

T.C.
ISTANBUL MEDENİYET UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF PRIVATE LAW

**THE PATENTABILITY OF COMPUTER IMPLEMENTED
INVENTIONS UNDER EUROPEAN UNION LAW**

Masters of Law (L.L.M.) Thesis

FATMA SÜMEYRA DOĞAN

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SUPERVISOR
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BİLDİRİM

Hazırladığım tezin tamamen kendi çalışmam olduğunu, akademik ve etik kuralları gözeterek çalıştığımı ve her alıntıya kaynak gösterdiğimi taahhüt ederim.

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Danışmanlığını yaptığım işbu tezin tamamen öğrencinin çalışması olduğunu, akademik ve etik kuralları gözeterek çalıştığını taahhüt ederim.

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ABSTRACT

Protection of computer-implemented inventions under intellectual property laws is one of the most debated and crucial topics in the age of World Wide Web. As the technology evolves with unprecedented speed, reaching far beyond of our collective imagination, it would be fair to say that current regulations are inadequate in intellectual property area. It is a pressing need to be on par with the latest decisions around the world for each country and authority. As a correspondence to this dire need, this thesis examines the recent actions taken on intellectual property laws in European Union. First chapter is allocated for terminology and the boundaries which have been determined for this work. Second chapter is devoted to cover historical background on European Union and international legislations. Finally, in the third chapter both the EPO and the USA courts' decisions are brought into spotlight. Up-to-date examples of case-specific decisions are discussed in order to provide a roadmap to any legislative authority in this uncharted area.

Key Words: Computer-Implemented Innovations Protection under IP Rights, Protection of Software in EU, International agreements on intellectual property rights, European Patent Office decisions, Intellectual property rights in USA,

ÖZET

Yazılımın korunması veya diğer bir deyişle bilgisayar destekli buluşların fikri mülkiyet hukuku kapsamında korunması internetin de günlük hayatımızın ayrılmaz bir parçası olması ile, son birkaç yılın en çok tartışılan konulardan biridir. Bu durumun arkasındaki yegâne sebep, gün be gün önlenemez bir şekilde değişen teknolojidir. Teknoloji insanların hayal gücünün ötesinde gelişirken, hukuk kurallarının zamanla birlikte değişmek konusunda teknoloji kadar iyi olmadığını söylemek adil olacaktır. Hali hazırda geçerli olan yasal düzenlemelerin eldeki soruna pek de uygun olmadığı anlaşıldığında hukuk kuralları da değişim rüzgarına kapılmıştır. Bununla birlikte, her değişim, doğanın bir kanunu olarak beraberinde tartışmayı da getirir. Elinizdeki tezin konusu özellikle bu tartışmaya odaklanmakla birlikte, konunun oldukça geniş olması nedeni ile incelenen bölge Avrupa Birliği Hukuku ile sınırlı tutulmuştur. Tezin birinci bölümünde konunun daha iyi anlaşılmasını sağlamak amacı ile konu içerisinde geçen temel kavramların tanımlarına yer verilmiştir. İkinci bölüm, Avrupa Birliği ve uluslararası mevzuatlar hakkında tarihi çerçeveyi oluşturmaya ve güncel mevzuata ayrılmıştır. Son olarak hem Avrupa Patent Ofisinin hem de konunun ortaya çıkış noktası olması nedeni ile Amerika Birleşik Devletleri mahkemelerinin kararları üçüncü bölümde tartışılmıştır.

Anahtar Kelimeler: Bilgisayar tabanlı buluşların fikri mülkiyet hakları çerçevesinde korunması, Yazılımın Avrupa Birliği'nde korunması, Avrupa Patenti, Fikri mülkiyet haklarına ilişkin uluslararası anlaşmalar, Avrupa Patent Ofisi kararları

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ABBREVIATIONS AND ACRONYMS

CAFC	United States Court of Appeals for the Federal Circuit
CIIs	Computer-Implemented Inventions
ECSC	European Coal and Steel Community
EC	European Commission
ECC	European Economic Community
EPC	European Patent Convention
EPO	European Patent Office
EU	European Union
IP	Intellectual Property
TBA	Technical Boards of Appeal
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UPC	Unified Patent Court
USPTO	United States Patent and Trademark Office
WIPO	World Intellectual Property Organization
WTO	World Trade Organization



INTRODUCTION

Technology is an inseparable part of our life. It can be seen when getting your morning coffee or using the navigation system in your car while driving to work. The evolution of technology occurred beyond one's imagination however it has not occurred in one day. This technological development is one of exemplary achievements of human beings. Every little improvement from the industrial revolution has brought us here. While we were walking on this path, the path itself evolved too. Every development bears a new need with itself and with every need our lives changes irrevocably. When our daily life evolves, the rules which regulates must be changed too.

The topic of this thesis will be patentability of computer implemented inventions (CIIs) in European Union (EU). This thesis primarily studies the rules and its applications of the eligibility of computer-implemented (CI) inventions patentability.

World Intellectual Patent Organization (WIPO) outlines intellectual property as; "intellectual property refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce."¹ In other words, creations of mind are named as intellect. Soon after the mankind defined the intellect and its productions, they have realized that these creations are tradeable. The productions of intellect are called as intellectual property after the realization of they are tradable, and they have a commercial value.

As it is understood intellectual property finds its place in every aspect of our lives. The WIPO promotes invention stating, "Intellectual property surrounds us in nearly everything we do. At home, at school, at work. At rest and at play. No matter what we do, we are surrounded by the fruits of human creativity and invention."²

¹ "What Is Intellectual Property (IP)?," accessed January 8, 2021, <https://www.wipo.int/about-ip/en/index.html>.

² Leif Nordkvist and Anna Kalo, "How Do Intellectual Property Rights Help Commercializing Inventions in Europe? The Case of the Introduction of the European Community Patent System" (Master's Thesis in Business Administration, Blekinge Institute of Technology School of Management, 2010), p. 6.

The main subject of this study is the protection of computer programs which have an important economic value in the scope of intellectual law. Therefore, some technical terms related to intellectual property law and computer programs will be defined in the first place. Within this concept, scope of patent and scope of copyright will be discussed. After that, the concept of computer program will be emphasized. In the second part, European Union's legalization process about the issue will be explained. Finally, the protection of CIIs within the sphere of European Union's prerogative will be observed.

One of the most important peculiarity of this field of law is that it is constantly evolving. It would be fair to say that while the technology evolves continuously the law following its footsteps. For instance, in 1950, a rumor raised that the chairman of IBM has predicted that in couple decades, the computer figure in the whole world market might approach one hundred machines. Falling short of this prediction is another indicator which shows the extent of computing technology has infiltrated into human lives. When our day-to-day life is becoming more and more dependent to computer technology, each day brings new problems to deal with. The core of this thesis is to elaborate one of these problems. With computer technology evolving every day, it brings new developments, and it brings new impediments to exceed. Therefore, the focus point of this thesis is to establish a point where computer technology and law meets. Although one may say that it sounds irrelevant however with careful observation it is obvious that with every improvement in technology, there is a need of new legal regulation. The one incontestable point of this issue that these new developments of technology cannot be treated with prevailing legal regulations. The heart of this issue is the law constantly evolving.³

Trademarks and copyrights have a less complex structure when it is compared to patents. Trademarks rose from a need to identify a good and its' producer. Likewise, copyright establishes the bond between the creator and the good. However, a patent has a more complex composition that must meet some qualifications. It is asserted that patents have emerged in Roman Empire through guilds. However sole actual evidence

³ Chris Reed and John Angel, eds., *Computer Law*, 5th ed. (Oxford ; New York: Oxford University Press, 2003), p. 1.

points to the direction of Venice with the patent law dated 1474. It also said that there are patents granted even before this law. ⁴

The precise creation of patent law remains unknown still today. Although theories have been put forward by historians that it was Greek, Byzantine, Italian, and British in it has been first appeared. It also said that, gaining profit from an intellectual property coming from the time of Ancient Greece. ⁵

When it is looked at the origin of the patent; as it is mentioned above, modern patent system has records going back centuries. History shows that, the first patent law was passed in 1474 in Venice. It is followed by England with the Statute of Monopolies dated 1623. As it can be understood from the name, this law was aimed to give special privileges to inventors. After the law, the system continued to evolve with the industrial revolution.⁶ However, if we look at the first examples of patent but not the law, it will be seen that it dates back even further. In 1409, a German man gained first patent protection for a construction of a model mill. Meanwhile, France had more advanced system which contains registration and examination of patent process.⁷

The origin of patents in England emerged out of desperation, it can be argued. As an island country England had suffered under development. As a result, they were losing their connection with the rest of the world constantly. Therefore, in 1300s The Crown enact a law which is stating that anyone who succeeded to bring new items from abroad will have title named “thane”. It can be said that the act has done its work and lots of goods and technology brought into the county for the sake of the Act. The Crown’s plan to promote the progress had been worked therefore on 1326 The Crown enact a law on creating monopoly. According to the policy first persons or guilds who import the goods will have a monopoly on them. The Crown also create the custom that

⁴ Toshiko Takenaka, ed., *Patent Law and Theory: A Handbook of Contemporary Research*, Research handbooks in intellectual property (Cheltenham, UK ; Northampton, MA: Edward Elgar, 2008), p. 101.

⁵ Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (Oxford ; Portland, Or: Hart Pub, 2007), p. 24.

⁶ Aura Soininen, *Patents in the Information and Communications Technology Sector: Development Trends, Problem Areas and Pressures for Change*, Acta Universitatis Lappeenrantaensis 262 (Lappeenranta: Lappeenrannan Teknillinen Yliopisto, 2007), p. 11.

⁷ G. Krishna Tulasi and B. Subba Rao, “A Detailed Study of Patent System for Protection of Inventions,” *Indian Journal of Pharmaceutical Sciences* 70, no. 5 (2008): p. 547–554.

issuing these monopolies would be public ceremonies and called these papers as: letters patent. It is said by *Stobbs* in order to putting the importance of the topic as: “England’s textile industry today can trace its roots to 1326 and to policy of granting letters patent monopolies.”⁸

By the time United States established, patents had been recognized and had a place for themselves in legal systems. Hence, patents history in United States had been started from the beginning, the Constitution had a provision for protecting products of intellect. It is stipulated in the Section 8 of the Constitution as: "The Congress shall have Power ... To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”⁹ Although it seems like rather a short provision, it laid the foundations for further regulations. The first law on patents enacted in 1790 named Patent Act. The very first patent in the United States was granted to a man named Samuel Hopkins on 31 July 1790. Subject of the invention was producing potash and pearl ash, forms of potassium carbonate, which were usually used as a base of soap or fertilizer. Although there were patents granted before this one, but the records of previous ones are burnt in a fire. Thus, it can be said that this invention is first invention which is patent protection granted and a record is kept.¹⁰

The notion of IP laws could not catch the speed of technology is not a novel one. But it is obvious that as technology improves more promptly, the law often dawdles so far behind that its connection creates nothing but more than minor dilemmas.

Patents act as a barrier to competition, controlling the accumulation and application of a particular piece of information. It allows the restriction of information that could be freely obtained by anyone if there were no patents. Hence, patents generate scarcity. Because of this effect, their scope of application is as critical to society in general as it is to the inventor and its competitors.¹¹

⁸ Gregory A. Stobbs, *Software Patents* (Aspen Publishers Online, 2012). p. 17.

⁹ “U.S. Senate: Constitution of the United States,” accessed January 8, 2021, https://www.senate.gov/civics/constitution_item/constitution.htm#a1_sec8.

¹⁰ “Judicature-Vol99-No3_patent.Pdf,” accessed December 7, 2020, https://law.duke.edu/sites/default/files/centers/judicialstudies/judicature/judicature-vol99-no3_patent.pdf.

¹¹ Fisher, p.1.

The monetary side of this issue, on the other hand, is on a colossal scale. It is stated that: “IBM obtains 1800 patents and \$1 Billion each year in royalty income (averaging \$555k per year, per patent).”¹² The tech industry has taken the lead in developments for the last couple of decades. Thus, this one example shows that the industry of technology has become more effective day by day. While the first comers get more and more powerful, governments have faced the need to sustain the order in this area soon after.

After the computer systems became an inseparable part of our lives, the patentability problem of them also has become a part of the system. The core of the problem and question that has been asking for decades is the type of protection that will protect the CIIIs. What would be the most appropriate type of protection to encourage and inspire innovation.¹³

On the other hand, computer programs have a difference from other machines. As it is stated in court rulings it is not just Hamlet with numbers: it is a practical hybrid tool that could be reproduced without any cost. It also has a unique composition which allows it to be read in one form by computers and one form by humans. It must be considered all of these qualifications while building intellectual property protection for computer programs.¹⁴

For instance, in *Reynolds v. Herbert Smith & Co. Ltd*, it was specified the distinction between an invention and a discovery as follows: “Of course the difference between discoveries and invention is very familiar. Discovery adds to the amount of human knowledge, but it does so only by lifting the veil and disclosing something which before had been unseen or dimly seen. Invention also adds to human knowledge, but not merely by disclosing something. Invention necessarily involves also the suggestion of an act to be done, and it must be an act which results in a new product, or a new result, or a new process, or a new combination for producing an old product or an old

¹² John Moetteli, “The Patentability of Software in the U.S. and Europe,” n.d., 3, accessed December 10, 2020, http://www.integrityip.com/Patent_Library/HotTopics/SoftwarePatents/The_Patentability_Of_Software_In_The_Us_And_Europe.pdf, p. 3.

¹³ Soininen, p. 22.

¹⁴ Ben Klemens, *Math You Can't Use: Patents, Copyright, and Software* (Washington, D.C: Brookings Institution Press, 2006), p. 1.

result.”¹⁵ Decision itself shows both the importance and the origin of the patent. However, it also demonstrates that not all inventions could be patented. Specific standards must be met if an invention aimed to be patented. Hence, the question which all inventors should ask themselves is in which way they would like to protect their invention. After the application is made the invention will be examined from two aspects. The first examination will be the patentable subject matter analysis. And the second examination will be the scrutiny of patentability conditions.¹⁶

In this thesis the dilemma of granting patent protection to inventions which has an implementation of a computer is in focus. The limitation of jurisdiction has been decided as, European Union. However, the subject itself was born in United States. Therefore, quotations of US law are also included. The approach of different jurisdictions stated by *Guntersdorfer* as; “Still, even developed countries differ on which inventions should be patentable, especially when it comes to recent technology. Software is not an exception: While the United States has opened the doors for patents of business methods and mathematical algorithms (as long as they have a useful application) whereas other countries are divided. Japan and Asia in general seem to follow the U.S.’s lead, while Europe is still more conservative on the issue.”¹⁷ The thesis in the hand will discuss the European patent law on computer-implemented inventions while associating it to similar case law of United States. The examination of different approaches will be concluded upon case law.

¹⁵ G.W. Tookey, *Patents in the European Field in Council of Europe* (Springer Netherlands, 1971), cited Reynolds v. Herbert Smith & Co. Ltd [1903], p. 135.

¹⁶ Matthew Y. Ma, *Fundamentals of Patenting and Licensing for Scientists and Engineers* (Hackensack, NJ: World Scientific, 2009), p. 33.

¹⁷ Michael Guntersdorfer, “Software Patent Law: United States and Europe Compared,” *Duke Law and Technology Review* (March 21, 2003), p. 2.

CHAPTER 1

1.1.COPYRIGHT

Copyright is outlined as; “*Intellectual property right given to creators of literary or artistic works*” in EPO’s web glossary.¹⁸ Although there are plenty of different definitions of copyright, basics of this intellectual property concept are the same.

Copyright law is a section of the law that regulates the rights borne by intellectual creations. It creates protection for all productions of the literal, science and art domain, without showing any discrimination considering the way of expression.¹⁹

The origin of copyright is to courage the artist of the work and maintaining the insurance of their work would not be copied, circulated or presented without their permission. The aim of all this protection is to preserve the profit which the artist would make. It is certain that if you protect the right of the artist this would courage more people to produce artwork. To entitle the copyright protection, the content should be unique and original. In addition to that, the content must in a tangible form which means must be in a form that everyone can percept. Originality does not expect the work to be new, only to be produced independently by the author solely. The literal, musical, filmographic works of art usually get protected by copyright protection.²⁰ It is said that the extension of copyright protection is the way of expression of an idea, not the idea itself. With this restriction, it is aimed to thoroughly define the protection and not to cause any discouragement.²¹

¹⁸ European Patent Office, “Glossary,” Last accessed November 26, 2020, <https://www.epo.org/service-support/glossary.html#c>.

¹⁹ World Intellectual Property Organization, *WIPO Intellectual Property Handbook*, 2008, 40.

²⁰ Deborah E Bouchoux, *Intellectual Property: The Law of Trademarks, Copyrights, Patents, and Trade Secrets*, 4th ed. (New York: Cengage Learning, 2013), p. 192.

²¹ *Software Copyright Directive* Art. 1.2 and Recital 14; 17 U.S.C. § 102(b) (2000).

Nonetheless, copyrights aimed to preserve only the way of expressing ideas, ideas themselves have not included in the limit of protection. The protection scope of the copyright for literal products includes the selection and organization of choice of words, as an example. However, copyright will not provide protection if anyone create the same idea with different wording.²²

United States Copyright Office clarified that it is possible to benefit from copyright protection for software. At this state, the text embodied within the software is copyrightable. Nonetheless, the utilitarian features of software could not benefit from the protection as they are part of the idea behind the computer program. As it is stated above, ideas like algorithms and logic behind the program cannot benefit from protection of copyright.²³

1.2.PATENT

At one point, it is decided that inventions and inventors should be protected in a way. But of course, lots of reforms had to be done to reach this point. Hence it can be said that this did not happen over a night.

A patent can be described as a certificate, circulated upon demand. Government offices are the institutes which grant such certificates. These certificates usually issue for 20 years. When we looked at the definition of the invention it can be seen that the key point is that solving an existing problem. When inventors gain patent protection, they would have the authority to control all the processes from manufacturing to selling the product.²⁴

The reason patents are valuable is that they grant protection against someone else using and getting benefit from the inventor's invention for a defined amount of time. Hence, the inventor can make more profit from the invention when it is compared to the situation when there is no patent protection. As it is understood, patents contribute to competitiveness in the economy. However, after the industrial revolution, certain companies started the collection of patents. Whether this situation has a good impact

²² World Intellectual Property Organization, *WIPO Intellectual Property Handbook.*, p. 40.

²³ *Circular 61 Copyright Registration of Computer Programs*, n.d., <https://www.copyright.gov/circs/circ61.pdf>.

²⁴ World Intellectual Property Organization, *WIPO Intellectual Property Handbook.*, p. 17.

on the development or not still an ongoing debate.²⁵ To sum up, patent protection field is narrower than copyright protection field, patents are more difficult to attain when it is compared to copyrights, and they grant protection for a shorter duration of time. However, some preconditions must be satisfied in order to be get rewarded by a patent protection.

1.2.1. Patentable Subject-Matter

Since there are diversity between jurisdictions patentability requirements, author of this thesis chose to inspect both the European system and American system.

1.2.1.1. European System

There was not a singular European patent system before the European Patent Convention (EPC). The Convention signed on 5 October 1973, soon after it has reached its main goal which was to establish the EPO. Therefore, EPC's approach on patents will be examined.

The requirements of patentability fall into Article 52 of EPC. Though, this Article has an importance because it also presents exclusions on the patentability. One of the exclusions stated in the Article is the programs for computers. First paragraph states the key necessities of a patent should has; second paragraph stipulates the excluded invention types. Third paragraph lays down what are exempt from the ruling declared in paragraph 2.

“(1) European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.

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

(a) discoveries, scientific theories and mathematical methods;

(b) aesthetic creations;

(c) schemes, rules and methods for performing mental acts, playing

²⁵ Soininen, p. 26.

games or doing business, and programs for computers;

(d) presentations of information.

(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.”

It can be understood from the first paragraph that according to EPC patentability requirements are: novelty, an inventive step which must be used in the process and being suitable of industrial application. The Convention stipulates that, these requirements must be met by an invention. Nevertheless, the Convention does not state a definition, so it is ambiguous what should be understood from an invention. The Convention chose to explain the invention with particularizing what is excluded. Thus, these regulations of the Convention create another discussion by itself. These discussions will be carried out in Chapter III of this thesis.

1.2.1.2.American System

The American approach and its application can be observed from the court decisions. To point out an example, once it is observed by the Supreme Court that, patents realm contains “anything under the sun that is made by man,”²⁶.

Patent Act specifies in the Section 101 as follows:

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”²⁷

In order to be patented, the claimed invention should be one of the official assortments of “process, machine, manufacture, or composition of matter”.²⁸

²⁶ “Diamond v. Chakrabarty, 447 U.S. 303 (1980),” *Justia Law*, accessed January 8, 2021, <https://supreme.justia.com/cases/federal/us/447/303/>.

²⁷ “U.S.C. Title 35 - PATENTS,” accessed January 8, 2021, <https://www.govinfo.gov/content/pkg/USCODE-2011-title35/html/USCODE-2011-title35.htm>.

²⁸ Alan L. Durham, *Patent Law Essentials: A Concise Guide*, 3rd ed. (Westport, Conn: Praeger, 2009), p. 24.

Patents classified as in different types like utility patents, design patents, and plant patents. The frequently used and well-known type is utility patents. Almost every famous invention falls into the scope of utility patents. Such as the sewing machine and zipper. The second type, a design patent is used for the novel, authentic and decorative designs for beneficial items. Like vessels, adornments and furniture. The last type of patents is used for the protection of the plant species. Flowers and trees which are produced in unnatural ways can benefit from patent protection.²⁹

Although ideas are not patentable, processes are patentable on the contrary. In *Cochrane v. Deener*, a process defined as; “an act, or series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery.”³⁰ In this manner a process originated recently is patentable. As an alternative getting a different approach to an old process also can be patentable.

The other types of utility patents like machines are all objects. A machine can be described as a tool that performs a result, such as a lawn mower. However, manufactures should not be confused with the machines. Manufactures are constructed with a mixture of more than one substance into a creation.³¹

1.2.2. Patentability Conditions

Prerequisite terms of patentability mentioned in numerous documents. For sake of the limitations of this thesis, the American approach and European approach will take part only. It is stated in the EPC Article 52:

“European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step”

And according to the US law and court decisions; an invention must fulfill a couple of necessities to be rewarded by protection.

²⁹ Bouchoux, p. 320.

³⁰ “*Cochrane v. Deener*, 94 U.S. 780 (1876),” *Justia Law*, accessed January 8, 2021, <https://supreme.justia.com/cases/federal/us/94/780/>.

³¹ Bouchoux, p. 323.

1.2.2.1.Industrial Applicability or Usefulness

The primary necessity is usefulness or in EPC's terms "industrial applicability". As Article 57 of EPC stated,

"An invention shall be considered susceptible of industrial application if it can be made or used in any kind of industry, including agriculture."

The invention itself must have a usage in the daily life of people in order to fulfill this requirement. However, it can be said that usefulness is not a rigorous standard when it is considered that daily life has a broad spectrum enough to permitting to use almost everything. Inventions which operate on a principle which conflicts with basic scientific rules has no usefulness because they would not work. Likewise, inventions aim to achieve harmful, fraudulent or illegal purposes could not be patented, by definition, they could not be useful in the daily life.³²

1.2.2.2.Novelty

Article 54 of EPC stated the novelty criteria as:

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

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

To be rewarded by protection, the inventor should form something which has not been formed already. The principle is frank; if an experienced and skilled person in that specific field of art would not invent the claimed invention, it meets the novelty criteria.³³ In other words, an invention must contribute the prior art with a non-obvious novelty.

This criterion is needed to guarantee that the invention meets the condition of having a novelty feature. In order to examine the application, the newness of the application will go through an inspection. In this inspection novelty feature of the application will

³² Bouchoux, p. 339.

³³ Ma, p. 33.

be scrutinized according to standard of the someone who is a skilled person in that particular art field. Which means, the invention must have novelty feature and this novelty has to be not obvious to someone who is a skilled person in that particular field. EPO Guidelines clarified this subject as; *"An invention is considered to be new if it does not form part of the state of the art. In determining novelty, a prior-art document is to be read as it would have been read by a person skilled in the art on the relevant date of the document."*³⁴ In addition to that, examination of the novelty will be concluded according to EPO Guidelines. In the Guidelines it is stated as: *"In determining novelty of the subject-matter of claims, the examiner must have regard to the guidance given in F-IV, 4.5 to 4.21. He must remember that, particularly for claims directed to a physical entity, non-distinctive characteristics of a particular intended use are to be disregarded. For example, a claim to a substance X for use as a catalyst would not be considered to be novel over the same substance known as a dye, unless the use referred to implies a particular form of the substance (e.g. the presence of certain additives) which distinguishes it from the known form of the substance."*³⁵

If any part of the invention is already has been used, the claimed invention is not suitable for patent protection. This criterion covers being in use of getting sold and bought. Phrased another way, in order to be eligible, no one else has come up with the same invention before. In other words, if any part of the claimed invention revealed in prior art before, then that claim is already projected, thus unacceptable in the terms of patentability.³⁶

1.2.2.3. Inventive Step or Nonobviousness

To become eligible for a patent protection, the subject matter needs to be nonobvious to a person who has average skill in the field of art claimed invention.³⁷

The current technique of determining nonobviousness is by reference to the prior art. All information which can be accessible by the public is described as prior art in regards of IP law. The assessment will be done by an ordinary person skilled in the art.

³⁴ "Guidelines for Examination in the European Patent Office" (n.d.): Chapter VI-1.

³⁵ Ibid.

³⁶ Charles R. Macedo, *The Corporate Insider's Guide to U.S. Patent Practice* (Oxford ; New York: Oxford University Press, 2010), p. 17.

³⁷ "U.S.C. Title 35 - PATENTS," Art.103.

The ordinary person skilled in art should be able to reach the claimed result with various prior art references and without additional input of information from an expert skilled in the art.³⁸

According to regulations in U.S., the claimed invention for which the patent protection is being pursued must also not be “*obvious*.” It should be stated that, outside the United States, this requirement is assigned to as “*inventive step*.” Phrased another way, even if a single reference does not identically disclose all the elements of a claim, patent regulations of U.S. does not allow a claim to be granted if the invention as an entity would be obvious in light of the reference or its combination with other references. Obviousness is determined by combining references: $I + I = 2$.³⁹

1.2.3. Exclusions from Patent Protection

As it stated above, excluded types of inventions stated in the Article 52(2) of EPC. EPC chose to list them as: “*discoveries, scientific theories and mathematical methods, aesthetic creations, schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers, presentations of information*.” However, Article 52(3) states that these excluded inventions can be patentable if only they would not want to be patented *as such*.

On the other side of Atlantic, excluded matters from patent protection can be found in the court decisions. Exclusions are defined by the Supreme Court in three classifications as: “*laws of nature, natural phenomena, and abstract ideas*.”⁴⁰ Within this context, it is understood that there are various items, commodities, and processes which cannot benefit from patent protection. With following titles, it is aimed to provide brief information on patent exclusions in accordance with European Patent Convention.

³⁸ David L. Fox, *U.S. Patent Opinions and Evaluations* (Oxford; New York: Oxford University Press, 2010), p. 307.

³⁹ Macedo, p. 21.

⁴⁰ “Diamond v. Diehr, 450 U.S. 175 (1981),” *Justia Law*, accessed January 8, 2021, <https://supreme.justia.com/cases/federal/us/450/175/>.

1.2.3.1. Discoveries, Scientific Theories, Mathematical Methods and Aesthetic Creations

Materials which are occurred by naturally by themselves cannot gain patent protection even though they were discovered by an inventor. Patent protection is provided only for human creations. For example, a newly discovered element or a plant cannot be patented. In other respects, an organism which is genetically improved is suitable to patent protection as “*manufactures*” or “*compositions of matter*.” For instance, in the case *Diamond v. Chakrabarty*, the subject matter was a genetically improved bacterium capable of breaking down crude oil and the Court rendered that a human creation living microorganism patentable as a production of matter. Addition to that, it is stated in the decision; “*anything under the sun made by man*” is patentable.⁴¹ This expression is comprehensive enough to allow patenting a pitchfork and even a game called Monopoly.

As it is mentioned above, according to Article 52(2) of EPC; “discoveries, scientific theories” etc. are not suitable for patent protection. This is pointed out in US court decisions. The Court stated in *Chakrabarty* that, “*Einstein could not patent his celebrated law that $E=mc^2$; nor could Newton have patented the law of gravity.*” To explain the subject thoroughly; one example of USPTO can be given. One cannot get patent protection for the physic law of magnetism however a product which uses magnetism law while operating can be patentable, such as a magnetic door.⁴² Needless to say, aesthetic creations also cannot benefit from patent protection.

1.2.3.2. Schemes, Rules and Methods for Performing Mental Acts, Playing Games or Doing Business, Programs for Computers and Presentations of Information

Article 52(2) of EPC; states that “schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers” are within the exclusions from patent protection. Conversely, Article 52(3) of EPC asserts the exclusion of the list of exclusions with the following wording: “patent relates to such subject-matter or activities as such”. *Fink* clarifies this controversy as: “... the EPO

⁴¹ “*Diamond v. Chakrabarty*, 447 U.S. 303 (1980).”

⁴² Bouchoux, p. 347.

Board of Appeal has generally held that computer programs and business methods become patentable subject matter if they satisfy the "technical character" requirement.”⁴³ In other words, the excluded subject matter can benefit from the patent protection on the condition, satisfying the examination regarding claimed subject matter is more than the excluded matters.

1.3.COMPUTER-IMPLEMENTED INVENTIONS/ COMPUTER PROGRAMS AND SOFTWARE

It must be pointed out that, the terms of ‘computer-implemented inventions’ ‘computer program’ and ‘software’ are used instead of each other’s in the terms of intellectual property law. Though it is a known fact that these terms are different in couple of aspects, they have been used interchangeably through the years. Therefore, to avoid the confusion this thesis assigns the same meaning for all the terms.

The center of this thesis is about the protection techniques of some certain kinds of inventions. The common point of these inventions is having a computer in use during the operation. This computer usage effect is often named differently, thus this situation exacerbates a confusion in itself. On this ground, we would like list all the terms and different definitions.

The inventions with a computer usage named as; computer implemented inventions. However, it is common to use “software” or “computer program” while mentioning about the legal protection of CIIs. As it is understood, the terms of “software” or “computer program” is used instead of the invention itself while referring to protection in intellectual property. By means that people who are using the “software protection” refers the protection of invention using a computer while functioning. Because of this reason, it is chosen to list different definitions of all the terms.

In this thesis, it is aimed to discuss can the computer implemented inventions benefit from patent protection in EU law, or not. However, in order to answer this question properly, definition of the fundamental terms of the topic is crucial. This is troublesome because there is no uniform definition of what constitutes a computer program.

⁴³ Matthew E Fink, “Patenting Business Methods in Europe: What Lies Ahead?” (n.d.), p. 306.

For this very reason, we will present several definitions that have been made by scholars. Nevertheless, it is for certain that the center of focus is on the CIIs.

The term software expresses the written versions of thoughts and ideas in a computer readable form.⁴⁴ In other words, software is the part of the computer to make it operate. According to Junger, *“A quick, but perhaps not too informative, definition of software is: Data that controls how a computer processes data.”*⁴⁵ European Patent Organization’s web glossary computer-implemented inventions is defined as; *“Inventions that work by using a computer, a computer network or other programmable apparatus. To be patentable, they must have technical character and solve a technical problem, be new and involve an inventive technical contribution to the prior art.”*⁴⁶

When we look at the authorities who are in charge with the application of the relevant law regarding patent in EU and US, we can see that their definition has both similarities and differences. The booklet published by European Patent Office; EPO defined the CIIs as; *“Relying on a well-known and widely used definition, a computer-implemented invention is an invention whose implementation involves the use of a computer, computer network or other programmable apparatus, the invention having one or more features which are realised wholly or partly by means of a computer program. The term software, on the other hand, is ambiguous. It is generally understood as the implementation of an algorithm in source or object code, but without distinguishing between technical and non-technical processes.”*⁴⁷

In US, a publishing of United States Copyright Office to promote the copyright regulations defined the computer programs as: *“A “computer program” is a set of*

⁴⁴ Daniel Closa, ed., *Patent Law for Computer Scientists: Steps to Protect Computer-Implemented Inventions* (Berlin ; New York: Springer, 2010), p. 20.

⁴⁵ Peter D Junger, “Manuscript: You Can’t Patent Software: Patenting Software Is Wrong,” *Case Western Reserve Law Review* 58 (n.d.). p. 335.

⁴⁶ European Patent Office, “Glossary.”

⁴⁷ *Patents for Software? European Law and Practice* (Munich Germany, 2009), p. 3.

*statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result”.*⁴⁸

When it is compared both definitions EPO adopt a more holistic approach and chooses using the computer- implemented invention term which has a software part and another programmable apparatus part, and they are inseparable as an invention. However, in the US approach adopted the term software is adapted which means computer coding can be a separate part.

Computer software with the simplest definition is the technology which causes computers to perform the complex and varied tasks which makes them useful. We will present a few more definitions for a better understanding of the complexity of the subject. According to *Karjala*: “*Computer software is such a technological product; it is used repeatedly as a tool to accomplish useful results.*”

Software has a pluralistic nature possessing numerous features, and each feature may be subject to different types of IP law. In other saying, computer programs have different parts which contain; collecting information and perform the instructions. All these features eventually, enable the computer to function. IP protection applies differently depending on how those instructions and definitions are expressed.⁴⁹

Computer programs have a composed structure which consists of source code and object code. At first glance, computer programs give the impression to be textual work. Computer programs have two different forms which construct them. The object code is the machine-readable form that computers can operate according to them. The source code is the commands written by a programmer which enables the computer to run.⁵⁰ It is fair to say that, since source code is a written document, it can be labeled as literary work hence can be protectable under copyright law. Nonetheless, this definition is far from being complete.⁵¹ Computers exist because they can perform

⁴⁸ U.S. Copyright Office, *Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code*, 2020, 2, accessed October 30, 2020, <https://www.copyright.gov/title17/title17.pdf>.

⁴⁹ Rosa Maria Ballardini, *Intellectual Property Protection for Computer Programs* (Helsinki: Hanken School of Economics, 2012), p. 1.

⁵⁰ Soininen, p. 46.

⁵¹ Pamela Samuelson et al., “A Manifesto Concerning the Legal Protection of Computer Programs,” *Columbia Law Review* 8 (1994): p. 2308–2431.

particular actions. This act of performance is ensured by the software part of the computers. Instructions embedded in the software is the part that makes the computers accomplish specific tasks. In other saying, the software is the part that controls how the computer behaves.⁵² The reason people bought computers and therefore software was that they performed certain tasks more effectively. Nobody buys software that doesn't work properly, no matter how well it is written.⁵³

The crux of the problem is that; the difference between “static” source code of a software and the “dynamic” object code is vague with technological advances. Thus, this situation makes it hard to differentiate among the two forms. This can be exemplified with the subsequent quote:

*“What is a program? At first glance, programs have two different sorts of manifestations. On the one hand, they are documents of some kind that give a series of instructions to be executed by a computer. But these passive documents can be turned into active psychical processes: when a program is executed, the instructions in the document are carried out. The program text is passive, but the executing program is an event in real time. Does “program” refer to the passive text, or the active event? The answer is both, because from our point of view ..., a program is a machine. The program text represents the machine before it has been turned on. The executing program represents the powered-up machine in active operation. There is no fundamental distinction between the passive program text and the active executing program, just as there is none between a machine before and after it is turned on.”*⁵⁴

⁵² Dennis M. Carleton, “A Behavior-Based Model for Determining Software Copyright Infringement,” *Berkeley Technology Law Journal* 10, no. 2 (1995), p. 410.

⁵³ Ballardini, p. 32.

⁵⁴ Kim G Hansen, “Software Patents in Europe,” Stockholm Institute for Scandianvian Law (2010), p. 180. citing Stobbs, Gregory A., *Software Patents*, 2nd ed., Aspen Law & Business, 2000, § 2.02, citing Gelernter, David & Jagannathan, Suresh, *Programming Linguistics* 1, 1990.

CHAPTER 2: CURRENT LEGAL SITUATION OF SOFTWARE PROTECTION IN EU

2.1.BRIEF HISTORY ON EU'S ESTABLISHMENT

The very first idea of a union of European nations has been proposed after long and dreadful wars that lasted for centuries. During these wars, lots of life and property has been lost. consequently, these wars affected the country's wealth and people's well-being. leaders and philosophers came to an agreement about establishing a union and maintain peace. In consequence, endeavors to form an organization commenced.⁵⁵

The unique alliance of the EU had offered both economic and political partnership between member states. The foundation process had started with economic cooperation. The principal aim was to establish a dependence between countries and thereby avoid any further conflicts. In 1951, the Treaty of Paris was signed by Belgium, Luxembourg, Italy, France, Germany, the Netherlands and established the European Coal and Steel Community. Thereafter in 1957 European Economic Community (also known as “Common Market”) was founded by the same member states.⁵⁶ Following, European Atomic Energy Community was founded by Treaty of Rome which became effective in 1958. The community has been formed to empower the safe usage of nuclear energy. To ensure this purpose, member states agreed on using nuclear energy with limited and peaceful purposes.⁵⁷ It is widely accepted that,

⁵⁵ “History of the EU,” accessed January 8, 2021, https://www.ab.gov.tr/history-of-the-eu_105_en.html.

⁵⁶ European Commission, “From 6 to 27 Members,” Text, *European Neighbourhood Policy And Enlargement Negotiations - European Commission*, last modified December 6, 2016, accessed January 20, 2021, https://ec.europa.eu/neighbourhood-enlargement/policy/from-6-to-27-members_en.

⁵⁷ “Britannica European Atomic Energy Community,” accessed January 8, 2021, <https://www.britannica.com/topic/European-Atomic-Energy-Community>.

these three international agreements have been building blocks of EU as we know today. In 1967, Treaty of Brussels (also known as “the Merger Treaty”) combined the communities stated above and regulate one Council and one Commission. The aforementioned communities were called as European Communities after this agreement.⁵⁸

After the success of these alliances, governments wanted to join this union. However, European Union as we know today, was not established with one agreement. One of them which is Treaty of Rome (also named as: Treaty which founding the ECC) signed on 25 March 1957 in Rome. Treaty of Rome stated the existing purposes of the Community. In Article 2 it is stipulated as: “*The Community shall have as its task, by establishing a common market and progressively approximating the economic policies of Member States, to promote throughout the Community a harmonious development of economic activities, a continuous and balanced expansion, an increase in stability, an accelerated raising of the standard of living and closer relations between the States belonging to it.*”⁵⁹ As it is stated, the very first reason to establish this Union was to create a uniformity between member countries.

After signing several international agreements, the establishment of European Union officially formed with Treaty of Lisbon.⁶⁰ In 2009 all EU member states approved the Treaty of Lisbon. It is said that this treaty affects the establishment of modern institutions and had effects on carrying out more effective working methods.⁶¹

Before we begin to examine EU’s standing on protection of CIIs, international agreements regulating this subject must mentioned. It can be said that, for this side of the ocean this subject is tried to be regulated with international agreements first. Country – based regulations followed afterwards.

⁵⁸ “History of the EU.”

⁵⁹ “Treaty of Rome,” *Treaty of Rome*, accessed January 8, 2021, <https://www.europarl.europa.eu/about-parliament/en/in-the-past/the-parliament-and-the-treaties/treaty-of-rome>.

⁶⁰ “The Treaty of Lisbon | Fact Sheets on the European Union | European Parliament,” accessed January 8, 2021, <https://www.europarl.europa.eu/factsheets/en/sheet/5/the-treaty-of-lisbon>.

⁶¹ “The History of the European Union,” last modified June 16, 2016, accessed January 8, 2021, https://europa.eu/european-union/about-eu/history_en.

2.2.MAIN INTERNATIONAL INTELLECTUAL PROPERTY AGREEMENTS

Before diving into international agreements, WTO's and WIPO's history and effect must be explained. WIPO was established as an integration of two international conventions. The conventions were named as; Paris Convention for the Protection of Industrial Property and the Berne Convention for the Protection of Literary and Artistic Works. The conventions had a common point which is requiring the endowment of an "International Bureau". After the WIPO was entered into force both bureaus were incorporated. It can be said that WIPO is the fundamental piece, in regards of the protection of IP rights in the international arena. The Convention was signed in Stockholm in 1967, became effective in 1970. In order to accomplish its main goal, WIPO works lots of fields. Most important of them for international environment is the normative activities. For this purpose, WIPO carries out lots of events in order to establish the norms and criteria in the intellectual property rights field. To reach this goal international treaties have an essential role to assert the protection of these rights.

⁶²

Even though there are numerous of international agreements, and each has a different contribution to international law on intellectual property law, this thesis will go through three of them which are most pronounced.

2.2.1. Paris Convention for the Protection of Industrial Property

The Paris Convention which completed in 1883 and amended numerous afterwards was planned to form a worldwide protection for industrial property rights.⁶³ The Convention has arisen from the need of lack of proper protection of all types of IP rights. Therefore, the Convention has provisions about industrial designs, trademarks, patents, utility models, geographical indications, service marks additionally the suppression of unfair competition.⁶⁴ It is said by *Bender* that: "The foundational patent

⁶² *Summaries of Conventions, Treaties and Agreements Administered by WIPO*, n.d., p. 8, accessed May 16, 2020,

https://www.wipo.int/edocs/pubdocs/en/intproperty/442/wipo_pub_442.pdf.

⁶³ Talat Kaya, "A Comparative Analysis Of The Patentability Of Computer Software Under The TRIPs Agreement: The U.S., The E.U., And Turkey," *Ankara Law Review* (2007): p. 12.

⁶⁴ "Paris Convention for the Protection of Industrial Property," accessed January 9, 2021, <https://wipolex.wipo.int/en/text/288514>.

harmonization treaty is the International Convention for the Protection of Industrial Property, known as The Paris Convention”.⁶⁵

The Convention formed its structure in three principal classifications: national treatment, right of priority, common rules.⁶⁶ The national treatment part incorporates the regulation of member states granting the same protection level to all the member state's citizens. This part is aimed to establish a minimum level of protection and prevent the risk of over and under protection throughout the member states. It can be said that this part is the prominent part of the Convention. The second part regulates the right of priority. This right is applicable to patents, utility models, trademarks and industrial designs. This right enables granting protection to the inventors throughout member states. The right of priority asserts that inventors would have the right to apply for protection in any of the other member countries. Additionally, if an inventor made his/her application in one of the member states, the application date will be valid in all the member states.⁶⁷ The Convention aimed to stipulate universal rules on the protection of nearly all fields of IP rights. For instance, Article 4bis declares that patents granted in separate member states are independent of one another. However, the Convention left the determining the standards to discretion of member countries. This has been criticized for not setting the minimum protection standards thus leads to unfeasible international patent protection structure.⁶⁸ Charfoos, stated this situation as:

“By failing to establish such minimum standards, especially with regard to what is actually patentable, the Paris Convention left global patent protection generally, and computer software protection specifically, in a state of uncertainty.”⁶⁹

⁶⁵ Gretchen Ann Bender, “Clash of Titans: The Territoriality of Patent Law vs. The European Union,” *Idea: The Journal of Law and Technology* (2000): p. 3.

⁶⁶ “Paris Convention for the Protection of Industrial Property.”

⁶⁷ *Summaries of Conventions, Treaties and Agreements Administered by WIPO*, p. 9.

⁶⁸ Kaya, p. 13.

⁶⁹ Aaron D Charfoos, “How Far Have We Come, and Where Do We Go from Here: The Status of Global Computer Software Protection under the TRIPS Agreement,” *International Law* (2002): p. 260.

But author also stated the importance of the Paris Convention saying that; “The Paris Convention was the worldwide patent protection regime until the promulgation of the Trade-Related Aspects of Intellectual Property Rights (TRIPs) agreement.”⁷⁰

2.2.2. Berne Convention for the Protection of Literary and Artistic Works

The Berne Convention accepted in 1886 and aimed to regulate copyright protection for literary and artistic works worldwide. The Convention has been through a couple of revisions like Paris Convention. Currently, the number of signatory states is 179.⁷¹ The aim of the Berne Convention is to amend the rights which are borne by the authorship of literary and artistic works. The Convention both sets the standards of minimum protection and special provisions for the application of developing countries.

⁷² The rights which are fallen under the scope of the Convention can be listed as, translation, reproduction, public performance and adaptation.⁷³ The Berne Convention achieves its aim, by ascertaining a minimum standard for the protection of copyright. In addition to that, The Convention offers to copyright holders of member states equal and nondiscriminatory treatment.⁷⁴ WIPO, is the administrative organ for both Berne and Paris Conventions.

While the Berne Convention has been updated and amended many times, the Convention has not introduced any scheme relating to the capability of computer programs to copyright. Consequently, this question is left at the discretion of every nation whether or not to cover these type of artistic works under their intellectual property laws. Rigorous debates have taken place about the protection of software in the 1970s and in the beginnings of the 1980s. Such negotiations also attempted to address the question of whether these rights would be given by copyright or patent

⁷⁰ Ibid., 262.

⁷¹ “WIPO-Administered Treaties - Contracting Parties: Berne Convention,” accessed January 9, 2021, https://wipolex.wipo.int/en/treaties/ShowResults?start_year=ANY&end_year=ANY&search_what=C&code=ALL&treaty_id=15.

⁷² “The Berne Convention, concluded in 1886, was revised at Paris in 1896 and at Berlin in 1908, completed at Berne in 1914, revised at Rome in 1928, at Brussels in 1948, at Stockholm in 1967 and at Paris in 1971, and was amended in 1979” (Berne Convention) available at: <https://www.wipo.int/treaties/en/ip/berne/>

⁷³ The Berne Convention Articles 9 to 14.

⁷⁴ Charfoos, p. 265.

law, or even a sui generis protection.⁷⁵ Thus, the WIPO established a sui generis methodology to the problem. South Korea and France endorsed such legislature. This approach was not adopted by USA and EU, both of them choose to copyright protection for CII. It can be stated that, later on copyright protection approach found more supporters thus TRIPs agreements also adopted this system for CIIs.⁷⁶

Therefore, the Berne Convention left the status of the protection of computer programs mainly unreciprocated and in order to eliminate this uncertainty, TRIPs were composed.

2.2.3. Strasbourg Convention

Convention on the Unification of Certain Points of Substantive Law on Patents for Inventions or for short known as “Strasbourg Convention” signed on 27 November 1963 in Strasbourg. The goal of the Convention was stated as; “*The Convention aims to unify the conditions required in order that a patent could be granted for an invention in each of the Parties, and to lay down the criteria to be applied by courts in defining the extent of the protection conferred by a patent.*”⁷⁷ It can be said that the harmonization progress of Member State’s patent law started the Strasbourg Convention which led the way to the European Patent Convention. The influence of Strasbourg Convention can be seen from the very first article of EPC. Article 1 of Strasbourg Convention regulated as: “*In the Contracting States, patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.*” Although this was the case, the Strasbourg Convention became effective after twenty years of its signing date. Nevertheless, the Convention has a crucial role in regulating intellectual property throughout Europe thus, it has affected the following regulation. It can be said that the Convention is used as a prototype for subsequent regulations. The effect of the Convention can be seen in

⁷⁵ Kaya, p. 53.

⁷⁶ Charfoos, p. 260.

⁷⁷ “Details of Treaty No.047 Convention on the Unification of Certain Points of Substantive Law on Patents for Invention,” *Council of Europe Treaty Office*, accessed January 9, 2021, <https://www.coe.int/en/web/conventions/full-list>.

Article 52 of the EPC. There is a significant amount of similarity between this article and Article 1 of the Strasbourg Convention.⁷⁸

The Strasbourg Convention formed the first attempts at the united European patent system. Nevertheless, the Convention has numerous topics which European states were could not agree on. Thus, it is expected that the unification process would not be short and may cause tremendous amount of controversy.⁷⁹

2.2.4. Agreement on Trade-Related Aspects of Intellectual Property Rights' (TRIPS Agreement)

The Agreement on Trade-Related Aspects of Intellectual Property Rights is the cornerstone development of regulating matters regarding intellectual assets globally. The Agreement was constructed by the world Trade Organization. TRIPs has found its root in the Uruguay Round of the General Agreement on Tariffs and Trade (1986–94) and was a triumph for multinational organizations committed to raising international standards for IP and improving the protection of IP in other developing countries. During the negotiations of TRIPS, industry campaigners convinced the world's economic powers to wage a prolonged crusade against developing nations to oppose the agreement. Hence, developing countries objected to the TRIPs consolidation of controlling over inventor's rights, amplifying the north-south technology divide, and counterintuitively increasing the shift of wealth from developing to developed countries. It is asserted by developing countries that, they would not properly benefit because of their underdevelopment. Thus, the standards put by developed countries would harm their development prospects.⁸⁰

TRIPs agreement stipulated that each member is obligated to regulate its domestic law in order to meet the standards outlined in the Agreement. Although this was aimed to unify the IP rights in the international arena, it has caused more discussion than before. The debate has arisen due to the different levels of development between the countries.

⁷⁸ Fenna Douwenga, "Software Patents: Conformity with the Rationale of Patenting Programs for Computers" (MA Thesis in Law and Technology, 2014), p. 25, accessed October 11, 2020, <http://arno.uvt.nl/show.cgi?fid=134131>.

⁷⁹ Justine Pila, "The European Patent: An Old And Vexing Problem," *International and Comparative Law Quarterly* Volume 62, no. 04 (October 2013), p. 922.

⁸⁰ Carolyn Birkbeck, *The Implementation Game: The TRIPS Agreement & the Global Politics of Intellectual Property Reform in Developing Countries*, vol. 9780199550616, 2009, p. 1.

Developed countries argued that developing countries would not provide the protection that satisfies them. In other respects, developing countries argued that the level of protection which the Agreement demand is difficult to meet by them. As a result of this debate, WTO's Dispute Settlement Understanding has been formed.⁸¹

World Trade Organization proposed TRIPs agreement in order to form free trade among member countries. The objectives of TRIPs agreement stated in Article 7:

“[T]he protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.”⁸²

The objective of the Agreement clears that the Agreement aims to create stability and credibility for IP rights in the international arena. Alongside with this, TRIPs agreement also aimed to regulate and prohibit the international trade of counterfeit goods.⁸³ However, the debate centering the TRIPs was continuing as *Birbeck* described; “*Amidst growing debates on globalization and inequality, TRIPS became a symbol of the vulnerability of developing countries to coercive pressures from the most powerful developed countries and galvanized critics regarding the influence of multinational corporations on global economic rules.*”⁸⁴

Yu, described the Agreement and the debate as: “With twenty-one provisions on obligations that range from border measures to criminal sanctions, the TRIPS Agreement, for the first time, provides comprehensive international minimum standards on the enforcement of intellectual property rights.”⁸⁵ However he also aptly

⁸¹ Ryan Cardwell and Pascal L. Ghazalian, “The Effects of the TRIPS Agreement on International Protection of Intellectual Property Rights,” *The International Trade Journal*, no. 26(1) (January 2012), p. 2.

⁸² “WTO|Intellectual Property (TRIPS),” accessed January 9, 2021, https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm.

⁸³ Mart Leesti, “Historical Background, General Provisions and Basic Principles of the TRIPS Agreement and Transitional Arrangements,” *Journal of Intellectual Property Rights* Vol: 3 (March 1998): p. 69.

⁸⁴ *Birkbeck*, p. 2.

⁸⁵ Peter Yu, “TRIPs and Its Achilles’ Heel,” *Journal of Intellectual Property Law* 18, no. 2 (January 1, 2011): p. 482.

observed that; even though TRIPs Agreement introduced new and higher standards, on international protection of intellectual property, these requirements have yet to increase intellectual property implementation to the satisfaction of the developed countries. Thus, many developed countries and their accompanying industries consider such standards to be primitive, unnatural and inefficient.⁸⁶ During the negotiations, developed countries had agreed to provide better access to their markets in return for their burdensome IP protection requirements from developing countries. While developing countries sacrifice their improvement in technology, developed countries agreed to open their markets for manufactured and agricultural goods.⁸⁷

The importance of TRIPs lays down the broadness of application area and preciseness in terms of time periods. The Agreement compelled member states to follow the deadlines for granting minimum level of protection for almost all categories of IP rights.⁸⁸

When it was looked from the patent protection perspective; TRIPS Agreement brought some level of precision about the period of patent protection. It can be seen, in Article 27 titled as “*Patentable Subject Matter*” the scope of patentability as:

“1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. (5) Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.

2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect order public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such

⁸⁶ Ibid., p. 483.

⁸⁷ Ryan Cardwell and Ghazalian, “The Effects of the TRIPS Agreement on International Protection of Intellectual Property Rights,” p. 3.

⁸⁸ Birkbeck, p. 11.

exclusion is not made merely because the exploitation is prohibited by their law.

3. Members may also exclude from patentability:

(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;

(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.”⁸⁹

In terms of computer programs TRIPS Agreement adopt a relatively new approach. Article 10 of the TRIPS Agreement which titled as “*Computer Programs and Compilations of Data*”, states that;

“(1)- Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971).

(2)- Compilations of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations shall be protected as such. Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyright subsisting in the data or material itself.”⁹⁰

In most developed countries TRIPs norms and structures of intellectual property had been established, and only slight changes to domestic intellectual property laws and policy to introduce TRIPs were needed. Contrarily, the application of the TRIPs requires improvement of standards of IP (increased terms and scope of protection) for developing nations. In most countries, this includes a complicated series of amendments aimed at reforming or redrafting current laws, introducing new legislation, reinterpreting existing legislation in the courts and/or promulgating new

⁸⁹ “WTO | Intellectual Property (TRIPS).”

⁹⁰ Ibid.

legislations and guidelines. To give effect to the intellectual property laws in many countries, governments need to be strengthened and sometimes reorganized, and financial resources allocated to intellectual property issues need to be significantly increased. Thus, the TRIPs supporters have to make some controversial concessions to developing countries in order to settle the agreement. One of the compromises was stated in the opening paragraphs of TRIPs which is the freedom of WTO members to apply the Agreement's provisions pursuant with their own legal system and practice. This section also confirms countries' rights to take measures required to protect public health and wellness and to promote public interest in socio-economic and technological development sectors which are of crucial importance. TRIPs include also a range of safeguards, options and ambiguous provisions, allowing members of the WTO to take part jointly in the interpretation of their obligations and the adaptation of the TRIPs to address national priorities.⁹¹ It should be noted that; all member states of the EU are signatories to TRIPs.

2.2.5. The Community Patent Convention and European Patent Convention Agreements

The lack of unity about protection of CIIs throughout the Europe, motivated the members to establish a united system. The European patent system was constituted in Europe by means of two international agreements, the 1973 The European Patent Convention which known as “Munich Convention”, and the 1975 Community Patent Convention, also known as “Luxemburg Convention”. It was Member States’ aim to keep the time between two Conventions as short as possible. Member states of the European Community desired to establish unified patent protection which would be valid throughout Europe. These endeavors resulted in Luxembourg Convention which final version signed on 15 December 1989. The European Patent Convention has a significant effect in the recent developments of harmonization of European intellectual property law. As stated above, all the European States were eager to unify the law, on the ground that all States signed and apply the EPC. The member states also wanted to continue enhancing the regulation of this area. For this purpose, Community Patent Convention, signed. However, this second convention has never became effective due

⁹¹ Birkbeck, p. 7–8.

to political reasons. This situation has been given the EPC a key role to regulate this specific area.^{92 93}

As it is stated in the Green Paper; “*The aims of the European Patent Convention and the Agreement relating to Community patents differ but complement each other.*”⁹⁴

When all members of European Union wanted to build a centralized patent system, they have signed a Treaty titled European Patent Convention. The key purpose of the European Patent Convention is to create a common, binding patent application process which will be valid in all contracting nations. In order to put into practice this idea, the European Patent Office established. The treaty found supporters from outside the Union. As a result, a patent application can be sent to the European Patent Office ("EPO") in order to obtain patent protection which will be valid in all of the member states. In other words, if a patent application resulted positively by EPO, the applicant will be awarded as if he/she applied for patent protection in each state and all of them accepted. EPO's stand on the patentability of CIIIs will be explained in the Chapter 3.

2.3.THE EU REGULATIONS ON LEGAL PROTECTION OF CIIIs

According to Green Paper: “*The patent system was set up in Europe by means of international agreements. This is because, at the time, the Community's competence in this field was not clearly established.*” However, as soon as the member countries decided to take action on Union level protection, the discussions have begun about the protection and its effects. The result of this work has become emerged as Directive numbered 91/250/EEC.⁹⁵ However there were numerous attempts to regulate the intellectual property throughout in the Union. For instance, the European Parliament vetoed a proposal of a directive on the protection of computer-implemented inventions after debated it for 4 years.⁹⁶ Because of this reason it is chosen to not be mentioned about all the regulations in this thesis. Instead, 91/250/EEC will be examined in detail.

⁹² Vincenzo Di Cataldo, “From the European Patent to a Community Patent,” *Columbia Journal of European Law* 8 (2002): p. 19.

⁹³ Fink, p. 35.

⁹⁴ *Promoting Innovation through Patents Green Paper on the Community Patent and the Patent System in Europe*, n.d., p. 2.

⁹⁵ *Ibid.*, p. 4.

⁹⁶ Mustafa Fuat Vardar, “Software Patents In The European Union” (Masters Thesis in Law, Sabancı University, 2007), p. 55.

2.3.1. The Directive numbered 91/250/EEC ⁹⁷

The aim of the Union Members was to harmonize the divergent laws on the protection of CIIs throughout the Union and to encourage the economic importance of software to the industrial and technical growth of the Union.

In January 1989, the Commission submitted its draft Directive to the Council. Following several debates, the European Parliament voted in favor of the draft Directive, as amended by Parliament, on 11 July 1990. The Council implemented the Directive on 14 May 1991, culminating in a legislative process that lasted three years.

⁹⁸

When we look at the very first article of Directive it can be seen the Directive's approach to protection of CIIs. It is stipulated as: "*In accordance with the provisions of this Directive, Member States shall protect computer programs, by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works.*" ⁹⁹

What one must understand with "computer program" is expressed in the last sentence of Article 1 of the Directive. It is stated as: "*For the purposes of this Directive, the term 'computer programs' shall include their preparatory design material.*" ¹⁰⁰ This definition was placed for the guidance about what is actually a computer program to Member States. Consequently, the definition of subject matter has had different interpretations from Member States. However, it can be said that The European Commission did not state a strict definition on purpose. When it is considered that particularly this field of law has a close relationship with technology thus has to be flexible as it can be, one can say that The Council has a point. For instance, after the

⁹⁷ It should be noted that Council Directive 91/250/EEC was revised by Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the Legal Protection of Computer Programs

⁹⁸ Paul G Hidalgo, "Copyright Protection of Computer Software in the European Community: Current Protection and the Effect of the Adopted Directive," *The International Lawyer* Vol: 27, no. 1 (Spring 1993): p. 131.

⁹⁹ "Council Directive 91/250/EEC of 14 May 1991 on the Legal Protection of Computer Programs EUR-Lex," Article 1, accessed January 9, 2021, <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31991L0250>.

¹⁰⁰ Ibid.

Directive, France extended the copyright protection to flowcharts of computer programs and to source code listings.¹⁰¹

Article 1 (2) includes more detail about drawing the line on subject matter. It is stipulated as: *“Protection in accordance with this Directive shall apply to the expression in any form of a computer program. Ideas and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright under this Directive.”*¹⁰² Though this is the usual application of a copyright protection, Member States wanted to make sure that there would be no misunderstandings.

Last paragraph of Article 1 lays down the originality standard in a very minimal way.

According to Article 1(3): *“A computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. No other criteria shall be applied to determine its eligibility for protection.”* It is understood from the text that the Member States do not want to elaborate on this subject.

Hidalgo says; *“This vague definition of originality engendered concern that it would perpetuate existing divergencies regarding the eligibility threshold for copyright protection. Thus, the Council Directive clarified the standard of originality to require only that the computer program be the “author's own intellectual creation”.”*¹⁰³ It would be fair to say that, with these minimal standards the European Commission was trying to cover the diverse standards of protection for computer programs and also obtain the numerous Member countries’ reconciliation.

It is said by Palmer and Vinje that; *“Adoption of the Software Directive was an extended and hard-fought procedural exercise that introduced the EC to American-style lobbying on a massive scale.”* And it is also clear to say that; the Directive specifically evades of an acceptance of policies to restrict competition during the entire

¹⁰¹ Hidalgo, p. 132.

¹⁰² “Council Directive 91/250/EEC of 14 May 1991 on the Legal Protection of Computer Programs EUR-Lex,” Article 1.

¹⁰³ Hidalgo, p.133.

process.¹⁰⁴ Thus, it must be said that although for its many aspects it can be criticized, but the Directive is the very first milestone in this particular area of law. Directive 91/250/EEC has been annulled and interchanged by Directive 2009/24/EC¹⁰⁵

2.3.2. European Patent Convention

Intellectual property law, like every other division of law, is national and territory-based. Patent law, as a part of intellectual property law, also based on a nation's regulations. Governmental organizations enact rules and regulations that affect only their citizens as a result of sovereignty. Thus, patent awards borne by the national law can only have effect nationwide. These limitations hinder patent's having an extraterritorial effect. *Bender* states this: "Obtaining a patent in the United States does not provide patent protection in other countries, nor can the United States grant foreign patents."¹⁰⁶ A patent grants no monopolies which given by another country, or a country cannot create monopolies with granting patents from its own country. A patent is awarded by a sovereign power of that governmental entity and its rights, privileges

¹⁰⁴ Alan K Palmer and Thomas C Vinje, "The EC Directive on the Legal Protection of Computer Software: New Law Governing Software Development," *Duke Journal of Comparative & International Law* 2 (1992): p. 86.

¹⁰⁵ Directives can be find list below:

- ⇒ Council Directive 93/83/EEC of 27 September 1993 on the Coordination of Certain Rules Concerning Copyright and Rights Related to Copyright Applicable to Satellite Broadcasting and Cable Retransmission O.J. L 248, 6 October 1993.
- ⇒ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases, O.J. L 77, 27 March 1996.
- ⇒ Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, O.J. L 167.
- ⇒ Directive 2001/84/EC of the European Parliament and of the Council of 27 September 2001 on the Resale Right for the Benefit of the Author of an Original Work of Art , O.J. L 272, 13 October 2001,
- ⇒ Corrigendum to Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the Enforcement of Intellectual Property Rights , O.J. L 157, 30 April 2004.
- ⇒ Directive 2006/115/EC of the European Parliament and of the Council of 12 December 2006 on Rental Right and Lending Right and on Certain Rights Related to Copyright in the Field of Intellectual Property, O.J. L 376, 27 December 2006.
- ⇒ Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the Term of Protection of Copyright and Certain Related Rights, O.J. L 372, 27 December 2006.

¹⁰⁶ *Bender*, p. 2.

and obligations commence and terminate within the country that grants it. Therefore, patents independently exist in each sovereign nation from which it is granted.¹⁰⁷

The endeavor of harmonizing the European intellectual property law existed since the 1940's with sophisticated and technical plans. Although there are some other attempts, the one that came closer is the European Patent Convention. The beginning of European Patent Convention was emerged with a draft published by Commission of the European Economic Community in 1962. However, the draft was so intimately associated with the EEC that it was viewed as a regional arrangement. Although the main motivation of the Convention was to have a broader and international applicability. But this was not an unexpected outcome when considered the main purpose of the EEC was to establish the free movement of goods and services. However, on 21 May 1969, 17 European nations assembled and as the result of the negotiations; the Convention took effect on 7 October 1977.^{108 109}

It is an undebatable fact that creating a common legislation with several countries has its own hardships. Putting aside this fact, creating a common legislation on a subject which has a technical part has a different kind of struggle. Nicolai observed this as; *"International legislation" is a potentially misleading concept. There is, of course, no international legislature which serves the world community. The term is nevertheless becoming more common. It is important to avoid, in the international context, obscuring the principle of unanimity through use of the word "legislation."*¹¹⁰

However, it can be said that European Patent Convention has done its share to accomplish the mission. With European Patent Convention an inventor can gain the same rights provided by a signatory country by filling only one patent application at the EPC. The inventor would obtain equal rights as if he/she applied for a national patent in the signatory country with an EPC patent. Applicants would be granted a

¹⁰⁷ Ibid.

¹⁰⁸ France, Austria, Ireland, Denmark, Belgium, Germany, Spain, Greece, Great Britain, Italy, Luxemburg, Portugal, Norway, Switzerland, Sweden, Turkey, Netherlands.

¹⁰⁹ Thomas R Nicolai, "The European Patent Convention: A Theoretical and Practical Look at International Legislation," *International Lawyer* 5, no. 1 (n.d.): p. 135.

¹¹⁰ Ibid., 155.

series of patents or a package of rights, which are valid as a national patent in respective courts of the signatory states.¹¹¹

In web glossary of EPO, a European patent defined as: *“A patent that can be obtained for all the EPC contracting states by filing a single application with the EPO in one of the three official languages (English, French or German). European patents granted by the EPO have the same legal rights and are subject to the same conditions as national patents granted by the respective national patent office. A granted European patent is a "bundle" of national patents which must be validated at the national patent offices of the countries selected by the applicant for it to be effective.”*¹¹² The definition given by EPO reveals the structure of a European patent.

It must be noted that, the European Patent Convention creates a single patent law for use by the European Patent Office however, disputes raised from the application will be solved by national courts. National courts will solve the disputes where each will apply the law of its own. The courts will follow their own national regulations whilst analyzing the claim. This situation has caused to patent decisions given under EPC law though conflicting with each other. The national courts often approach variously to the interpretation of EPC provisions thus, they create different treatments to the EPC patents.¹¹³ This situation explained revealingly in an EC memo dated 20th February 2002: *“Legally speaking, the patent laws of the Member States are in principle supposed to be consistent with the EPC and uniform among themselves. However, in practice there is no unifying structure with binding effect on national courts and there is therefore the potential for differences to appear over the interpretation of particular aspects of patent law.”*¹¹⁴ As it is laid out; this aspect of the Convention still remaining as an unsolved issue raising from the application of the Convention. However, it can be said that the European Commission working on this issue with Unitary Patent and Unified Patent Court.

¹¹¹ Bender, p. 5.

¹¹² European Patent Office, “Glossary.”

¹¹³ Bender, p. 6.

¹¹⁴ “Proposal for a Directive on the Patentability of Computer-Implemented Inventions - Frequently Asked Questions,” Text, *European Commission*, accessed January 9, 2021, https://ec.europa.eu/commission/presscorner/detail/en/memo_02_32.

In 2002 the European Commission have tried to make a change in this subject, however like in every preconception change was not easy. The Proposal for a Directive on the patentability of computer-implemented inventions has been published in February. The aim of this proposal was the same with EPC which is to harmonize the national patent laws on CIIs. Additionally, to stop the increased diversity on granting patents for CIIs. Yet, the proposal did not enter in force. In 2005 the European Parliament vetoed the proposal with a high difference in vote numbers. Hence the proposed directive turned out as a failure.

The, most recent amendment was made to Article 52 of the EPC in 2007:

“European patents shall be granted for any inventions, *in all fields of technology*, provided that they are new, involve an inventive step and are susceptible of industrial application.”

The aim of the amendment was to make it clear that the TRIPS and the EPC shares the same values. In addition to that, emphasize the EPC grants patent protection to all fields of technology.¹¹⁵

The other backlash of the European Patent Convention is the translation costs. The situation about the translation costs stated by Bonitatibus as: “*The breakdown of the total cost is as such: 14% for fees due the European Patent Office; 18% for representation before the EPO; 39% for translations required by the contracting states; and 29% for renewal fees paid to member states. The translation costs, as well as various fees charged, cause the European patent to cost three to five times more than a Japanese or United States patent.*”¹¹⁶

As it is shown the translation costs cannot be underestimated. When it is considered that a considerable amount of patent applicants are small and medium-sized enterprises, it is certain that the translations costs are unbearable. Once the application is approved, the inventor must pay the extension/validation fees as well as translation

¹¹⁵ Drengur Óla Þorsteinsson, “Software Patents and the EPO: Should Software Patents Be Granted under the European Patent System?” (Háskólinn á Akureyri, 2009), p. 14.

¹¹⁶ Kara M Bonitatibus, “The Community Patent System Proposal and Patent Infringement Proceedings: An Eye towards Greater Harmonization in European Intellectual Property Law,” *Pace Law Review* 22 (n.d.): p. 10.

costs. In order to eliminate this excessive amount of translation costs, the London Agreement has been formed. Exceptions will be applied to the contracting states. Foreign applicants from signatory countries of the London Agreement, need to submit the translation of their application to European Patent Office placed in their country in order to ratify the patent in the aimed country.^{117 118}

2.3.3. European Patent Convention Approach on CIIs

The very reason of existence of the EPC is to procure the unification and standardization of the patent application and granting process in all member states.

Requirements of patentability stipulated in Article 52 of European Patent Convention. On the grounds that, it will be examined further in the scope of this thesis. Article 52 of the EPC flows as follows:

“(1) European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.

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

- (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.

(3) The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.”

¹¹⁷ Bronwyn Hall and Christian Helmers, “The Impact of International Patent Systems: Evidence from Accession to the European Patent Convention” (n.d.): p. 7.

¹¹⁸ European Patent Office, “Agreement on the Application of Article 65 EPC – London Agreement,” accessed January 9, 2021, <https://www.epo.org/law-practice/legal-texts/london-agreement.html>.

As it befalls from the paragraph C of the above clause and section 3, computer programs “as such” are not contemplated as a patentable invention according to EPC. Certainly, this one provision became the very source of discussions about the legal protection of CIIIs. It is decided to examine the sections separately since this Article itself constitute the discussions.

In first section of the Article, it can be seen that the conditions of a patentable invention are listed. However, at the way of the explanation, it will be seen that the Convention drafters abstained to state a definition of an invention. Instead of that, they have chosen to list the conditions. Although this bring an understanding that if an invention checks out all the conditions, then it is a patentable invention. Nonetheless this would be inaccurate understanding because, the following section stipulates exclusions from a patent.

In second section of the Article, the list of eliminations of a patent stated. The exclusions have common points with other country’s regulation about patentability. In other words, it is common to regulate the patentability with the exclusions, not with a definition. EPC also chose this way to regulate this subject which is sensible when it is considered that this subject particularly has a real time connection with constantly developing technology.

The third section of the Article is the source of the discussions. According to the wording of this section, computers programs “as such” are not contemplated inventions and therefore, cannot be granted.

This regulation is a result of a long-standing discussions. This is observed by *Hansen* as: “During the ongoing discussions, the UK delegates to the working group proposed that software was to be excluded from the patentable subject-matter and that a definition of “computer program” should be made. The working group, however, did not want to define the term “computer program” as it was the intention only to implement broad guidelines, while the actual interpretation was left to the boards of appeal and the national courts. There was, however, a broad consensus that software should be excluded from the patentable subject-matter. This decision resulted in several protests by interest groups, inter alia claiming that software might be patentable subject-matter under certain circumstances and suggesting that the proposed Article 9

(2) to be deleted. Following another round of discussions, the software prohibition found its final wording and place in Article 52 (2) (c).”¹¹⁹

As it can be understood, the terminology of “as such” is the source of the debate. The Member State’s intention is with this wording, to prevent an extensive use of the excluded type of inventions. However, Article 52 (2) and (3) of EPC has led two diverse interpretations in the doctrine. The first interpretation claims that the inventions stated cannot be patented since they do not satisfy the criteria of patentability. The second interpretation, on the other hand, pleads that the listing in Article 52 (2) stated only for aiming to ease usage of inventions in daily life. Each interpretation has its own supporters, and it is hard to surmise the EPO's opinion. However, it is said that according to EPC's systematic the excluded list of inventions aimed to prohibit them to obtain patent protection.¹²⁰

Although it will be examined closely in Chapter 3 with case law of EPO, we would like to lay out the approach of EPO generally in the light of EPC articles.¹²¹

2.3.4. The Unitary Patent

The aim of the building up the institution from scratch is stated in the publicity booklet which printed by European Patent Office; “*The aim of the reform of the European patent system is to offer businesses a simpler alternative to the existing system and introduce a more cost-effective route to patent protection and dispute resolution. Those preferring to seek protection in individual EPC contracting states can still file patent applications with those states' national patent offices, and it also remains possible to validate a European patent in one or more EPC contracting states.*”¹²²

The international agreement titled as Agreement on a Unified Patent Court dated 19/02/2013, signed by 25 Member States of the European Union establish the Unified Patent Court. The aim was to form the one common place to settle disagreements

¹¹⁹ Kim G Hansen, “Software Patents in Europe,” *Stockholm Institute for Scandianvian Law* (2010): p. 178.

¹²⁰ Ibid.

¹²¹ Sigrid Sterckx and Julian Cockbain, “The Patentability of Computer Programs in Europe: An Improved Interpretation of Articles 52(2) and (3) of the European Patent Convention,” *The Journal of World Intellectual Property* 13 (December 9, 2009): p. 4.

¹²² European Patent Office, *Unitary Patent Guide*, 2017, p. 9.

involving European patents and Unitary Patents (European patents with unitary effect). The Unified Patent Court (UPC) will be a specialized patent court to the European Union's Member States, and it will be a part of Member State's justice system and thus would be a general court for the patent conflicts of the member States. It shall have exclusive proficiency disputes regarding European patents and Unitary patents. By mid-2019, sixteen Member States had ratified the UPC Agreement, and it is expected for a few more to ratify in near future.^{123 124}

According to information stated in the official website of UPC: "*The UPC Agreement is open to accession by any Member State of the European Union. The Agreement is not open to states outside of the European Union. Up to date, all European Union Member States except Spain and Poland have signed the Agreement.*"¹²⁵

It would be fair to say that, nowadays Europe still dealing with unifying the patent system like *Sisyphus* pushing his rock. Unified patent system has entered the debate in order to maintain the economic efficiency. As stated above, all of these regulations aimed to unify and centralize the patent system throughout the Europe. Although the unified patent system is designed to operate together with the existing system, there are lots of criticism and doubts already raised around the system. To sum up, CII's protection in intellectual property law throughout the Europe is still an unresolved issue.

¹²³ Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom are the signatory countries.

¹²⁴ *Patent Litigation in Europe An Overview of National Law and Practice in the EPC Contracting States*. (European Patent Office, 2019), 155.

¹²⁵ For further information please check: "Unified Patent Court," accessed January 9, 2021, <https://www.unified-patent-court.org/>.

CHAPTER 3: COMPARATIVE ANALYSIS OF COURT DECISIONS IN EU AND USA

3.1.THE PROBLEM

The core of the problem is the protection type of CIIs in terms of intellectual property. The main point of the debate constitutes the vagueness of the fundamental elements of the topic. For instance, computer programs or software do not have a universal definition. Therefore, each side can defend the definition that benefits them. If one argues that an analogous part of software such as an algorithm outweighs the other part the software should be considered as non-patentable. On the other hand, as it can be seen in this chapter there are cases in which courts rendered that software can be patentable along with the rest of the invention.¹²⁶ As software and its services are a new subject matter for patents, it is still debatable whether a software should be protected under patent or copyright protection in different countries.

As it understood from above the most distinguished difference between traditional patent and copyright subject matter is simple and can be surmised as: patent, protects creative but functional invention. On the other hand, copyright protects creative but nonfunctional authorship.¹²⁷

There are two notions that stand out in this quarrel. Each notion has a point in its' own aspect. First one is risks of under-protection and second one is: risks of over-protection.

¹²⁶ James P Chandler, "Patent Protection of Computer Programs," *Minnesota Intellectual Property Review* Volume 1, no. Issue 1 (n.d.): p. 33.

¹²⁷ Dennis S. Karjala, "A Coherent Theory for the Copyright Protection of Computer Software and Recent Judicial Interpretations," *University of Cincinnati Law Review* Vol. 66 (n.d.): p. 55–56.

Protecting computer programs with copyright is caused some concerns of under-protection. Copyright procures protection only for the manifestation of a novelty, it does not protect the idea behind the novelty. In this context, copyright protects only the wording of source or object code and the idea behind the code of the program is completely available for anyone. This leads to the reproduction of the protected program and would not confront any infringement claims.¹²⁸

In this respect, protecting computer programs under copyright started to considering as an inadequate way of protection. Copyright protection offers only to protect the way of expression of the idea behind the software which enables the invention to operate. Though the idea itself does not get protected from copied by third parties. As it is explained, copyright protection could not protect the invention from reverse engineering. The core element in making function of a system is the idea behind it, thus it must be protected. If a competitor achieves to constitute the code in another way to do the same operation, this would not consider an unfair use in terms of copyright protection.¹²⁹

According to *Menell*: The most obvious problem with copyright protection is reverse engineering done by competitors. “Copyright law provides a thin layer of protection for computer software, effectively prohibiting wholesale piracy of computer programs without affording control for interface specifications and other essential elements of computer functionality.”¹³⁰

On the other side of the coin, the risk of over-protection has been discussed. Patent protection has a broader protection spectrum when it is compared to copyright protection. Although this broad protection seems a positive aspect, in terms of innovation and progression undoubtedly it has some detrimental effects.¹³¹

The discussion has another aspect, which is the obscurity of the fundamentals of the topic. The phenomenon centered in the topic is the software of computer programs and

¹²⁸ Ballardini, p. 67.

¹²⁹ “Sony Computer Entertainment v. Connectix Corp., 48 F. Supp. 2d 1212 (N.D. Cal. 1999),” *Justia Law*, accessed January 9, 2021, <https://law.justia.com/cases/federal/district-courts/FSupp2/48/1212/2414907/>.

¹³⁰ Peter S. Menell, “Envisioning Copyright Law’s Digital Future,” *N.Y.L. School Law Review* Vol. 46 (2003 2002): p. 65–66.

¹³¹ Ballardini, p. 23.

this term does not have an exact definition. This leads to the occurrence of different approaches to the topic. According to a customer, the code of a computer implemented invention, would not make a difference as long as the computer functions, however, an engineer would say that the source of the same device is quite diverse.¹³²

In this chapter, different court decisions will be scrutinized in this context.

3.2.PROTECTION OF CIIs IN THE LIGHT OF COURT DECISIONS

One of the most debated topics in the patent world is whether CIIs should be patented or not. While the date of emergence of the topic is recent, the number of decisions has reached a noteworthy amount. As a matter of fact, there are conflicts between even the decisions. In this chapter of the thesis, the debate will be examined through European and US case law.

3.2.1. EPO Case Law on Protection of CIIs

The competent authority applying the European Patent Convention in EU region is the EPO. Thus, to understand it's stand on the relevant topic the case law must be perused. When the decisions of EPO are examined, it can be said that EPO granted patent protections for CIIs. *Hansen* put this clearly as: "... according to a note by the president of the EPO dated 9 March 1993, at that time had granted more than 20,000 patents relating to software. According to a FAQ10 published by the EU Commission in 2002, the EPO had at that time granted 30,000 such patents."¹³³ It is understood that though the debate continues without losing its pace, while EPO issuing such patents.

This is expressed in one of the publishing of EPO as; "According to established EPO practice in line with that jurisprudence, computer-implemented inventions can be patented if they involve an inventive technical contribution to the prior art, irrespective of whether they are implemented by hardware or by software. They are not patentable if there is no technical contribution to the prior art or, if there is such a contribution, it is obvious."¹³⁴ As this quote by EPO states that, EPO has an evaluation procedure on what is patentable and what is not.

¹³² Soininen, p. 45.

¹³³ Hansen, p. 176.

¹³⁴ *Patents for Software? European Law and Practice*, p. 10.

It is hard to say that the EPO has taken a firm line in this topic. Hence it is harder to generalize the decisions and EPO's approach. Therefore, the author decided to select the important decisions and examine them. This examination shown that, although every decision is distinct, they all have one criteria in common. This criteria is the "technical character". *Hansen* expressed this situation briefly as; "EPO case law is very ambiguous on this issue, but based on an analysis of EPO case law, technical character may apparently be achieved in four different ways: 1) the invention produces a technical effect which presumably involves a physical change in a physical object; 2) the invention solves a technical problem; 3) the problem solved by the invention requires technical means for its solution; and 4) it has been a prerequisite for the invention that the inventor has made "technical considerations" and that such considerations are reflected in the claimed subject-matter."¹³⁵ As it can be seen, it is hard to put the EPO's approach in a one part of a master's thesis. Albeit, to accomplish this purpose and to have a better understanding on EPO's assessment, in this part of the thesis, the European case law will be examined.

Utku and *Strowel* has given place a diagram to summarize EPO's approach on patentability of CIIs. Needless to say, the EPO does not establish this system in one day on this extremely controversial issue. With each decision this system has been built brick by brick. In order to understand thoroughly this road which EPO opened; significant decisions will be studied.

¹³⁵ Hansen, p. 90.

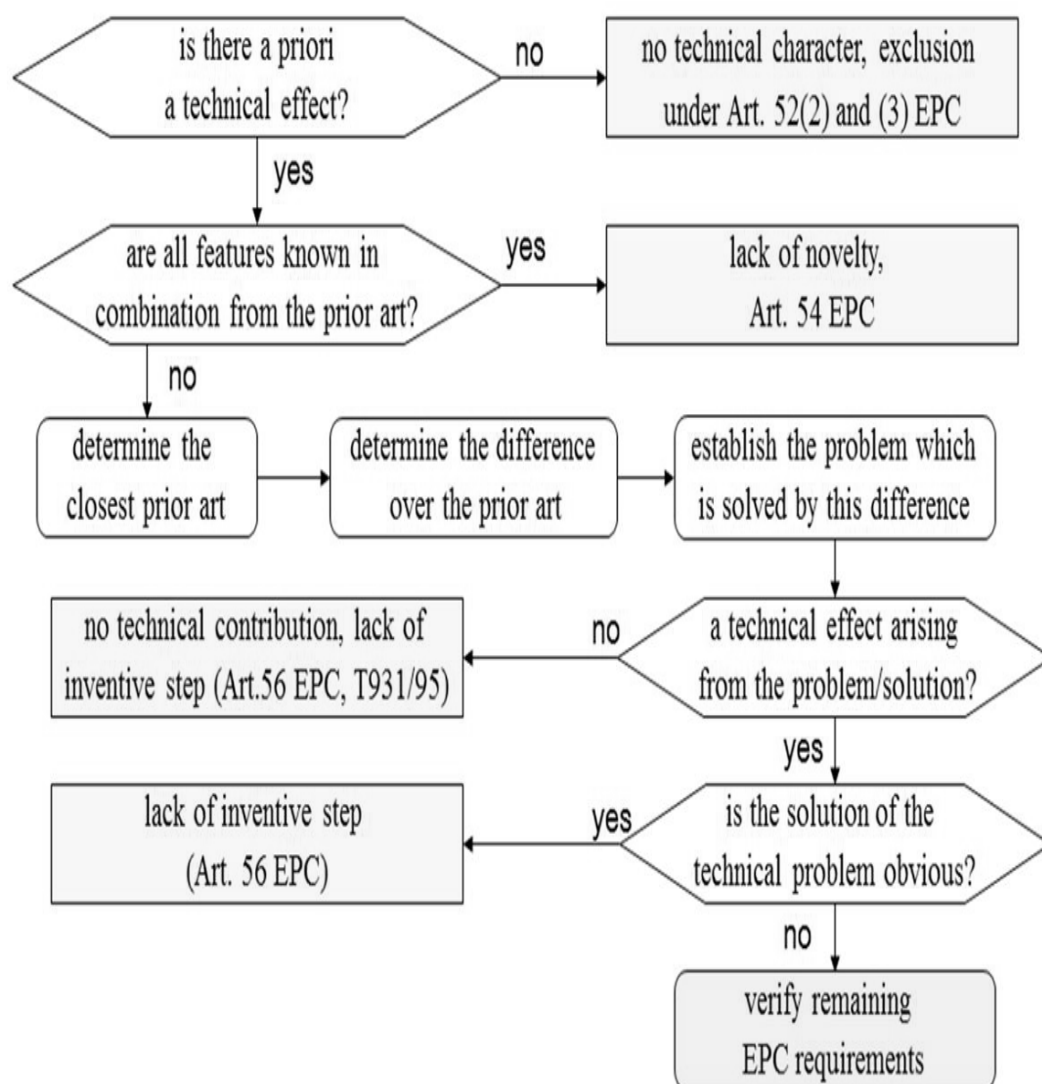


Figure 1. Determining the patentability of an invention¹³⁶

¹³⁶ Sinan Utku and Alain Strowel, “Recent Developments Regarding the Patentability of Computer Implemented Inventions within the EU and the US: Part 1—Introduction and the Legal Problem of Patenting Computer-Implemented Inventions,” no. 8 (2017): p. 499.

3.2.1.1.T 208/85 - VICOM Decision

This case is considered as a landmark by many scholars which unlocked the gateway for patent protection of computer related inventions. With this decision given in 1986 the EPO changed its approach to a new one. With this new approach EPO brought a new requirement for patentability. This requirement is called: technical contribution.

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The application made by VICOM Systems, contains the claims related to an invention which has a different method of image processing and while operating this method using an apparatus which also using a conventional computer. The application had been made included both the method and the apparatus. The Examining Division of the EPO which is the first step of an application is assessed, rejected the application. The reason behind this rejection was the usage of a mathematical method and the impact of this mathematical method had on functioning of the computer program. Hence, the application subject falls into scope of Article 52(2) and (3) of EPC, was not consider as a patentable subject matter in accordance with Article 52(2) and (3). As it is stated in the pursuant Article, an invention associated with a mathematical method and/or a computer program “as such” cannot be patentable.¹³⁸

The Technical Boards of Appeal (TBA) of EPO reversed Examining Division’s decision saying that the subject of the application is not an abstract idea. Processing of a digital image is a “real world activity” effects of it can be seen in our lives. This concept is stated in the decision as; “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.... there can be little doubt that any processing operation on an electric signal can be described in mathematical terms... there is no basis in the EPC for treating digital filters differently from analogue ones (which are patentable).”¹³⁹ The Board justified

¹³⁷ Tookey, p. 139.

¹³⁸ Daniel de Santiago Villagrán, “Software Patents Under the European Patent Convention” (Master Thesis, University of Helsinki, 2013), p. 63.

¹³⁹ European Patent Office, “T 0208/84 (Computer-Related Invention) of 15.7.1986,” accessed January 9, 2021, <https://www.epo.org/law-practice/case-law-appeals/recent/t840208ep1.html>.

its decision stating that the application in the hand does not produce an abstract product in physical world.¹⁴⁰

3.2.1.2.T 026/86 - Koch & Sterzel Decision

Koch & Sterzel decision rendered in 1987, which is not long after the VICOM decision. Like the VICOM, in this application the invention was using a software-implemented method while operating. The subject of the application was an X-Ray device. As it is seen in the VICOM decision the EPC did not exclude the inventions containing a combination of technical and nontechnical features from being patentable. In this application although the invention was working with the existing knowledge on machinery, the decision was to issue the patent. The reason behind this decision was that; the invention was using a data processing part functioning according to a schedule which gives to the X-ray machine a technical character.¹⁴¹

Tookey interpreted these two decisions and their result on EPO decisions as: “The decisions of VICOM and Koch & Sterzel are largely consistent with the case laws that followed over the next 20 years. ... According to this approach, if a claimed invention is new, the proper way to assess whether there is an inventive step is to look at what technical problem the invention solves, in light of the known prior art. Firstly, the difference between the invention and the prior art is identified. Secondly, the technical effect of this difference (if any) is identified. Thirdly, the objective technical problem is identified, given this technical effect. Finally, an assessment is made of whether, given this objective technical problem, the skilled person would find it obvious to arrive at the claimed invention.”^{142 143}

This decision clarifies the confusion about if an invention has a technical character, it can be patented or not. EPO ruled that there is no need to measure the technical feature point the invention has, and technical feature of an invention does not make it non-

¹⁴⁰ Guntersdorfer, p. 6.

¹⁴¹ Tookey, p. 139.

¹⁴² Ibid., p. 139–140.

¹⁴³ European Patent Office, “T 0026/86 (X-Ray Apparatus) of 21.5.1987,” accessed December 13, 2020, <https://www.epo.org/law-practice/case-law-appeals/recent/t860026ep1.html>.

patentable.¹⁴⁴ In other words, if an invention will meet both the technical and non-technical qualifications can be patentable under EPC.

With these two decisions it is understood that the EPO is focused to detect what is embedded in a machine-like operation system, if is a mathematical formula or algorithmic process. The main goal of the Board had become making the distinction between the abstract part and tangible part of an invention. It can be argued that, this artificial distinction was exceedingly hard to rationalize. *Achieng* put this briefly as: “The person skilled in the art (programmer) would of not of 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.”¹⁴⁵

Hence, if a machine has computer implementation it acknowledged that it can be protected in the patent system. In other words, in order to obtain a patent protection, the invention must have a software and machine part together and these parts must operate in a harmony. In following years, this approach of EPO has changed with two important decisions.

3.2.1.3.T 1173/97 & T 0935/97 IBM - Computer Program Decisions

The significance of these IBM decisions cases are the patent claims were consisting of a combination of excluded and non-excluded elements stated in article 52(2) of EPC. Therefore, EPO adopted a new approach which is embracing the invention as a whole. Additionally, it can be said that the EPO’s stand related to the computer-implemented inventions’ patentability was further developed with these decisions.¹⁴⁶

¹⁴⁴ Guntersdorfer, p. 6.

¹⁴⁵ Spance Joy Achieng, “Software Patents A Study on the Patentability of Software Inventions” (Masters Thesis, Uppsala Universitet Department of Law, 2017), p. 35.

¹⁴⁶ Jinseok Park, “Has Patentable Subject Matter Been Expanded? -A Comparative Study on Software Patent Practices in the European Patent Office, the United States Patent and Trademark Office and the Japanese Patent Office,” *International Journal of Law and Information Technology* 13, no. 3 (2005): p. 339.

T 1173/97 IBM – computer program product decision rendered 1 July 1998.¹⁴⁷ The importance of these decisions derived from the assessment concluded by EPO. Both applications done by same company which is IBM, and both decisions were not approved by Examining Division in the first analysis. In decision numbered T935/97 claims for patent protection, contains a movable device which includes the software inside and the application was done both for the device and software part. The invention of the application enables a method on data-processing which allows alteration between windows while operating. In decision numbered T 1173/97 claims were about an invention: “a method for resource recovery in a computer system”. The questions which have been solved in both cases were whether to exclude the computer programs patentability or not.¹⁴⁸

In this decision EPO referred the TRIPS as; “A computer program product is not excluded from patentability under Article 52(2) and (3) EPC if, when it is run on a computer, it produces a further technical effect which goes beyond the "normal" physical interactions between program (software) and computer (hardware)”.¹⁴⁹ EPO has reached the conclusion that, if the Article 52(2) and (3) judged together it can be understood that, excluding computer programs was not the rule-maker’s intention. The logic in both decisions was same.

This conclusion has been stated in the decision as: “The combination of the two provisions (Article 52(2) and (3) EPC) demonstrates that the legislators did not want to exclude from patentability all programs for computers. In other words, 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 to be programs for computers as such.”¹⁵⁰

¹⁴⁷ European Patent Office, “T 1173/97 (Computer Program Product/IBM) of 1.7.1998,” accessed December 13, 2020, <https://www.epo.org/law-practice/case-law-appeals/recent/t971173ex1.html>.

¹⁴⁸ European Patent Office, “T 1173/97 (Computer Program Product/IBM) of 1.7.1998,” accessed December 13, 2020, <https://www.epo.org/law-practice/case-law-appeals/recent/t971173ex1.html>.

¹⁴⁹ Ibid.

¹⁵⁰ Ibid.

After this decision the new “technical character” criteria is the key requirement while determining the patent applications of CIIs. With these decisions, it is rendered that; computer programs or software on a carrier device will not be considered software "as such". Therefore, they can be patentable in this context.

3.2.1.4.T 0769/92 – Sohei - General Purpose Management System Decision

The subject of this decision, consisted of a computer system for multiple independent management types, such as financial management and inventory management. In accordance with this decision, it is understood that; if an invention gains functional features by applying software and has a technical character at the same time, then it will be contemplated as a patentable invention. This technical character gives the invention patent protection as long as it solves a technical problem that needs to be solved.¹⁵¹

The headnote of the decision states the sum of the evaluation has been made in decision as: “An invention comprising functional features implemented by software (computer programs) is not excluded from patentability under Article 52(2)(c) and (3) EPC if technical considerations concerning particulars of the solution of the problem the invention solves are required in order to carry out that same invention. Such technical considerations lend a technical nature to the invention in that they imply a technical problem to be solved by (implicit) technical features. An invention of this kind does not pertain to a computer program as such under Article 52(3) EPC.”¹⁵²

The separation point of this decision is that, while using computer systems obtaining functional results. The emphasize point is that; the claimed invention bring solution to real life problems and while doing so it has had a technical feature. It is stressed that the exclusions stated in EPC 52 (2) does not mean that an invention would be rejected only because it contains some features of excluded matters. Although there are other

¹⁵¹ Reed and Angel, p. 145.

¹⁵² European Patent Office, “T 0769/92 (General Purpose Management System) of 31.5.1994,” accessed December 23, 2020, <https://www.epo.org/law-practice/case-law-appeals/recent/t920769ep1.html>.

decisions which business methods are rejected, this particular decision from the other decisions.¹⁵³

Guntersdorfer compared EPO's approach with American court decisions and put as: "The closest Europe ever came to State Street was in *In re Sohei*, when the Board held that an otherwise patentable computer program would not lose its patentability merely because additional features fall within subject matter excluded under § 52(2)." ¹⁵⁴

3.2.1.5.T 0931/95 - Controlling Pension Benefits System Decision

The application, which is made by Pension Benefit Systems Partnership, was about an invention calculating pensions benefits of personnel each of whom is to obtain regular benefit imbursements. The claim basically was the method which enables a person to do the calculation. However, the application has two parts: the first part is about the techniques of the calculation such as how it operates, what are the required inputs in order to perform the calculation and so on. The second part of the application is the apparatus part, which is a software programmed to perform the methodology.¹⁵⁵

The first part of the application is rejected on the ground that, not meeting the technical character criteria.¹⁵⁶ The Board held the reasoning as; "All the features of this claim are steps of processing and producing information having purely administrative, actuarial and/or financial character. Processing and producing such information are typical steps of business and economic methods. Thus, the invention as claimed does not go beyond a method of doing business as such and, therefore, is excluded from patentability under Article 52(2)(c) in combination with Article 52(3) EPC; the claim does not define an invention within the meaning of Article 52(1) EPC." ¹⁵⁷

Regarding the second part which is the application for claimed apparatus, EPC gave a distinctive ruling. It is stipulated that; the claimed application is a programmed device which is suitable for business and economy sectors' usage. The physical unit of the

¹⁵³ Park, p. 338.

¹⁵⁴ *Guntersdorfer*, p. 7.

¹⁵⁵ de Santiago Villagrán, p. 74.

¹⁵⁶ Reed and Angel, p. 146.

¹⁵⁷ European Patent Office, "T 0931/95 (Controlling Pension Benefits System) of 8.9.2000," accessed December 23, 2020, <https://www.epo.org/law-practice/case-law-appeals/recent/t950931ep1.html>.

apparatus provides the claim a real-life application thus makes it patentable. This explanation finds its ground in Article 52 (2) of EPC. In this Article the exclusions are listed, and physical entity is not stated.¹⁵⁸ The Board held the explanation as: “This distinction with regard to patentability between a method for doing business and an apparatus suited to perform such a method is justified in the light of the wording of Article 52(2)(c) EPC, according to which "schemes, rules and methods" are non-patentable categories in the field of economy and business, but the category of "apparatus" in the sense of "physical entity" or "product" is not mentioned in Article 52(2) EPC.”¹⁵⁹

The importance of this decision lays down the alteration effect of the Board’s precedent. With this decision it is accepted that an invention having a physical entity is enough for it to be patentable. Despite these understandings, the application has been rejected because it could not meet the inventive step criteria, however it does not affect the decision’s importance.

3.2.1.6.T 258/03 HITACHI - Auction method

The invention which is subject to this decision is a computer-implemented process for operating an autonomous auction system. The auction process starts with some data collecting process from clients and then this information is stored in a server computer. After the bidding started, the participants will input their bids and afterwards they would not have to do something further. Every bid given by participants, includes a "desired price" and a "maximum price in competitive state". With completion of this stage, the system operates and would not stop until the highest bid or "desired price" reaches the bid level. The application was not accepted by EPO thus the subject matter is a business method.¹⁶⁰

In the decision it is explained as: “The Board is aware that its comparatively broad interpretation of the term "invention" in Article 52(1) EPC will include activities which are so familiar that their technical character tends to be overlooked, such as the act of writing using pen and paper. Needless to say, this does not imply that all methods

¹⁵⁸ de Santiago Villagrán, p. 75.

¹⁵⁹ European Patent Office, “T 0931/95 (Controlling Pension Benefits System) of 8.9.2000.”

¹⁶⁰ Tookey, p. 64.

involving the use of technical means are patentable. They still have to be new, represent a non-obvious technical solution to a technical problem, and be susceptible of industrial application.”¹⁶¹

In other words, the rejection reason behind EPO’s decision was that claims were lacked inventive step criteria. The board detailed its decision as: “method steps consisting of modifications to a business scheme and aimed at circumventing a technical problem rather than solving it by technical means cannot contribute to the technical character of the subject-matter claimed.”¹⁶²

According to *Utku* and *Strovel* the technical qualifications which are used in the claimed invention, were already in use throughout the sector. Thus, this situation makes the claimed invention unsuitable for patentability. They put as: “The Board found that the other, technical features of the invention, such as the data transmission and storage features (e.g. steps (b) and (c) of claim 1) were standard features which were known in the prior art; thus, they also did not confer inventive step on the invention. Based on these considerations, the Board found that none of the claims at issue satisfied the inventive step criterion.”¹⁶³

This is another decision that carries importance even though the result was negative where the importance of the decision lays down on the EPO’s explanation. With all of these decisions EPO’s approach the patentability of CIIIs has been established.

3.2.2. USA Court Decisions

In this section of the thesis, USA court decisions are examined in detail about the patentability of CIIIs. It must be stated that, United States courts has come a long way to reach where they are today. Initially it is rendered by Supreme Court that, software cannot be patentable because fundamentally it is a mathematical formula.¹⁶⁴ This notion has been evolved with technological developments throughout the years. With

¹⁶¹ European Patent Office, “T 0258/03 (Auction Method/HITACHI) of 21.4.2004,” accessed December 25, 2020, <https://www.epo.org/law-practice/case-law-appeals/recent/t030258ep1.html>.

¹⁶² Ibid.

¹⁶³ *Utku* and *Strovel*, p. 499.

¹⁶⁴ *Guntersdorfer*, p. 4.

this section of the thesis, it has been tried to provide a broad perspective to the readers on this evolvement.

3.2.2.1. Gottschalk v. Benson

The subject of this decision was a programming technique for interchanging binary-coded decimal numerals into sole binary numerals on a computer.¹⁶⁵ The USPTO, rejected the application reasoning that the subject matter contains a direct application of a mathematical expression. Upon this rejection, Robert Gottschalk appealed to the Supreme Court. The Court rendered that, a mathematical algorithm is not patentable per se. If an applicant aspires to obtain a patent protection for an algorithm, the subject matter must be transformed into a different state.¹⁶⁶

With this decision, it has been understood that software cannot be patented on its own, and for subsequent applications applicants started to execute their inventions as programmed algorithms on a computer.¹⁶⁷

3.2.2.2. Diamond v. Diehr

With this decision, it has been clarified that an application cannot be rejected based on the fact that the claimed invention uses computer assistance. The subject of the application is a machine that molds the rubber with a computer, according to a mathematical formula. The court decided that even though scientific theories and mathematical methods cannot benefit from patent protection as such, an application of these rules in a process can be patentable. Furthermore, the court noted that, if a process can be patentable without computer assistance, the usage of a computer should not be an impediment.¹⁶⁸ As a result, it can be said that incorporating a computer program into the operation process is acceptable to benefit patent protection.¹⁶⁹

The importance of this case lays down in the following statement: “an invention could not be denied a patent solely because its claims contained mathematical formulae.”¹⁷⁰

¹⁶⁵ “Gottschalk v. Benson, 409 U.S. 63 (1972), Justia US Supreme Court Center,” accessed January 9, 2021, <https://supreme.justia.com/cases/federal/us/409/63/>.

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

¹⁶⁸ Bouchoux, p. 347.

¹⁶⁹ “Diamond v. Diehr, 450 U.S. 175 (1981).”

¹⁷⁰ Guntersdorfer, p. 4.

3.2.2.3.State Street Bank and Trust Co. v. Signature Financial Group Inc.

Before examining this decision, there is a regulation that should be taken into account. The Court of Customs and Patent Appeals amended the patentability test under the limitation of the U.S. Supreme Court decision of algorithms are not patentable. It came from three decisions of the United States Court of Customs and Patent Appeals—In re Freeman¹⁷¹, In re Walter¹⁷², and In re Abele¹⁷³,—which attempted to comply with then-recent decisions of the Supreme Court concerning software-related patent claims. The principal reason of the test was to prevent the protecting laws of nature and basic principles of science under patent protection. It was certain that, this kind of protection would lead to an unwanted monopoly. Despite the fact that the test is mainly concerned with mathematical algorithms, it can be applied to any subject.¹⁷⁴ With this case, the test has decayed and the prevalent thought of patentability of business methods in the United States has completely changed.

To summarize the subject of application a, this investment structuring system, offers the fund manager the most advantageous combinations in managing investments along with the tax benefits.¹⁷⁵

To sum up, State Street decision has changed the previous belief of business methods could not be patented irreversibly. It is decided that software, mathematical algorithms, and business methods could be patented under State Street provided that producing a tangible and useful result.

In the light of State Street, the USPTO adopted examination guidelines which will be used on patent claims. In the guidelines, embodied in the Manual of Patent Examination Procedure, physical transformation is not a requirement and the agency

¹⁷¹ “In Re Freeman 573 F.2d 1237 (C.C.P.A. 1978).,” accessed January 9, 2021, <http://digital-law-online.info/cases/197PQ464.htm>.

¹⁷² “In Re Walter 618 F.2d 758 (C.C.P.A. 1980).,” accessed January 9, 2021, <http://digital-law-online.info/cases/205PQ397.htm>.

¹⁷³ “In Re Abele 684 F.2d 902 (C.C.P.A. 1982).,” accessed January 9, 2021, <http://digital-law-online.info/cases/214PQ682.htm>.

¹⁷⁴ “Freeman-Walter-Abele Test Law and Legal Definition | USLegal, Inc.,” accessed January 9, 2021, <https://definitions.uslegal.com/f/freeman-walter-abele-test/>.

¹⁷⁵ “State Street Bank and Trust Company v. Signature Financial Group, 927 F. Supp. 502 (D. Mass. 1996).,” *Justia Law*, accessed January 9, 2021, <https://law.justia.com/cases/federal/district-courts/FSupp/927/502/2092742/>.

give definition to useful, concrete, and tangible. To be “useful,” the claimed invention must satisfy §101’s utility requirement and have practical application. The term “concrete” is defined as an invention that is substantially repeatable. And “tangible” means not being abstract and being capable of producing a real-world result.¹⁷⁶¹⁷⁷

3.2.2.4. Bilski v. Kappos

To sum up till this point, in order to protect computer-based inventions under patent, the application must have a valid invention to begin with. By mean that, the invention must satisfy all the criteria stated in Patent Act.¹⁷⁸ In general, product applications where software is integrated with a device meet this condition. As it mentioned above with State Street decision, obtaining patent protection for business methods, became possible. With Bilski, Supreme Court rendered to refrain the usage of “machine-or-transformation” test. This test has been used for over couple of decades by Courts to decide whether the invention was eligible for patent protection or not.¹⁷⁹

The claimed invention aims to protect traders in the energy market from price inconstancies. The application of the invention enables hedging risk in any commodities transaction and presents the hedging risk in a form of a mathematical formula.¹⁸⁰

The Supreme Court has acknowledged specific categories that are not suitable for patent application. Abstract ideas, laws of nature and natural phenomena are examples of items in the list. The list has been called fundamental principles unitedly thereafter the decision. The reason behind the Court's decision is to promote the usage of these in future inventions. This is understood from the expression stated in the decision; “because they are the basic tools of scientific and technological work”. In other words,

¹⁷⁶ *Patent Subject Matter Eligibility [R-10.2019]*, n.d., accessed January 2, 2021, <https://www.uspto.gov/web/offices/pac/mpep/s2106.html>.

¹⁷⁷ Craig Allen Nard, *The Law of Patents* (New York: Aspen Publishers, 2008), p. 140.

¹⁷⁸ “U.S.C. Title 35 - PATENTS.”

¹⁷⁹ “Bilski v. Kappos - Brief,” last modified October 21, 2014, accessed January 21, 2021, <https://www.justice.gov/osg/brief/bilski-v-kappos-brief-merits>.

¹⁸⁰ William J Simmons, “Bilski v. Kappos: The US Supreme Court Broadens Patent Subject-Matter Eligibility,” *Nature Biotechnology* 28, no. 8 (August 2010): p. 801.

if the fundamental principles would be eligible for patent protection this would affect the progress of technology.¹⁸¹

It is emphasized by the Supreme court that, the machine-or-transformation test is not the only test which must be used in the examination of a patent application. Additionally, the decision stated one more time that abstract ideas are not suitable for patent protection. Though the Supreme Court stated that they are open for new suggestions of the Federal Circuit in the use of evaluation of patents, also it is asserted that those suggestions must be compatible with the Supreme Court precedent.¹⁸²



¹⁸¹ Matthew Moore, “In Re Bilski and the ‘Machine-Or- Transformation’ Test: Receding Boundaries for Patent-Eligible Subject Matter,” *Duke Law & Technology Review*, no. 005 (2010): p. 2.

¹⁸² “WIPO Magazine - In the Courts – After Bilski,” last modified December 2010, accessed February 7, 2021, https://www.wipo.int/wipo_magazine/en/2010/06/article_0009.html.

CONCLUSION

Nowadays, intellectual property rights are a controversial topic such as almost every part of law related to technology. The very existence of them is getting questioned with the claims of they are hindering the progress of humanity. Protection of computer programs and/or computer-implemented inventions is getting a fair share from this debate. As stated in the thesis computer programs have been got benefitted from copyrights in the first place. Then with the early 1990s, copyright protection seems less appealing since courts began to realize that software is more than what is written. Courts recognize that the idea behind computer programs is the crucial part of the invention. With this, the patent protection area for computer-implemented inventions has been started.

It is claimed by tech companies that patents are an incentive reason to the inventors. According to their opinion, if an inventor could not benefit from his/her invention satisfactorily their motivation to invent would be impeded. Besides, considering that research and development processes are often costly in terms of time and money, their results should be protected in order to redeem those costs. It is defended that inventor must have the right to exploit her or his invention, consequently, they would be encouraged to invent. Consequently, society would benefit from the development.¹⁸³

Clearly this is a highly debated subject matter. But in order to see what is good for all humanity, we should put all these controversies aside. We should find the answer of what is the best for humanity and for the science. When it is looked from one perspective it can be clearly seen that in this particular field, patents only served to powerful companies. With this power, they make sure that only they move forward but no one else. Following extensive lobbying efforts in order not to lose their

¹⁸³ Bouchoux, p.335

advantageous position, regulations are very rarely changed. These giant multinational companies created a perfect monopoly where no one can fight against them.

It certainly appears that on both sides of the Atlantic, the patentability of software is debated and heavily regulated this particular area. Thus, the patentability of CIIs is not a brand-new topic to both sides. However, the most important question is: “how”. How will they protect the CIIs? In today’s world the question is not whether the CIIs are patentable or not, the question is how it will be protected. Both US and EU had approached the subject matter differently. While the EPO has thought a new criterion named as “technical character” and has been trying to find an effect on physical world, US focused on the novelty feature. In short, the differences have been emerged and intensifies day by day.

Even though EPO brought up a new feature, they have avoided giving a definition. This feature which must be met by the applicators, caused numerous debates. The debates on whether EPO should give a definition of this feature or not are still continuing. One side of the debate argues that defining the term would help the inventors to comprehend the EPO’s practice. Nevertheless, it seems like that EPO will not state a definition of this term.¹⁸⁴

Turkish law, as the governing law of the author of this thesis, has its own share on the debated subject matter. Turkey become a member state of the European Patent Convention on 1 November 2000.¹⁸⁵ Furthermore Turkey's application of becoming a member state of the European Union still an ongoing process. As a result, Turkey's current legal situation is affected by EU regulations.

In Turkish law, the protection of intellectual property rights regulated in two different codes titled: Law No. 5846 on Intellectual and Artistic Works and Law No. 6769 on Industrial Property. While copyright protection is stated in the first regulation, patent protection is regulated in the second code. Due to, their written nature, computer programs are listed as one of the artistic works which will be protected under copyright

¹⁸⁴ Yannis Skulikaris, “Patenting Software-Related Inventions According to the European Patent Convention” (n.d.): p. 8.

¹⁸⁵ You may find the member states on: <https://www.epo.org/about-us/foundation/member-states.html> (last accessed on June 28, 2021)

in Law. No. 5846. Though in Article 2/4 the door has been left open for patent protection. The most recent law, which is Law No. 6769, has regulations on patent protection of computer programs.¹⁸⁶

Article 82 of Law numbered 6769, titled; "Patentable inventions and exceptions to patentability" and in subsection 2, "computer programs" are listed as one of excluded subject matter, similar to EPC. However, in the first subsection of the same article, it is stated that; "*A patent shall be granted to the inventions in all fields of technology providing that the invention is new, involves an inventive step and is susceptible to industry.*"¹⁸⁷ According to the listed conditions, if an invention fulfilled the novelty, inventive step and industrial applicability criteria then it can benefit from the patent protection. In this respect, it will be possible to benefit from patent protection if a computer program has never been publicly disclosed and published, and there is no prior technical knowledge of the invention. In the second paragraph of the same article, it was regulated that, products which do not have a technical character, used for the compilation, arrangement, presentation or transmission of information shall not be considered as inventions. In this article it can be understood that the "technical character" condition which used by EPO also adopted.¹⁸⁸

In brief, in this thesis, the debate between patent and copyright protection for computer programs and/or computer programs has been laid out. Until today the debate has not concluded yet and it can be said that there are supporters for both sides. In this field first, the technology develops then the law tries to adopt the technology with regulations. Lawmakers still on this issue, therefore the debate looks like it would never end. However, the progression of humanity should be put in first.

¹⁸⁶ Şuayip İçli, "Fikri Mülkiyet Hukukunda Bilgisayar Programlarının Korunması" (Master Thesis, İstanbul Maltepe University, 2019), p. 33

¹⁸⁷ Unofficial translation of the Law numbered 6769 can be found: <https://www.turkpatent.gov.tr/TURKPATENT/resources/temp/4D59A7D3-A564-40A1-9C96-DB1E3D157E90.pdf;jsessionid=79B287EBD127D8489F32AC7E6B0041B5> (last accessed on June 28, 2021)

¹⁸⁸ Cahit Suluk, Rauf Karasu, Temel Nal, *Fikri Mülkiyet Hukuku*, (Ankara: Seçkin Publishing, 2017, p.239.)

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