

The “(EU) Unitary Patent Package”: (Dis)Harmonizing Computer-Implemented Inventions Patents in Europe?

Rosa Maria Ballardini *

Abstract

The “Unitary Patent Package” recently signed within the framework of the European Union aims at enabling better and more efficient management of patent rights in the European area, through the eradication of simultaneous local patent disputes and divergent legal opinions. Indeed, the premise of the new system is admirable. It sets out to achieve a reduction in pre-grant patenting costs, post-grant litigation costs and overall harmonisation of the European patent system, this way reducing complexity, gaining easier access to a single market and reducing costs. This paper shows, however, that reality determines that the potential benefits of the reform is more of an aspirational exercise, as the substance of the new law seems to add more complexity, less transparency, and increased fragmentation to the overall system. Problems might be especially exacerbated in areas like computer programs, where the already highly complexity of the rules might lead to an even further degree of dis-harmonization of the law.

* Assistant Professor of Intellectual Property Law at HANKEN School of Economics (Helsinki, Finland). The author would like to thank all the attendees at the “2013 International Conference on Legal Assistance Studies - *Whither Harmonization of IP Law*”, Nagoya (Japan), where this paper was initially presented, especially Prof. Masabumi Suzuki, Prof. Yoshiyuki Tamura, Prof. Nari Lee, and Prof. Marcus Norrgård for their valuable and constructive comments.

First, this paper analyses the problems associated with applying European patent law to computer-implemented inventions (CII) within the framework of the currently in-force rules. The EPO concepts and lines of interpretation of the “technical” criterion are especially emphasised. Second, the CII-patents’ challenge is then contextualized within the framework of the EU unitary patent regime in order to answer the specific question of whether the new system might (or might not) provide an efficient tool for reaching a more uniform interpretation of the technical requirement, this way solving this almost-a-quarter-of-a-century lasting dilemma.

Introduction

The current European patent system is based on a two-level system: domestic level (i.e., patents granted by national patent offices) and European Patent Office (EPO) “bundle patents” (i.e., patents granted by the EPO in the context of the European Patent Convention (EPC)). Bundle patents are only applicable in the EPO countries designated by the patent holder. Furthermore, patent enforcement is sought at national level both for domestic and for bundle patents. It is claimed that this system, especially the system of bundle patents, puts the European Union (EU) in a disadvantaged position with respect to its competitors. In order for bundle patents to enter into the national systems, in fact, it requires the translation of the specification into the local language of each country designated. Furthermore, due to the absence of a centralized enforcement instrument, in case of alleged patent infringement, several pleadings might occur at local levels simultaneously, leading to possible different interpretations of the same patent right and, consequently, to legal uncertainty. Problems of conflicting interpretations and legal uncertainty have been especially exacerbated in certain highly complex technological areas where the un-uniformity of the patent system adds to the already challenging task of having to stretch the boundaries of patent law to accommodate such challenging and controversial subject matters into its realm.

To solve the problems associated with harmonization of European patent laws, the EU has recently passed the so-called “(EU) patent package”, the main component of which being the creation of a new unitary patent right¹⁾ (EU patent) and a unified patent court (UPC)²⁾. The “patent package” aims at enabling better and more efficient management of patent rights, through the eradication of simultaneous local patent disputes and divergent legal opinions. This way, the reform should reduce complexity, gain easier access to a single market and reduce costs. The “EU unitary patent package” is currently not yet in force, though, because the UPC Agreement will enter into force only after at least thirteen countries have ratified it. At the time of writing, only Austria, Malta, and France have ratified the Agreement.³⁾

On these bases, this paper primarily analyses issues on computer-implemented inventions [hereinafter CII] patent protection within the framework of the currently in-force rules (i.e. EPO- and national- based legislations and case law). Specifically, this article assesses the problems involved in applying European patent law to computer programs. Its perspective arises from the specific features of computer programs, their structure, and way of functioning. Special emphasis is posed on the “technical” requirement involved in evaluating and granting patents for CII in the European tradition. This analysis sheds light over the problems, as well as the major reasons of inconsistencies in the interpretative approaches, existing in applying patent law to CII under current rules. The CII-patents’ challenge is then contextualized within the framework of the EU unitary patent regime in order to answer the question whether the new system might (or might not) provide an efficient tool

1) See Regulation (EU) No 1257/2012 of the European Parliament and the Council of 17 December 2012 implementing enhanced cooperation in the area of the creation of unitary patent protection, and Council Regulation (EU) No 1260/2012 of 17 December 2012 implementing enhanced cooperation in the area of the creation of unitary patent protection with regard to the applicable translation arrangements.

2) Agreement on the Unified Patent Court, Document No. 1635/12 (11 January 2013). Differently than from the regulations, this is an international agreement that needs to be ratified by each Member State in order to become law.

3) See “Unitary Patent – Ratification Progress”, at: http://ec.europa.eu/internal_market/indprop/patent/ratification/index_en.htm (Accessed 01/05/2014).

to solve this almost-a-quarter-of-a-century lasting dilemma.

Patenting Computer Programs in Europe

Computer-Implemented Inventions: Definition

European legislation and jurisprudence refers to patents on computer-related inventions as “computer-implemented inventions”. Expressions like “software patents” are, in fact, considered inaccurate and inappropriate to describe the issue according to European patent law traditions, as it is thought that such kind of terminology might mislead to the assumption that source or object code are patentable. The EPO Guidelines for Examination defines a “computer-implemented invention” as:

“An expression intended to cover claims which involve computers, computer networks, or other programmable apparatus whereby *prima facie* one or more of the features of the claimed invention are realised by means of a program or programs”⁴⁾.

Simple examples of CII include, for instance, a program-controlled washing machine cycle, or a program-controlled car braking system. On the other hand, instead, a computer program for selling and booking sailing cruise packages or for calculating a pension contribution do not qualify as CII for patent purposes.⁵⁾

Patentability Requirements

In Europe, patent eligibility is governed by Articles 52, 56, 83, and 84 of the European Patent Convention, which list the following patentability requirements: invention, novelty, inventive step, industrial applicability, and

4) See Guidelines for Examination in the European Patent Office (2013), Part G, Chapter II, 3.6: “Programs for computers”.

5) *Ibid.*

sufficient disclosure.

For the purpose of the present paper only the requirements of “invention” and of “inventive step” will be analysed. As will be explained, in fact, the main problem with interpreting patent rules for CII lies in the application of the “technical” criterion, dilemma that is precisely associated to the interpretation of both “invention” and “inventiveness”.

Invention

According to the EPC, the existence of an invention serves as the first criterion for patentability and as a precondition for the other patentability requirements. However, the Convention does not provide with any positive definition of “invention”. On the contrary, the EPC provides with a negative approach by listing in Article 52(2)(3) what is *not* regarded as an invention. Specifically:

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

[…….]

c. Schemes, rules and methods for performing mental acts, playing games and doing business, and programs for computers.

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

The question on how the “as such” limitation applies to computer-implemented inventions has been the subject of perennial debate and development of case law within the framework of both the EPO and the signatory Member States of the EPC. The overall purpose of this exhausting exercise has been to develop a manageable test in order to identify under which circumstances the claimed subject-matter, considered as a whole, possesses

“technical character”. The dilemma revolved around the application of the technical requirement to CII will be investigated in details later in this paper.

Inventive Step- Some Remarks

According to articles 52 EPC an essential requirement for an invention to be patentable is for it to be “inventive”. Article 56 EPC specifically deals with the requirement of inventive step generally defining the concept as follows:

“An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art. [...]”.

The Convention does not define in details what shall constitute an inventive step, but rather leaves plenty of room for case law interpretation. Precisely, the key question that needs to be addressed in relation to any claim defining the invention is whether “before the filing or priority date, having regard to the state of the art, it *would* have been obvious to the person skilled in the art to arrive at something falling within the terms of the claim”.⁶⁾ If so, the claim is not allowable for lack of inventive step.

It is important to stress that the invention is not obvious merely because the person skilled in the art *could* have found the same solution, but only if he/she *would* have found it.⁷⁾

At the EPO the inventive step is assessed following the so called “problem-solution approach” (P-S approach), according to which an invention must be disclosed in terms of a “technical” problem to a “technical” solution.⁸⁾ In order

6) Ballardini RM, Lönnqvist P, Virtanen P, Lee N, Norrgard M, Pitkanen O, “The One-Size Fits All European Patent System: Challenges in the Software Context”, (2013) in Lindroos K, *Governing Innovation and Expression*, pp. 327-351.

7) See Guidelines for Examination in the European Patent Office (2013), Part G, Chapter VII. See also T 2/83 (15 March 1984), OJ EPO 1984, 265.

8) For more details on the “problem-solution approach” see Guidelines for Examination (2013), Part G, Chapter VII-5. It should be noted that even if in principle there are also

to avoid *ex post facto* analysis, the problem should not contain pointers to the solution.⁹⁾ If a recognisable pointer in the state of the technical art is present, in fact, the invention is to be considered obvious, that is not involving an inventive step. The “state of the art” should be understood as the “state of technology”. In fact, only information relevant to a field of technology should be considered, while non-technological information, such as business or commerce, is not part of the state of the art.¹⁰⁾

For applications comprising both technical and non-technical features (mixed type inventions), as it is often the case with CII, the EPO has developed a slightly different version of the P-S approach in the Comvik decision.¹¹⁾ According to the Comvik approach it is legitimate to have a mix type of technical and non-technical features (such as schemes, rules and methods of playing games and doing business) in the claim; the non-technical features may even form a dominant part of the claimed subject matter.¹²⁾ However, this non-technical aim cannot contribute to the technical contribution. In other words, also under the Comvik approach in order to address the question of inventiveness, not only the technical and non-technical features must be clearly separated at first, but also inventiveness can be assessed only based on the technical features, while features that contribute only to the solution of a non-technical problem (e.g. business and administration) cannot support the presence of an inventive step.¹³⁾

other tests that could be applied, the EPO almost never follows them (see T 465/92 (14 October 1994) OJ EPO 1996, 32).

9) See T 422/93 (21 September 1995), at 3.6.1.

10) See T 172/03 (27 November 2004), at 8, and T 641/00 (26 September 2002) OJ EPO 2003, 352, at 2-3.

11) T 641/00 (26 September 2002), OJ EPO 2003, 352, at 7.

12) See T 641/00 (26 September 2002) OJ EPO 2003, 352, T 258/03 (21 April 2004) OJ EPO 2004, 352, and T 154/04 (15 November 2006) OJ EPO 2008, 46.

13) T 1284/04 (7 March 2007), at 3.1.

The “Technical” Requirement and CII

In Europe patentable inventions must be “technical” in nature. The requirement of “technicality” is not defined nor mentioned in the EPC, but it is rather a concept that has derived from the interpretation of European patent law rules.¹⁴⁾

There is no precise fix definition of “technical”, but the term is rather an evolving concept that changes and develops according to the technological and economic progress. This notwithstanding, European patent law clearly associates the requirement of “technicality” with concepts like “technology related”, “tangibility”, “concreteness”, and “physicality”.

The technical requirement is very much inculcated into European patent law tradition and applies indiscriminately to all fields of technology accordingly. Indeed, excluding “non-technical” objects from European patent law is a policy decision: patent law traditionally does not protect abstract ideas or principles, but rather practical, tangible implementations that might derive from such ideas or principles. In fact, it is believed that granting patent monopolies on abstract concepts could lead to several unwanted effects, such as: 1) to claim technologies often not yet known by the inventor at the time of the application with the potential consequence that patents might be issued very broadly and inventors be rewarded for things they did not invent; 2) abstractness would make it hard for the examiners to judge over the sufficiency of disclosure of the inventions and, thus, to decide whether enough information has been provided to properly support the applications; 3) such a configuration would make it difficult for patent officers to draw the boundary between allegedly new and inventive inventions and prior art because the abstractness of the software

14) The concept of “technical character”, which originates from German tradition, was officially adopted under European patent law in 1984 with the issuing of the EPO Guidelines for Examinations. See Ballardini RM, “The Software Patent Thicket: A Matter of Disclosure”, (2009) 6 *SCRIPTed* 2, pp. 207.

patent claims leads to issue patents that do not possess clear boundaries and, thus, gives rise to high risks of infringement and opportunistic litigation.¹⁵⁾ Overall, this might stifle rather than promote innovation.

As previously mentioned, the technical requirement is a fundamental parameter for assessing both the presence of an “invention” and the “inventiveness” of such invention. Accordingly, the technical requirement has a dual dimension, namely the “technical character” dimension, in relation to the invention requirement (i.e. to be an invention, it needs to have a technical character), and the “technical contribution” dimension with reference to the inventiveness requirement (i.e., to be inventive an invention needs to provide a technical contribution to the state of the art). During the years the most discussed requirement in the context of CII patents at the EPO has been the “invention” with specific reference to the “as such” exclusion from Art. 52 EPC. Indeed, recent interpretations sought a shift in the focus of the discussion with the inventive step requirement acquiring increasing importance. Generally, however, the application of the technical requirement to CII has proven to be highly challenging and has led to several problems when trying to stretch European patent law rules to fit into such a complex and “different” type of technology as it is computer science.

Applying “Technical” to CII

The description and identification of the technical nature and effect of computer programs does not seem to present much trouble in theory. For example, technical elements might be found in the apparatus or system (that is, the computer containing the novel software), the process which the program performs, or even in the storage medium or signal carrying the program.

This identification however becomes less trivial in practice, mainly due to

15) See Ballardini (2009), note 14 above.

the intangibility of computer software, especially given its dual nature of being simultaneously “writing” and possessing “behaviour”.¹⁶⁾ The problem stands out immediately once we compare traditional inventions, which are closer to those for which the patent system was initially designed, with CII. A traditional invention usually has physical implementations with concrete, tangible components and with a functionality that is often easily understood even by someone not skilled in the art. In contrast a CII rarely possesses any geometrical representation, since its components have no physical implementation, and its result is intangible. It is this far harder to evaluate the concrete and “technical” applicability of a CII, and more interpretation is required in order to assess its patentability.

As explained in the next session, precisely these difficulties are at the basis of the long-lasting debate over the interpretation of the patentability requirements (invention and inventive step) to CII at the EPO.

Interpreting European Patent Law for CII

Invention and “as such” exclusions

EPO Boards of Appeal Interpretations

In the context of CII the most discussed requirement has traditionally been “invention” with specific reference to the “as such” exclusions of methods of doing business and programs for computers from the category of “inventions” (and thus from the category of patentable subject matters).¹⁷⁾ As previously mentioned, the interpretation of the term “invention” has been interpreted in practice in correlation with the “technical” requirement. Accordingly, computer programs (and all the other excluded categories) have been considered as “non-technical” and, as such, not patentable.

The debate over the eligibility of computer programs for patents began before

16) Samuelson P, Davis R, Kapur M, and Reichman J H, “A Manifesto Concerning the Legal Protection of Computer Programs”, (1994) 94 *Columbia Law Review*, pp. 2308.

17) See EPC, Article 52(2)(3).

the EPC was signed in 1973¹⁸⁾ and continued afterwards, as there was no unified approach for assessing the patent eligibility of programs.¹⁹⁾ However, the interpretation of the phrases “as such” and “technical” has evolved over the years. Indeed, the exclusion of computer programs under Article 52 EPC does not mean that such patents are rarely applied for or granted. On the contrary, recent statistics show that digital communications and computer technology were among the fields with the most applications as of 2013.²⁰⁾

The EPO Technical Boards of Appeal (BoA) have had several opportunities to clarify how a computer program “as such” should be characterised.²¹⁾ Over the past twenty years the Boards have issued a series of important decisions aimed at defining the approach to be followed. However, the precise definition of “technical character” has remained elusive and the criterion of technicality has often led to arbitrary and contradictory decisions.²²⁾

The basis of the EPO perspective on patents for CII is the *Vicom* decision of 1986.²³⁾ This decision stated that even if a process is based on an algorithm (and thus made of non-patentable elements), it can be considered both an invention and patentable as long as “a technical contribution is made to the known arts” (in the “technical contribution” approach²⁴⁾). However, the legitimacy of the “technical contribution” approach seemed somehow lacking, because under this approach the examiner should find whether there is an inventive step in order to ascertain the existence of an invention, while under the EPC rules access to

18) Meshbesh T, “The Role of History in Comparative Patent Law”, (1996) 78 *J. Pat. & Trademark Off. Soc’y*, pp. 594. See also Cohen D, “Comment Article 69 and European Patent Integration”, (1998) 92 *Nw. U. L. Rev.*, pp. 1092-1112.

19) Kikuchi M, “Patent eligibility and patentability of computer software patents in the United States, Europe and Japan”, (2009) 16 *CASRIP Newsletter* 3.

20) See European Patent Applications filed with the EPO (2013), available from: <http://www.epo.org/about-us/annual-reports-statistics/statistics/patent-applications.html> (Accessed 01/05/2014).

21) Guadamuz A, “The Software Patent Debate”, (2006) 1 *Journal of Intellectual Property Law & Practice* 3, pp. 196-206.

22) *Ibid.*

23) T 0208/84 Computer Related Invention/*Vicom* [1987] OJEP0 14.

24) The “technical contribution” approach was further developed also in other cases, like the T 0026/86 X-Ray Apparatus/*Koch and Sterzel* [1987] 585, and the T769/92 General Purpose Management System/*SHOEI* [31.05.1994] OJEP0.

patentability requires first an invention and, only then, need novelty, inventive step and industrial applicability must be checked. Furthermore, vagueness remained as to the type of invention considered as making the right technical contribution to fall within the scope of patentable subject matter.

On these bases, during the nineties, the approach to be applied to CII patents was further developed. Milestone decisions include, especially, two cases involving IBM that determined that programs are eligible for patent protection if they are “technical in nature”.²⁵⁾ Specifically, the IBM rulings found that even though the mere interaction between a program and a machine did not render it technical, this requirement was fulfilled “in the *further* effect deriving from the execution (by the hardware) of the instructions given by the computer program. Where said *further* effects have a technical character [...] an invention [...] can be [...] the subject-matter of a patent” (under the “further technical effect” approach²⁶⁾).

The trend that narrowed the meaning of the term “as such” continued under the “any hardware” approach. This approach was originally developed in Pension Benefit, a case that addressed the question of business methods patentability²⁷⁾ and was further elaborated (in an allegedly contradicting manner) in two computer program-related cases, Hitachi²⁸⁾ and Microsoft²⁹⁾. Indeed, the main contribution of the “any hardware” approach lies in the BoA affirming that any software embedded in hardware (however mundane) possesses “technical character”, while the focus should be on whether the supposed invention is actually inventive with respect to the prior arts. Indeed, the “any hardware” approach radically limited the scope of Art. 52(2)’s

25) T1173/97 Computer Programs Product/IBM [1999] OJEP0 609; T 0935/97 Computer Program Product/IBM [1999] OJEP0 609.

26) See also further developments of this approach in T117/97 Translating natural languages/SYSTRAN [09.07.2002] and T1194/97 Picture retrieval system [15.03.2000].

27) T 0931/195 Controlling Pension Benefit System/PBS Partnership [2001] OJEP0 441.

28) T 0258/03 Auction Method/Hitachi [2004] OJEP0 575.

29) T 0424/03 Microsoft/Data transfer expanded clipboard formats [2006].

exclusions by shifting the emphasis to the actual technical contribution of the invention, this way removing almost all subject matter related to computer programs from the excluded categories.

Inconsistency

As explained, the EPO Technical Boards of Appeal have long sought to define the relevant criteria for the patentability of computer programs. To this end, the main focus has been on the question of whether there is an invention and, consequently, whether such an invention is technical in nature. However, the difficulty in pinpointing such a criterion in the software sector has caused the BoA to embrace various and inconsistent approaches, leading to a general lack of legal coherency in the field. Especially, such inconsistency has been highlighted in the application of the “any hardware” approach.

As mentioned, the “any hardware” approach was developed in the Pension Benefit case. The claims were to both a method of controlling a pension benefit system and to an apparatus for performing the method (i.e., a computer suitably programmed). With reference to the method claim, the Board found no technical effect: “where a claim is to a method which consists of an excluded category, it is excluded by Article 52(2) even if hardware is used to carry out the method”. Thus the method claim was caught by Art. 52(2).³⁰⁾

The apparatus claim was then analysed and it was held that “a computer programmed to carry out an unpatentable method did not fall under Art. 52(2)”. The fact that a “concrete”, “physical” thing was involved was enough to place it out of the reach of excluded subject matter. However, the apparatus was considered lacking inventiveness as the method (unpatentable) carried out was obvious to the skilled men: same result, different reasoning.³¹⁾

30) See Cook W, and Lees G, “Test clarified for UK software and business method patents: but what about the EPO?”, (2007) *EIPR* [Comments], pp. 115-118.

31) Salomon V, “Patenting Computer Software and Business Methods in the UK”, (2007) *12 Communications Law* 1.

The “any hardware” approach was further developed in the Hitachi case³²⁾. The claim concerned an automatic auction method executed in a server computer, and the apparatus for carrying that method out. The Board first examined the apparatus claim and, following the same reasoning as in Pension Benefits, stated that the computer programmed to conduct a business method (i.e. an unpatentable method) was not excluded by Art. 52 since it included clearly technical features “such as a server computer, client computers and a network”. With respect to the method claim the Board, disagreeing with Pension Benefits, continued that it was an invention, patentable for the same reason that it implied technical features throughout the hardware.³³⁾ However, when assessing inventive step, the Board found that no non-obvious technical solution had been provided. Thus both apparatus and method claims were found to be invalid.³⁴⁾ Again: same result, but different reasoning.

Finally, the reasoning followed in a subsequent case, the Microsoft case, contradicts both Pension Benefit and Hitachi, producing an opposite contrasting outcome. Here the patent claim was directed to a computer-readable medium having computer-executable instructions (namely, a computer program) on it to cause the computer system to perform the claimed method. Following the example in Hitachi, the Board considered both method and apparatus claims patentable. However, when examining inventive step, the Board did not treat the unpatentable computer program “as such” as part of the prior art as in Pension Benefit and Hitachi. Instead, the invention was considered new and non-obvious on conventional grounds (although no reasoning was given).³⁵⁾ The contradiction mainly lies in the Board here analyzing both method and apparatus claims, without excluding the contribution of the unpatentable subject matter. This reasoning clearly departs from that of Pension Benefit and Hitachi, where the excluded subject matter (residing in the method claim), although

32) See note 28 above.

33) *Ibid.*

34) See Cook, note 30 above.

35) *Ibid.*

eligible for “invention” purposes, was later blocked in the assessment of the inventive step.³⁶⁾

The National Perspective

Some remarks should also be made regarding the national decisions passed down by the courts of the EPO member states, especially with reference to the developing of non-uniform interpretations of the patent rules in the field of computer software.

The European national patent legislation is generally in line with international treaties such as the EPC. However, European patent law is still nowadays enforced nationally. Accordingly, discrepancies may arise from the different interpretations by the national courts. These existing divergences in the field of CII were highlighted in 2006 during the *Aerotel/Macrossan* case in Britain.³⁷⁾ The case involved the patentability of computer programs and business methods. The importance of the *Aerotel/Macrossan* case lies not much on the facts of the case itself, but rather on that this highly debated ruling has attracted worldwide attention to the Art. 52(2) EPC exclusions, particularly with respect to CII and business methods. In fact, the judgement pointed out at the inconsistency of the approaches followed by the EPO BoA regarding the patentability of computer programs and to the lack of well-defined rules in Europe regarding patentable subject matter, especially with respect to software.

Aerotel/Macrossan, a judgment of the Court of Appeal of England and Wales, relates to two different appeals from the Patents Court. The first (*Macrossan*) involved a patent rejected on the grounds of being both a method of doing business and a computer program “as such”. The second concerned a patent granted to *Aerotel* and its infringement action against *Telco* and others. In this

36) See Ballardini RM, “Software Patents in Europe. The Technical Requirement Dilemma”, (2008) 3 *Journal of Intellectual Property Law & Practice* 9, pp. 563-575.

37) Court of Appeal (England and Wales), *Aerotel Ltd vs. Telco* [2006] EWCA Civ 1371.

case the appeal was granted and the patent application considered more than a business method “as such”: it was a new “physical combination” of hardware and, thus, an invention.

Probably the most important contribution this decision made is that the presiding appellate judge, Lord Justice Jacob, having openly refused to follow the EPO approach in interpreting the exclusions of Art. 52 EPC, suggested a new “four-step” test (1. Properly construe the claim; 2. Identify the actual contribution in the light of the prior art; 3. Ask whether the actual contribution falls solely within the excluded subject matter; 4. Check whether the actual or alleged contribution is actually technical in nature) that retroactively catapulted the UK to the *Vicom* way of thinking (i.e. the “technical contribution” approach). In fact, not only was the *Aerotel/Macrossan* decision and the “four-step” test much more restrictive than in the rest of Europe, but also the *Aerotel/Macrossan* doctrine clearly departed from the modern way of thinking at the EPO, negating the “any hardware” approach and, in a way, ignoring all the developments and further steps taken by the EPO during the past decade.³⁸⁾

Indeed, the discrepancy between the UK approach and the approach followed at the EPO did not last for long and the UK perspective was re-framed into the context of the EPO line of thinking shortly after *Aerotel/Macrossan* following the rulings in *Astron Clinica*,³⁹⁾ *Autonomy*,⁴⁰⁾ and *Symbian*.⁴¹⁾ This notwithstanding, however, the UK case served the purpose of shading light on the general problems associated with the application of European patent rules to CII, with specific focus on the difficulty in applying the “technical” criterion to such objects and the following problem of developing consistent standards in interpreting patent rules.

38) For a detailed analyses of the consequence of the the *Aerotel/Macrossan* case please see Ballardini (2008), note 36 above.

39) *Astron Clinica Ltd and Others v Comptroller General* [2008] EWHC 85 (Pat).

40) *Autonomy Corporation Limited v Comptroller General* [2008] EWHC 85 (Pat).

41) *Symbian Ltd v Comtroller General* [2008] EWHC 518 (Pat).

Conclusion

Jurisprudence and case law have highlighted the difficulty in stretching patent rules to fit to computer program-related inventions in Europe. Indeed, the challenge lies primarily on the application of the technical criterion (a term that implies “concreteness”, “tangibility”, and “physicality”) to CII (objects that by definition are “non-concrete”, “intangible”, and “digital”). This problem has led to difficulties in interpreting the law and developing principles in a consistent and uniform manner. As a consequence, several different and, at times, conflicting approaches have been followed by the EPO and by the national courts of the EPO Member States. Indeed, in such a fragmented situation, harmonisation may be desired. Harmonisation would allegedly bring transparency and uniformity and, in so doing, it would provide European companies with more incentives to apply for and use their patents for inventions involving software, overall boosting innovation in the field. When discussing harmonization, however, it should not be forgotten that harmonizing processes of patent laws might be at the same time either excellent innovation-boosting tools or highly detrimental instruments, depending on the goals they eventually accomplish to reach. The following sessions deal with questions of harmonization within the framework of the European Union.

Aborted Harmonizing Attempts

Harmonization of patent laws, in general, might bring several advantages to the overall system. Indeed, harmonization is an important tool when it serves the purpose of developing simpler and easier to apply standards increasing certainty and uniformity of the legal system. Within the advantages of harmonizing patent rules are, for instance, the simplification of the process of obtaining a patent, reduction of the workload at the patent offices, increasing predictability, reduction of costs, and reduction of forum shopping.⁴²⁾ To reach

42) See Ullrich H, “Harmonizing Patent Law: The Untamable Union Patent” (2012). *HARMONISATION OF EUROPEAN IP LAW: FROM EUROPEAN RULES TO BELGIAN LAW AND PRACTICE*, Janssens M-Chr, Van Overwalle G, eds., Brussels

these advantages, however, harmonization should develop simplified, easier to apply, and less costly standards. Indeed, harmonization might carry with itself some possible disadvantages, like the development of too strong intellectual property rights (IPRs), the drastic reduction of the policy space of the governments, and the lack of diversities.⁴³⁾ A balance between positive and negative effects of the harmonization process is, therefore, something to be carefully considered.

In the context of European patent law several (though unsuccessful) attempts have been put forward in the past for harmonizing the rules in the specific field of CII patents. The first attempt dates back to 2002 to the EU Commission proposal for a Directive on the Patentability of Computer-Implemented Inventions⁴⁴⁾. The discussions on the directive were fierce full, with lobbies in favour of the proposed new law (mostly represented by large corporations wanting to strengthen patent protection for computer programs), on one side, and those fighting against such proposal (mostly small and medium software companies, as well as supporters of the free software movement, against affording any patent protection to software).

After several years of intense discussions and several amendments of the original proposal, the European Parliament rejected the Directive in 2005 by a large majority (648 to 14 votes). It was the first time that a Directive was rejected by the European Parliament on a second reading. Especially controversial were issues related to software interoperability and the definition of the phrase “technical effect”. Indeed, the most disputed aspect of the Directive (and the one that finally led to its rejection) was Article 5, which was claimed to open the door to the patentability of computer programs “as such”:

“Member States shall ensure that a computer-implemented invention may

(Bruylant) 2012. Contribution in honor of Frank Gotzen, pp. 243- 294.

43) *Ibid.*

44) Proposal for a Directive of the European Parliament and the Council on the Patentability of Computer-Implemented Inventions, COM(2002) 92.

be claimed as a product, that is as a programmed computer, a programmed computer network or other programmed apparatus, or as a process carried out by such a computer, computer network or apparatus through the execution of software”.

A second harmonizing attempt in the specific area of patents and CII was launched in the context of the EPO in 2008. According to Article 112(1)(b) of the EPC the president of the EPO can make a referral to the EPO Enlarged Board of Appeal in the case where two Boards of Appeal have taken inconsistent decisions on the same matter. On these bases, on 22 October 2008 the by then president of the EPO Alison Brimelow referred a point of law to the Enlarged Board seeking clarity regarding the applicable rules for CII patents⁴⁵⁾. In particular, the subjects of the referral were “Questions of fundamental importance as they related to the definition of the limits of patentability in the field of computing”⁴⁶⁾. Ms Brimelow pointed out several inconsistencies seeping out from some decisions of the EPO BoA, including especially the inconsistency in applying the “any hardware” approach (as previously mentioned). This notwithstanding, the Enlarged Board’s decision that was delivered on May 2010 failed to provide clear guidelines regarding patentable subject matters, in general, and CII patents in particular. The Enlarged Board, in fact, found all the questions posed to be wholly inadmissible on the grounds that there was no divergence from the EPO case law and concluded that the legal requirements for a referral were not met.⁴⁷⁾ The referral was dismissed, the questions remained un-answered, and the EPO did not take any position. No news is good news.

45) See G 3/08 “Referral under Article 112(1)(b) EPC” (23 October 2008). It should be noted that in the decision on Aerotel/Macrossan, Justice Jacob recommended a referral to the Enlarged Board based on the inconsistent approaches followed by the EPO Boards of Appeal with regard to CII patentability. However, on this occasion, the EPO President (at that time, Alain Pompidou) refused, noting that “at the moment there is insufficient legal basis for a referral under Article 112(1)(b)”.

46) *Ibid.*

47) See EPO Case Law of the Boards of Appeal, Headnote of opinion G 3/08 at: [http://documents.epo.org/projects/babylon/eponet.nsf/0/DC6171F182D8B65AC125772100426656/\\$File/G3_08_Opinion_12_05_2010_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/DC6171F182D8B65AC125772100426656/$File/G3_08_Opinion_12_05_2010_en.pdf) (Accessed 01/05/2014).

The “(EU) Unified Patent Package”: Towards Uniform, Pan-European Standards?

The Background

European Patent reform has been at the forefront of European IP policy for over a quarter of a century, with a series of unsuccessful initiatives from both the EPO and the EU⁴⁸). When talking about European patent reforms, the geographical scope of Europe is not clear, with the EPO on the one side and the EU on the other. In fact, although all EU countries are members of the EPO, not all the EPO countries are members of the EU. Therefore, when talking about European patent reforms, it is essential to separate the EPO and the EU, although their destinies are inextricably linked.

As previously mentioned, the current European patent system is based on a two-level system, domestic and EPO level. The claim has been that the lack of centralised enforcement, together with the fact that patents (especially bundle patents) are only applicable in the EPO countries designated by the patent holder and that their entering into force requires translation of the specification into the local language of each country designated puts the EU in a disadvantaged position with respect to its competitors. On these grounds, it has been suggested that easier access to the system is required in order for parties to realise the full potential of the common market.

In order to solve the problem and “[t]o remove the political and practical obstacles that remain preventing the single market from realizing its full

48) See Convention for the European patent for the common market (Community Patent Convention), [1976] OJ L 17/1; Second Community Patent Convention - Agreement relating to Community patents - Done at Luxembourg on 15 December 1989, [1989] OJ L 401/1; European and EU Patents Court Agreement (EEUPC), Opinion 1/09 of the Court (Full Court), [2011] ECJ I-00000; European Patent Litigation Agreement (EPLA) available at http://web.archive.org/web/20070929140614/http://www.european-patent-office.org/epo/epla/pdf/agreement_draft.pdf. (Accessed 01/05/2014)

potential”⁴⁹⁾ the EU have recently passed the so-called “(EU) unitary patent package” aiming at introducing a new unitary patent right (EU patent or unitary patent) and a unified patent court (UPC).⁵⁰⁾ The “patent package” aims at enabling better and efficient management of patent rights, through the eradication of simultaneous local patent disputes and divergent legal opinions. The reform also increases coordination between the EU and the EPO by establishing “[a] close cooperation through a working agreement (···) [including] regular exchanges (···) on the functioning of the working agreement and, in particular, on the issue of renewal fees and their impact on the budget of the [EPO]”.⁵¹⁾

Indeed, the premise of the new system is admirable. It sets out to achieve a reduction in pre-grant patenting costs, post-grant litigation costs, and overall harmonisation of the European patent system. As previously mentioned, in fact, in order to overcome the concerns of the patent system and help stimulate innovation a reformed patent system must be “simple, rapid, legally certain, accessible and not involve excessive expenditure”.⁵²⁾ Improvements in the process of granting patents, legal certainty, and geographical scope are all seen as essential criteria for the effective protection of innovation in the EU. However, reality determines that the potential benefits of the reform is more of an aspirational exercise, as the substance of the new law seems to add more complexity, less transparency, and increased fragmentation to the overall system. Problems might be especially exacerbated in areas like computer programs, where the already highly complexity of the rules might lead to an even further degree of dis-harmonization of the law.

49) EU Commission, “Promoting innovation through patents - Green Paper on the Community patent and the patent system in Europe” COM(97) 314 final, 8. (Green Paper).

50) See note 1 and 2 above.

51) See Reg. No 1257/2012, Art 4.

52) EU Commission, Green Paper, note 49 above.

European Patent Reform and CII

As mentioned, the “patent package” will include two elements: the EU patent and the UPC. Allegedly, it can be claimed that both these elements might have the potential to hamper effective harmonization of European patent law, in general, and in some technologies like computer software, especially.

On the one hand, it can be argued that the EU patent might carry several problems of substantive fragmentation. The new unitary patent, in fact, creates several overlapping levels of protection, because, according to the principle of optionality both the current and the new system will continue to coexist alongside each others. As a consequence, in the future all the following patent rights will be a possibility: (1) national patent rights granted nationally by domestic patent offices; (2) national patents granted by the EPO (“bundle patents”) within the system of the UPC Agreement⁵³⁾; (3) national patents granted by the EPO, but without subjection to the UPC Agreement (due to transitional opt-out,⁵⁴⁾ non-ratification by Member States, or for non-EU States); (4) European patents with unitary effect (“unitary patents”).⁵⁵⁾

On the other hand, even if the creating of a unified patent court (UPC) with jurisdiction for all patent matters (i.e. bundle patents, as well as unitary patents) over the participating Member States might provide a good (extra) tool for the purpose of standardization of the rules, it might lead to a higher fragmentation of jurisprudence and, as such, to even more interpretative lines than under the current system. This is due to the Agreement simply adding an additional enforcement layer alongside the pre-existing one, without any method of consolidation. According to the “patent package” system, in fact, the decisions

53) In order to enter into force, in fact, it is enough that only thirteen (13) Member States (including the UK, Germany, and France) ratify the Agreement.

54) See UPC Agreement, (n. 19), art 83(1).

55) See Hilty R M, Jaeger T, Lamping M, and Ullrich H, “The Unitary Patent Package: Twelve Reasons for Concern”, (2012) *Max Plank Institute for Intellectual Property and Competition*.

might be handed down by: (1) the UPC in respect of infringements and validity of bundle patents and unitary patents for those Member States which have ratified the UPC Agreement; (2) the national courts of EU Member States not ratifying the UPC Agreement, or not participating in enhanced cooperation, and those of all non-EU EPO Contracting States regarding infringements and validity of national and bundle patents; (3) the EPO Boards of Appeal in administrative appeals for European patents; (4) national courts or administrative bodies in proceedings regarding nationally granted patents; (5) the ECJ in respect of preliminary references from the UPC regarding infringements of unitary patents.⁵⁶⁾ Upon these premises, it is seriously doubtful how such a system might achieve its major goal of optimising innovation in Europe through harmonization of the patent rules.

As previously mentioned, even though all areas of patent law experience some level of uncertainty and dis-uniformity, the situation is dramatically exacerbated in some highly complex technological environments, like the computer software one. In this context, especially the interpretation of the technical requirement appears to pose serious problems. As previously shown, in fact, the interpretation of the technical criterion has historically played a central role in the application of patent rules to CII. At the same time, however, extensive case law has proved that the technical requirement fails to provide certainty and harmonization of interpretation in the field of CII patents. Indeed, the technical criterion is not (and should not be) subject to a fix definition, but it is rather an evolving concept developing in relation to the progress in technology and to the economic development. This notwithstanding, however, a balance needs to be reached and a sufficient level of certainty in the interpretation of the rules⁵⁷⁾ should be sought in order to avoid unwanted fragmentation, as well as distortion of the European market and impediment to economic growth. Unfortunately, there is strong reason to believe that the high

56) *Ibid.*

57) I.e., a balance between rules and standards. See, for e.g. Burk D, and Lemley M, “Policy Levers in Patent Law”, (Nov 2003) 89 *Virginia Law Review* 7.

complexity of the structure of the EU patent package, as well as the further layers of interpretations that it adds to the already very fragmented scenario, might further increase, rather than reduce, the uncertainties surrounding the application of the technical requirement in the field of CII.

On the contrary, the EU patent reform could lead to the promotion of certain activities that might not necessarily be welcomed. Among those, for instance, the expansion of the operation of patent assertion entities (PAEs) and other non-practicing entities (NPEs). The definition, as well as the types of business models, patent enforcements practices, and licensing models that are considered to constitute typical PAEs behaviour is multi-faced and vary greatly in public opinion.⁵⁸⁾ Broadly, however, PAEs (and NPEs) can be defined as companies that use patents primarily to obtain license fees rather than to support the development or transfer of technology.⁵⁹⁾ Allegedly, this behaviour clashes with what is usually perceived as other “more socially” accepted manners of monetizing patents. There has been considerable concern and media attention over PAEs (also known as “patent trolls”) in recent years, especially in the United States. Furthermore, even though PAEs activities are already present also in Europe, up until now they have been very much considered as an American phenomenon. Indeed, one of the major reasons (although not the only one reason) for PAEs’ reluctance in expanding the activity to Europe is the absence of a European patent right (i.e. no system for automatic patent protection for the whole EPO or EU region) and of a centralized enforcement system (i.e. fragmentation of patent enforcement and no pan-European injunctive relieves). Indeed, the EU patent package through the introduction of a one-stop shop patent protection for the whole EU area and a centralized post-

58) See Chien C, “Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the Litigation of High-Tech Patents”, (2009) 87 *North Carolina Law Review*, pp. 1571-1615 (2009). See also Larson K, “An Inside View of Non-Practicing Entities Business Models: A Case Study”, (2013) 6 *International Journal of Intellectual Property Management* 4.

59) See, for example, also Chien C, “From Arms Race to Marketplace: The New Complex Patent Ecosystem and Its Implications for the Patent System”, (2010) 62 *Hastings Law Journal*, pp. 297-355.

grant litigation channel provides appealing tools to PAEs for expanding the activities to the European region. This concern might especially be problematic in the field of software. Studies from the US, in fact, have also shown that PAEs operate especially in certain technological fields, like computer programs, taking advantage of the complexity and the high level of uncertainty surrounding the system.⁶⁰⁾ Indeed, the highly complex operating framework that the EU patent package introduces provides additional incentives for PAEs for further expanding to the European sphere in order to take advantage of the uncertainties the new system might create.

On these grounds, giving the strong doubts over the potential of reaching harmonization through the “EU patent package” instrument and the possible threats that such system might cause especially in the software field, it appears that the high expectations over the European patent reform might drastically fail in shading light over the long-lasting “software patents dilemma”.

Concluding Remarks

The patent reform has been hailed as a historic achievement in Europe. Notwithstanding the spin, the reforms are actually very complicated. It is doubtful how the reform might achieve its major goal of optimising innovation in Europe throughout harmonization of the patent rules. Dis-harmonizing concerns seem to be especially high in certain technological fields like computer programs, where the EU patent reform adds further complexity to an already highly complicated area.

Furthermore, it should also be highlighted that the problem with CII patents does not only lie on the harmonization side. Interpreting patent law in a uniform manner, even though important, does not suffice to solve the dilemma of how to stretch patent rules in order to fit them into the innovation pace of this special

60) Lemley M, Melamed A D, “Missing the Forest for the Trolls”, (2013) 113 *Columbia Law Review* 8.

type of technology. Both the special nature and the rapid development of software engineering have brought the patent system to its knees, allegedly distorting the general patent environment. As a consequence, any harmonization program, even if working, can solve the problem of CII and patents only partly. Therefore, even if the “(EU) unitary patent package” would be an efficient harmonizing instrument (which, as previously explained, does not seem to be) the system would face the same challenges that both the EPO and the European national jurisdictions have gone through for several years.

Upon this scenario, perhaps one could conclude that the only manner for companies operating in the software market to be able to efficiently operate is to build strategic actions outside the currently available patent system.⁶¹⁾ This is, however, a completely different discourse.

61) E.g. ignoring software-related patents, using different types of protection mechanisms like hybrid protection models.