⁷The Board in referral to the appellants argument by which the TRIPS agreement should be taken into account emphasized that the only substantive law that shall be considered binding is the EPC. Stating that the EPO is not a member of the WTO and it did not sign the TRIPS agreement. Notwithstanding, the Board recognized the importance of the TRIPS because it aimed at setting common standards and principles of intellectual property rights, and most importantly of patents rights.¹³⁸ It also held that the Guidelines for Examination are not binding for the Boards of Appeal in any way, and pointing out that according to Article 23(3) EPC the members of the Board are not bound by instructions and shall comply with the provision of the Convention.¹³⁹

Turning to the substantive part of the decision that relates to the exclusions under Article 52(2) and (3) of the EPC, the IBM Board held that programs for computer were only excluded from patentability to the extent that the claimed invention related to the program as such. The reason being that the combination of provisions (2) and (3) of Article 52 implies that the legislators did not want to exclude computer programs from patentability.¹⁴⁰ Hence, *[...] the fact that only patent applications relating to programs for computers as such are excluded from patentability means that patentability may be allowed for patent applications relating to programs for computers where the latter are not considered being programs for computers as such.*¹⁴¹

The Board then turned to interpret the meaning of “as such”, stressing the technical character or contribution of an invention under the EPC and explicitly mentioning Rules 27 and 29 EPC. It

¹³⁵ Case T 935/97 IBM/Computer program product E.P.O

¹³⁶ Ibid reasons Para 1

¹³⁷ David Bainbridge, ”Court of Appeal Parts Company with the EPO on Software Patents” (2007) 23 Computer Law & Security Report 199, 201

¹³⁸ Case T 935/97 IBM/Computer program product E.P.O reasons par.2.3

¹³⁹ Ibid reasons para 3

¹⁴⁰ I bid reasons para 4 .

¹⁴¹ Ibid

further acknowledged that the exclusion from patentability of computer programs as such was construed to signify that such programs are considered “to be mere abstract creations, lacking in technical character.” Basing this interpretation on the expression “shall not be regarded as inventions” as stated in Article 52 (2) EPC.¹⁴²

Contrary to that, computer programs that possess technical character must be considered patentable subject matter.¹⁴³

The next step was to determine if the said computer program is more than an abstract creation, therefore having a technical character per se. The Board stated that the physical modifications produced by a computer program over the hardware (e.g. technical currents) deriving from the instructions executed by the program, could not be considered to constitute the technical character of the program.¹⁴⁴ Hence these physical manifestations were interpreted as a common feature and could not be considered to have a technical effect, thus failing to avoid the exclusion. Moreover, these common features cannot be used to distinguish computer programs with a technical character from programs for computers as such.¹⁴⁵

Where do we find these further effects? The Board held that these further effects could be found in the execution by the hardware of the instructions embedded in the computer program. Consequently, it stated when the further effects have a technical character or when they cause the software to solve a technical problem, an invention that accomplishes either of these effects can be considered in principle, patentable subject matter.¹⁴⁶

Following the aforementioned, in order to look elsewhere for technical character it was found that a patent may be granted not only where software through a computer manages an industrial process, or the operation of a piece of machinery. The further effects were also found [...] in every case where a program for a computer is the only means, or one of the necessary means, of obtaining a technical effect within the meaning specified above, where, for instance, a technical effect of that kind is achieved by the internal functioning of a computer itself under the influence of said program.¹⁴⁷

¹⁴² Ibid reason para 5.2

¹⁴³ Ibid reasons par. 5.3

¹⁴⁴ Ibid reasons par. 6.2

¹⁴⁵ Ibid reasons par. 6.3

¹⁴⁶ Ibid reasons par. 6.4

¹⁴⁷ Ibid reasons par. 6.5

By adopting this position the EPO recognizes that the technical effect can be found in the internal functions of the computer program itself when it is a necessary part of the invention sought to be protected. Therefore the Board distinguished two ways of portraying the technical character of a computer program, “the extrinsic effect” that must bring out a technical effect by managing some sort of external physical process through a computer under the control of software. In addition, it was held that as long as the computer program produces a technical effect (extrinsically or intrinsically), all computer programs must be considered inventions within Article 52(2) and considered subject matter of patent protection if the other requirements under the EPC are fulfilled.¹⁴⁸

The Board then sustained through a particular interpretation of different Board of Appeal case law, including VICOM, which the case law permitted an invention to be patentable when the basic idea underlying the invention resides in the computer program itself.¹⁴⁹ Subsequently, “the further technical effect” if present in the invention, may lead to the subject matter not to be excluded. This is accomplished when the program is loaded on a computer, and instructs the hardware to carry out a specific result. Regarding this matter the Board found it self-evident that the basic idea underlying that invention resided in the computer program itself. Also, the hardware was considered to be outside the scope of the invention and only considered the material object on which the physical changes will be take place.¹⁵⁰

Moreover, the Board determined that it found illogical to grant a patent for both a method and the apparatus adapted for carrying out a method, but not for the computer program, which permits the implementation of the method when loaded into a computer.¹⁵¹ The Board subsequently makes an important finding stating that it does not make any difference whether a computer program is claimed by itself or as a record on a carrier with regards to exclusions under Article 52(2) and (3) EPC.¹⁵² Reaffirming that claims for patentability of computer programs, considered as a product itself are allowable under the EPC regime whether they relate to a program itself or a program embedded in a record on a carrier. The IBM Board set aside the

¹⁴⁸ Ibid reasons par. 6.5

¹⁴⁹ Ibid reasons par. 7.4

¹⁵⁰ Ibid reasons par. 9.3

¹⁵¹ Ibid reasons par. 9.8

¹⁵² Ibid reasons par. 14

Examination Board's decision, and remarked that a computer program product was not always excluded under all circumstances.¹⁵³

The decision departs totally from the view adopted before of software being a machine-like invention.¹⁵⁴ This decision recognizes that software itself might be patented if it possesses a further technical effect beyond the normal interaction between software-hardware that can be found internally within the functions of the program when executed. It also abandons the fiction created by the VICOM case regarding the contribution approach by which for the invention to be patentable it must involve a contribution to the art in a field not excluded from patentability. According to the "contribution approach" the contribution could never be held in the field of computer programs even if the computer program itself was reputed technical.

Similar sentiments were given in the T 1173/97 IBM/Computer program product I case.

4.3 Any Hardware Approach

Again the Technical Board of Appeals of the EPO deviated from its previous position to what is known today as the "any hardware approach". This approach was established in late 2000s by the decision T 0931/95 (Pension benefits). The basis of the approach declares that in order for a computer program to possess technical character, it must involve or is to a piece of physical hardware however mundane. If this is the case, then article 52(2) does not apply.¹⁵⁵

4.3.1 T 931/95 PBS Partnership/Controlling pension benefits system

The subject matter which this case deals with is a method of controlling an employer's pension benefits program through an apparatus comprising a programmed computer for processing data belonging to the pensioners. The application illustrated two different types of claims, the first claim relates to methods performing the calculations and estimations concerning the number, earnings, ages etc. of the employees. The second group relates to the apparatus claims that are

¹⁵³ Case T 935/97 IBM/Computer program product E.P.O

¹⁵⁴ P Leith, *Software and Patents in Europe* (CUP, Cambridge, 2011) 33

¹⁵⁵ As stated in *Aerotel/Macrossan* [2006] EWCA Civ 1371 par. 26. Lord Justice Jacob establishes three different kinds of variants of the "any hardware" approach. Cases *Controlling Pension Benefits*, *Hitachi* and *Microsoft/Data transfer* correspond to these three variants respectively

considered a computer system programmed to execute the method.¹⁵⁶ The patent application was rejected by the Examining Division because it was considered to be a method for doing business. Thus, lacking any technical character, therefore excluded from patentability under article 52(2) and (3) EPC.¹⁵⁷

The Boards reasoning begins by recognizing that according to the case law of the Boards of Appeal, in order for an invention to be patentable it implicitly must have a “technical character” or possess “technicality” following decisions T 1173/97 and T 935/97.¹⁵⁸ Consequently, the Board held that the technical character is an implicit requirement within the meaning of article 52 (c) EPC.¹⁵⁹ The Board found it necessary to determine if the claimed method qualified as a method for doing business, and if it was a technical method. According to this principle, if the method possessed technical character it could still be considered a method for doing business but not a method as such.¹⁶⁰ The Board considered that the method claim was only utilized for data processing means for providing certain information of purely administrative and/or financial character, hence being a simple economic method. It found that even if technical features were used in the claim, this did not transform the subject matter of the claim into an invention within article 52(1). It held that: A feature of a method which concerns the use of technical means for a purely nontechnical purpose and/or for processing purely non-technical information does not necessarily confer a technical character to such a method.¹⁶¹ Therefore the methods claimed were reputed to be purely economic concepts and practices of doing business which were not inventions within the meaning of the said Article.

However, in the assessment of the apparatus claim the Board came to a different decision. It held that the apparatus is a suitably programmed computer for the use in a determined field, which in this case is the field of business and economy (business method). This apparatus was held to be a “physical entity”, hence it was reputed to be sufficient to escape the exclusion of Article 52(2) and (3) even by carrying out an un-patentable method. The justification for this was found within Article 52(2) which under letter (c) excludes schemes, rules and methods for doing business, but

¹⁵⁶ it’s important to consider that the method and apparatus claims comprise different types of excluded subject matter. The method claim basically comprises a business method and the apparatus claim comprises a computer program in order to execute the said method.

¹⁵⁷ T 931/95 PBS Partnership/Controlling pension benefits system [2000] E.P.O

¹⁵⁸ Ibid para 2

¹⁵⁹ Ibid para 6

¹⁶⁰ Ibid reasons para 3

¹⁶¹ Ibid

the physical entity is not mentioned in Article 52(2). The Board reasoned: An apparatus constituting a physical entity or concrete product suitable for performing or supporting an economic activity, is an invention within the meaning of Article 52(1) EPC.¹⁶²

The aforementioned statement established the basis for the first version of the “any hardware approach” by considering that as long as a physical entity exists, it was reputed enough for unpatentable subject matter not to be excluded under Article 52(2) EPC. Lord Justice Jacob clearly says concerning this variant of the “any hardware” approach, *that the claim must be as to the “concrete” apparatus itself, for it to escape the exclusion under article 52(2).*¹⁶³

Furthermore, it is important to highlight that the Board of Appeal decided that the “contribution approach” was not appropriate for determining if certain subject matter qualified as an invention. The reason being that no basis was found in the EPC that permitted distinguishing between “new features” claimed by an invention and the features which are comprehended in the prior art within the examination of Article 52 (1) EPC.¹⁶⁴

Although the Technical Board in this case held that even if the apparatus or programmed computer was considered to be an invention it did not involve an inventive step, because the application of computer systems in the economic sector would be obvious for the skilled person, computer programmer.¹⁶⁵ This decision is essential because it determines the EPOs perspective regarding the patentability of business methods, which is also affected by the exclusion clause in Article 52(2) EPC.

4.3.2 T 258/03 HITACHI/Auction method

The decision in HITACHI/Auction Method followed the reasoning established by Pension Benefits, but it went on further by establishing that, a method involving technical character is to be considered an invention within Article 52(1) EPC.¹⁶⁶ Even though the reputed method is excluded subject matter under the EPC.

¹⁶² Ibid reasons para 5

¹⁶³ Aerotel/Macrossan [2006] EWCA Civ 1371 par. 26

¹⁶⁴ Ibid reasons para 6

¹⁶⁵ Ibid reasons para 8

¹⁶⁶ A Soinen, ‘The Software and Business-Method Patent Ecosystem: Academic, Political, Legal and Business Developments in the U.S. and Europe’ (2005) B:1 IPR University Center 1, 50

The claimed invention was a method of conducting an auction via a computer program running on a network.¹⁶⁷ The claims in this patent application were divided into method and apparatus claims. It was rejected by the Examining Division because the method claim was a business method as such, therefore not patentable. The apparatus claim was also denied to be patentable since the claim had an equivalent scope of protection to the method claim. The examining division held that even if the claimed subject matter were an invention within article 52(1) of the EPC, it did not involve the required inventive step.¹⁶⁸

Finally the Board recognized that it broadened the interpretation of “invention” in Article 52(1) EPC. But this did not imply that all methods that accomplished technical character are patentable, therefore they would still have to comply with the requirement of novelty, inventive step and industrial application.¹⁶⁹

4.3.3 T 424/03 Microsoft/Clipboard formats I

I will focus on the analysis of the present decision without referring to case T 411/03 Microsoft/Clipboards formats II.¹⁷⁰ The present case dealt with an appeal against the decision of the Examining Division that refused the patent application for the use of clipboard formats which enables non-file data to be transferred between different software applications in order to improve the appellant’s Windows 3.1 operating system. The refusal by the Examining Division was based on the lack of novelty and of inventive step of the subject matter.

The analysis begins with the eligibility for patent protection of the method implemented in a computer system. The reasoning made by the Board of Appeal follows the principle laid down in the Hitachi decision which states: a method using technical means is an invention within the meaning of Article 52(1) EPC.¹⁷¹ Hence, the Board held that the clipboard method claim possessed technical character and was eligible for patent protection because a computer system including a memory, clipboard, is a technical means.¹⁷² The board based its reasoning on the Hitachi decision and held that the subject matter of the computer program claim has technical character since it relates to a computer-readable medium that is a technical product). The Board utilized the “further technical effect” principal enshrined in the IBM/Computer program product

¹⁶⁷ Case T 258/03 HITACHI/Auction method [2004] E.P.O

¹⁶⁸ Ibid

¹⁶⁹ Ibid reasons para 4.6

¹⁷⁰ Bothcases have the same subject matter .

¹⁷¹ T 424/03 MICROSOFT/Clipboard Formats I [2006] E.P.O , reasons para 5.1

¹⁷² Ibid

I to determine that the computer program produced a further technical effect, thus it could be considered a technical means and not considered to be a program as such.¹⁷³

The Board continues by assessing if the claimed method complies with the novelty requirement. Although this decision is part of the “any hardware approach” it configures the third variety of this approach,¹⁷⁴ thus departing from the assessment of the inventive step made in the two previous decisions.¹⁷⁵ The Board clearly assessed the question of technicality within Article 52(2) rather in relation to the inventive step, differing in this analysis from the previous Boards.¹⁷⁶ The main contradiction in the Microsoft decision lays in the assessment of both method and apparatus claims, without excluding the contribution of un-patentable subject matter. In the earlier cases, the claimed invention did not pass the assessment of the inventive step, something that did not occur in Microsoft. In the latter case, the “as such” exclusion within article 52 EPC was circumvented though little reasoning was given, hence doing so opens the gate for patentability of software in Europe.¹⁷⁷

4.4 Summary of the EPO Approaches

It can be said that the EPO has undergone three major approaches since the first decision VICOM in 1987. The first approach required a **technical contribution** to the state of the art produced by the claimed subject matter, software, to be patentable, but did not recognize the patentability of software as such, only protected as part of a technical process. The second approach during the 90s, being the **technical character approach**, which stated that software, might be patented if it produces a further technical effect beyond the normal interaction between software and hardware. Hence recognizing the patentability of software as a product and not limiting it to be part of a process in order to be patentable.

The last approach called the any **hardware approach** considers that for software to be considered technical, it must involve some sort of physical entity or hardware. In the Microsoft decision the computer program was not conceived as excludable prior art, as the business

¹⁷³ Ibid reasons para 5.3

¹⁷⁴ Aerotel/Macrossan [2006] EWCA Civ 1371 par. 26

¹⁷⁵ R M Ballardini, ‘Software Patents in Europe: the Technical Requirement Dilemma’ (2008) 3 JIPLP 563, 566

¹⁷⁶ C Reed and J Angel (eds), Computer Law, The Law and Regulation of Information Technology (6th edn OUP, Oxford 2007) 297

¹⁷⁷ R M Ballardini, ‘Software Patents in Europe: the Technical Requirement Dilemma’ (2008) 3 JIPLP 563, 567

methods had been in the previous two cases.¹⁷⁸ With the adoption of this view the technical contribution principle was abandoned and the decision contained in the Microsoft Clipboard case with its particular analysis of the inventive step, determined that both apparatus and method were non-obvious.

With this latest approach, the EPO seems to take a flexible stance towards patentability of software in Europe, hence permitting a circumvention of the exclusion enshrined in Article 52(2) regarding computer programs. Though the same cannot be stated regarding the patentability of business methods, where a much stricter approach is applied, the result is that business methods do not pass the inventive step assessment of Article 56.

¹⁷⁸ S J Marsnik, and R E Thomas, 'Drawing a Line in the Patent Subject-Matter Sands: Does Europe Provide a Solution to the Software and Business Method Patent Problem?' (2011) 34 C Int'l & Comp L Rev 227, 293-294

Chapter 5

5. Conclusion

As of now there doesn't seem to be any end in sight for the current software patent predicament, and the problem has only gotten worse as lower courts have intervened and created rules and regulations of their own, obscuring an already murky set of patent laws. What can be said is that as technology becomes more intangible than tangible, especially with Cloud systems replacing material data storage, it may be wise to take a more clearly defined approach with regard to the patenting of software.

A computer program can be written in more than one programming language, providing similar or identical functions, and that this programming process is something trivial for any skilled person this creates doubt as to whether programming should be considered innovative and not inventive at all.

The reasoning behind the existence of a patent system is to encourage the invention process and the disclosure of inventions to the public knowledge. Having this in mind the patent system should serve the general interests of society and not a determined interest group..

The requirements of patentability under the EPC were studied and portrayed within chapter 3 of this thesis. The main objective was to illustrate how these conditions are interpreted by the EPO. Essential requirements such as novelty, inventive step and industrial application are the core conditions that the claimed invention needs to comply to be able to qualify as an invention. The difficult part begins with the interpretation of Article 52(2) that comprises the excluded patentable subject matter, in combination with Article 52(3) that encompasses the "as such" clause.

Presently, the Guidelines for Examination of the EPO of June 2012 determines that the technical character of a claimed program should be assessed without regard to the prior art. This means that it can only be assessed within Article 52 of the EPC and not within the inventive step. Furthermore, a computer program may be considered an invention under Article 52 (1) if it has the potential when running on a computer, to produce a further technical effect. This effect must

go beyond the normal physical interactions between the program and the hardware.¹⁷⁹ The Guidelines also state that the mere inclusion in a claim of a computer, a computer network, a readable medium carrying a program etc., will lend technical character to the claimed invention. This principal specifically follows the decision T 258/03 (Hitachi) which comprises the hardware approach.¹⁸⁰

Taking into consideration the latest approach adopted by the EPO, we can now sustain that computer programs may be patented as long as they comply with all the general requirements of an invention, together with an inherent condition established by case law called, the technical character requirement. Furthermore, it can be stated that the latest approach opens the way to the patentability of any computer program in Europe.¹⁸¹

However, according to a recent case T 1225/10462¹⁸² the Board held that the application (video game) involved technical means; hence it was regarded to be an invention curiously following the decisions in Pension Benefits and Hitachi. It seems that what the Board looks for is a further technical effect, and it is not so concerned if the implementation of the invention includes excluded subject matter.¹⁸³

The above mentioned situation is a consequence of the fact that the Technical Boards of Appeal are not bound by previous case law. Therefore, the current position could keep evolving as it relies on the stance that the European Patent Office has on patentability of computer programs at that particular point in time .

The software patent system can be said to be a very liberal system as the boards of appeal has proven this through the constant change in their examination of patentability .

The question that comes up now is , is the boards flexibility or rather inconsistency with deciding on cases dealing with the patenting of software helping or weakening the software patenting

¹⁷⁹ The “further technical effect” principal was construed in decisions T 1173/97 and T 935/97 IBM/Computer Program I and II respectively.

¹⁸⁰ The “further technical effect” principal that requires for a computer program to comprise a further effect in order to produce a technical effect and the principal established in the Hitachi decision seem to differ. The Hitachi Board held the computer program to be an invention because it comprised technical features such as a server computer, client computer and a network etc. implicitly accepting the further technical effect of the abovementioned components. The Guidelines though utilize the expression “will lend” technical character.

¹⁸¹R M Ballardini, ‘Software Patents in Europe: the Technical Requirement Dilemma’ (2008) 3 JIPLP 563, 567

¹⁸² Case T 1225/10 Nintendo Co Ltd/ Game program and game apparatus [2011] E.P.O

¹⁸³ A Freeman, ‘Patentable Subject Matter: The View from Europe’ (2011) 3 International Free and Opens Source Software Law Review 59

system and in effecting allowing for a rather broad approach in the interpretation of article 52 (2) of the EPC ?

I believe that the future trends of the Board of appeal will be a determining factor in answering this question .

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