

PATENTABILITY OF COMPUTER PROGRAMS

by

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With regard to continuous legal uncertainty in the field of software patenting in Europe it is appropriate to evaluate development and current situation of protecting software as a basic structural element and a structural tool of cyberspace. The question does not stand whether to adopt a unifying European regulation, but rather what should this regulation be like in the context of understanding software and patents, what should be its significance in further research and development of computer programs, and last but not least, what effect can it have on innovation of software industry.

Introduction [1]

In technical literature we can find a computer program being defined broadly as software – program or bundle of programs.¹ In terms of science a computer program is a written algorithm – instructions of data processing on a computer.²

In general, a computer program, as one of the most sophisticated creations of man, is a subject of copyright law. However, during the 60's first attempts to protect computer programs by patent occurred in the United states, and such tendencies have been transferred into present Europe.

Patent provides a more complex legal protection than copyright, since it does not only refer to outer displays (forms) of the subject matter, but rather protects the idea of the solution itself and provides its owner the monopoly.³ General regulations of software protection by patent in addition to inconsistent judiciary practice and practice of patent offices, which is

¹ Vlček, M. (1993)., *Softwarové právo pro každý den*. Praha: Grada, p.18.

² Gregušová, D. (1999)., *Počítačový program a právo*. Bratislava: SIB, p.13.

³ Vyparina, S. (1995)., *Vzťah priemyselných práv k autorským právam*. *Justičná revue*, n. 3-4, p. 38.

often contradictory to legislation, has established a state of legal uncertainty both overseas and in Europe during the last few decades.

A recent attempt to adopt a unifying European legal regulation, of which statutory text would correspond with patenting practices in the USA, has turned out as a failure. Therefore, it is appropriate to evaluate the development and current situation of protecting software. The question does not stand whether to adopt a unifying European regulation but rather what this regulation should be like in the context of understanding software and patents, what its significance in further research and the development of computer programs should be, and the last but not least, what effect it can have on innovation in software industry.

The Origin of Patent Protection of Computer Programs in the USA [2]

Historically, the biggest role regarding software patenting has been played by the USA. According to the Article 35 U.S.C. Section 101 whoever invents or discovers any new and useful process, machine or composition of some material may obtain a patent. Broad interpretation of this stipulation by the American justice administration in relation to a nonexistent exclusion of computer programs from patentability has substantially helped the process of enforcing patent protection of software.

The fate of “so called” software patents has been mainly in the hands of the American Supreme Court since 1972. Its role was then taken over by the specialized Court of Appeals for the Federal Circuit (CAFC) ten years later.⁴ Among the most substantial court decisions during the last 30 years there are verdicts such as *Gottschalk v. Benson*,⁵ *Diamond v. Diehr*,⁶ *In re Allapat*,⁷ *State Street Bank & Trust v. Signature Financial Group Inc.*⁸ and many others. The result of these numerous and very diverse precedents is unlimited patenting of software for the territory of the United States combined with copyright protection.

⁴ CAFC was formed by the merger of the United States Court of Customs and Patent Appeals and the appellate division of the United States Court of Claims in 1982.

⁵ *Gottschalk v. Benson* 409 U.S. 63 (1972).

⁶ *Diamond v. Diehr* 450 U.S. 175 (1981).

⁷ *In re Allapat*, 33 F.3d 1526 (Fed. Cir. 1994).

⁸ *State Street Bank & Trust v. Signature Financial Group Inc.*, 149 F.3d 1368 (Fed.Cir. 1998).

Similarly in Europe, the new discovered natural phenomena of nature, mental processes and abstract intellectual concepts are not patentable, since they are the basic tools of scientific and technological work. But in the U.S. it is possible to obtain a patent for any creation not being found anywhere in nature, and practically for any formula, which produces a useful, specific, and substantial result.⁹

European Patent Office [3]

The leading role concerning patenting computer programs in Europe has been played and is still being played by the European Patent Office (EPO). Under the regulation of the European Patent Convention (EPC) signed in 1973, the EPO grants European patents in order to unify the process of patenting in the European Community.

From the continental understanding of law the European road towards patenting computer programs differs from the American one. First of all, controversial patent applications at the all-European level are being ruled by the Boards of Appeal at EPO. In many countries the courts do not even examine administrative decisions considering technical state of things. Furthermore, the administrative or court decisions in Europe generally do not have the same formally binding nature, which for the precedents in the USA arises out of common law tradition. Another elementary difference rests in the cogent stipulations of EPC, which literally do not consider computer programs as inventions. It is important to mention here, that the USA was the leader during the starting era of creating first software. It was the USA, where the first patent applications were registered in effort to protect investments put into research and the development of computer programs, whereby they were sending clear signals towards the Old Continent, which strove to act obligingly in software patenting up to present day. After all, the United States is still the biggest supplier of software products and also retains most applicants of software patents.

Interestingly, despite all the divergences, proceedings of EPO at exercising relevant stipulations of European Patent Convention (EPC) is

⁹ While judging, whether a solution encompasses statutory subject matter, it is not important according to American judicial practice to focus on *one* of the four categories of subject matter (process, machine, manufacture, or composition of matter) but rather on the essential characteristics of the subject matter, in particular, its practical utility.

closer to proceedings of American courts and USPTO than to strict exclusion of patents on a computer program.

European Patent Convention [4]

According to stipulations of Article 52(1) EPC European patents shall be granted for any inventions which are susceptible of industrial application, which are new and involve an inventive step.

The Convention does not contain the definition of invention, according to the same Article Section 2 discoveries, scientific theories and mathematical methods, aesthetic creations, schemes, rules and methods for performing mental acts, playing games or doing business, presentations of information shall not be regarded as an invention. Section 2 letter c) cites that a computer program is also not an invention.

Such determination is to be necessarily viewed in accordance with Section 3, which liberalizes this rigorous stipulation, when it states that subject-matter or activities referred to in Section 2 shall be considered as such. This terminology, which was implemented by EPORG members into their national legislatures, has caused in Europe a state of schizophrenia concerning computer programs as regular inventions.

EPO has decided to resolve such a complicated issue, and adopted the argumentation, according to which subject matters stated in Article 52(2) EPC are not considered as inventions, since they do not have technical character. This philosophy has been transformed into stipulations 27(1) and 29(1) of EPO's own internal rules. But a clear definition of terms was missing again. In the sense of „technicality“ EPO reached many interesting verdicts within its decision making.

During proceedings of July 1986 the Board of Appeals of EPO ruled on a patent application of company VICOM¹⁰ and the reasoning of this decision laid the foundations of software patentability in Europe. Although, the essence of VICOM's application was about a mathematical method expressed in an algorithm, it was being perceived only as a part of a general technical solution with technical effect.

¹⁰ T 0208/84.

Relatively narrow concept of terms „as such“ and „technical“ was brought by a decision of 1987 relating to a litigant application, named X-ray apparatus (Röntgeneinrichtung), but it contained a claim on a computer program.¹¹ The Board of Appeal eventually allowed the claim because of its „new concrete technical effect“, by which the computer program took effect in the outer world.

However, in the sequel it took a lot more vague criteria than the criteria of „technical effect“ to obtain a European patent. In terms of a decision SOHEL, Yamamoto of 1994¹² the invention implemented by software is patentable if technical considerations solving the technical problems is needed for its realisation. Such „consideration“ according to EPO, videlicet „imparts“ a „technical character“ to the invention. In the maze of mentioned terms it is easier to get lost than to find a criteria of patentability for a computer program, which in this particular case was to transform data from one format into another.

In a short time the Board of Appeals has presented itself with the most known and broadest verdict concerning patenting of computer programs, when it was hearing an appeal on one of many applications of IBM in July 1998.¹³ According to this decision a computer program product is not excluded from patentability if it is run on a computer, it produces a further technical effect which goes beyond the "normal" physical interactions between program and computer. Such general and liberal statement of the reasons for granting a software patent has come into a sheer conflict with Article 52(2) of EPC citing nonpatentable subject matters.

Afterwards, in an appeal on an application of Pension Benefit Systems Partnership in September 2000¹⁴ EPO emphasized an implicit necessity of the technical character of invention to be present and in a decision COMVIK GSM AB¹⁵ two years later it confirmed, that an invention consisting of a mixture of technical and non-technical features and having technical character as a whole is to be assessed with respect to the requirement of inventive step.

¹¹ T 0026/86.

¹² T 0769/92.

¹³ T 1173/97.

¹⁴ T 0931/95.

¹⁵ T 0641/00.

The last determining decision on patenting inventions involving „technical means“ adopted so far by EPO is a verdict on an application of Hitachi, Ltd of April 2005.¹⁶

What is technical? [5]

It could be that in order to obtain a European patent on a computer program it is not necessary to know the answer to this question, since EPO has conceived patenting criteria as broadly as it could in the last few years, maybe too broad. According to various sources there have been granted 20 000 to 30 000 patents containing claims on software. Concerning these patents, „technical“ is the coordination and control of measured data, improving performance of a computer or its other modification. „Technical“ is also processing of physical data, while one of the unquestionable positive points is that, unlike in the USA, physical data is not monetary values, text and business data.¹⁷

CII Directive [6]

Following initiatives outside the premises of EPO,¹⁸ intensifying confusion about patenting computer programs and the last but not least in accordance with the determination of the EU to harmonize patenting process, in February 2002 the European Commission initiated a proposal of Directive on the patentability of computer-implemented inventions, later known as CII Directive. The members of the Commission probably did not anticipate that their initiative would stir up the most controversial and undoubtedly the most monitored European legislature process.¹⁹

The proposal was to reach the unification of granting patents on computer implemented inventions in Europe. A definition of „computer implemented invention“ appeared for the first time as a new state of the art category in terms of patent law in the year 2000 in a comparative study of the Trilateral

¹⁶ T 0258/03.

¹⁷ According to CAFC decision in *State Street Bank & Trust v. Signature Financial Group Inc.*, 149 F.3d 1368 (Fed.Cir. 1998) mentioned above money is in fact considered to be useful, concrete, and tangible result.

¹⁸ e.g. the all-European conference UNION, December 1997.

¹⁹ European Parliament (2005)., *Procedure file of COD/2002/0047*. Retrieved August 1, 2005, from <http://www2.europarl.eu.int/oeil/FindByProcnum.do?lang=2&procnum=COD020047>.

project B3b of USPTO, Japanese patent office and EPO, as an euphemism for „computer program“. The argument for a communitarian adaptation was based on increasing legal uncertainty lying primarily in the differences between decision making and legislature. The intention was not to codify patenting of computer programs as such, but rather to clarify distinctions between nonpatentable computer programs and patentable „technical“ inventions. Stricter definitions and limitation of software patentability set by EPO, was being accepted especially by smaller and middle software enterprises and organizations and foundations such as Euro Linux and FFII, which in effort to protect further development of open source software in particular, protested against any on-coming proposal on granting software related patents. In the end, the whole process has changed into quarrelling over terminology accompanied by a strong medial campaign.

Although the European Parliament, pursuant to its more rigorous approach, approved the proposal during the first reading in September 2003, there were still more than 250 proposed amendments showing that the questions of software patenting was a long run. In one of these amendments, the Parliament expressed a need to prevent patenting of interconnections of computer systems, in the other it went back to „technical effect“ of the invention as to a criterion of differentiating between EPO's abstract nonpatentable solutions and patentable physical inventions. According to some opinions, many of the amendments were counterproductive, since they made it possible to patent any solutions under definitions of „inventions controlling material systems“, „technical contribution“ or „intellectual property rights“.

A more vigorous reaction than Parliament's amendments was elicited by the decision of the Council of May 18, 2004 as the Council adopted the text of so called „Common position“²⁰ which to a great extent resembled the text of its original proposal. While the Parliament's criterion of „technical character“ remained, the Council did not take account of the most amendments proposed a year ago. Objections to this version of The proposal actually supported the activities of EPO and stated that under

²⁰ If the Council approves all amendments of the EP, or if the EP submits no amendments, the Council may adopt the regulation. If the Council does not fully agree with the legislative text approved by the EP, the Council closes the first reading by drafting text, known as „Common position“.

Article 27(1) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) the same principles for granting patents should be applied in all fields of technology as well as for computer-implemented inventions.

Despite the mutual consensus on nonpatentability of computer programs as such, the legislative procedure of adopting CII Directive has partially turned into a political struggle for power of particular EU authorities. In the course of these proceedings a fundamental question has arisen, mainly the question of power balance between the Council of Ministers and the European Parliament. Furthermore, massive lobby machinery has set in motion simultaneously. On one side there was a freer approach to software patenting, represented by the Council and economically powerful companies, the leaders on the software markets, such as IBM, Hewlett-Packard and Microsoft. On the other side, the position of the Parliament, which leaned towards the Directive were all the more intensive since the situation was brought back to the stage which in principle allowed unlimited patenting of computer programs. Complications continued, when the Polish government proclaimed in November 2004 that they would not vote for the proposal and a Dutch member of the Council was delivered a statement from his national parliament requesting to vote against the proposal. Regardless of further edgy development, the Council after all formally confirmed its perspective on May 7, 2005, even though reaching the qualified majority before taking the vote was regarded by some as impugnable.²¹

Thus, a controversial proposal was referred to the European Parliament for the second reading, which was to culminate on July 6, 2005. Even before rapporteur Michel Rocard, member of the European Parliament, former French Prime minister and the tough opponent of the software patents, suggested last 17 amendments,²² which were to replace the original amendments, known also as „Buzek-Rocard-Duff“ amendments.

First of all, Rocard offered a new definition of a computer program for

²¹ FFII (2004)., *Council 2004-05-18: an Unqualified Majority*. Retrieved August 1, 2005 from <http://swpat.ffii.org/letters/cons0406/repr/index.cs.html>.

²² The European Parliament, Committee on Legal Affairs (2005)., *Draft recommendation for second reading*. Retrieved August 1, 2005, from [http://www.europarl.eu.int/registre/commissions/juri/amendments/2005/360003/JURI_AM\(2005\)360003_EN.pdf](http://www.europarl.eu.int/registre/commissions/juri/amendments/2005/360003/JURI_AM(2005)360003_EN.pdf).

patenting purposes, according to which it is a „solution of a problem by calculation with the abstract entities of a generic data-processing machine, such as processor, memory, storage spaces and interfaces for information exchange with external systems and human users.“ One of the suggestions was to replace the concept of „computer implemented invention“ with „computer aided invention“, which should help to clear up a misconception that an invention as a whole can be executed on a computer, and to separate technical realization of an invention from the operation of a computer program. Rocard defined invention as „a contribution to the state of the art in a field of technology“, where the contribution is “the set of features by which the scope of the patent claim as a whole is considered to differ from the state of the art” and technical stands for “belonging to a field of technology.”

In order to obtain a patent the contribution mentioned above was not to reside solely in a computer program. Rocard also focused on defying „interoperability“ and granting that „inventions are patentable regardless of whether or not they use computerized means, and on the contrary no one may patent algorithms or software, whether or not they are combined with technical mechanisms.“

After presenting these ambitious amendments it came as a surprise when on June 21, 2005 the Committee on Legal Affairs proposed not to amend the draft of the Council’s “Common position“.

Just before the vote took place, Rocard himself asked the members of the Parliament to reject his own report. Such attitude was a result of a collective belief, that it was better not to approve any directive rather than a bad one.²³

On July 6, 2005 the European Parliament eventually took the vote on the proposal as a whole without considering proposed amendments. By a majority of 648 in favor of rejection out of 729 total members of the Parliament the proposal was rejected, and thus for the first time in history the Council’s proposal for a directive was rejected in the second reading. That was an infamous end for the Directive on the patentability of computer-implemented inventions.

²³ The European Parliament (2005)., *No directive on software patents*. Retrieved August 1, 2005, from <http://www.europarl.eu.int/sides/getDoc.do?pubRef=-//EP//TEXT+PRESS+DN-20050706-1+0+DOC+XML+V0//EN>.

During the closing discussion in the Parliament some theories were being heard, according to which the proposed Directive would restrict free market competition, and approving it would also be an attack on intellectual freedom and allowing patents on freely available computer programs would disable users to enjoy them and it would increase software development costs. Supposedly, it was the Commission and the Council to be blamed for failing especially in the field of professional evaluation of possible influence of their proposal on innovation and fair competition, contrary to independent research of the European Parliament and Deutsche Bank, which both qualified software patents to be a slow-down for further growth of IT sector.²⁴

After the vote was taken, but also during the second reading, the members of the Commission were indicating that they were not going to come up with a new proposal, and up to now they really have not. In such a case we could be facing a long period of increasing crisis in legal protection of software.

What is the lesson? [7]

Until the situation reaches the phase of adopting a unified regulation, it would be appropriate to make the best of acquired knowledge which has been piled up during the last three-year discussions, including long lasting experience with patenting software in the U.S.A.

It is beneficial, that every party concerned agrees on that the computer program as such is not patentable, since the contrary point would mean granting monopolies on abstract ideas written in algorithms which would have an immediate negative influence on the development of further innovations in the field of information technologies.

Software patents cause considerable problems for programmers of open source software. Open source programs have open source codes and are usually licensed free of charge to any person obtaining a copy of this program. This person is allowed to use the program, modify and distribute it or even to grant sublicenses. Authors of open source software provide the

²⁴ Deutsche Bank AG (2005)., *Current Issues – More growth for Germany*. Retrieved August 1, 2005, from http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD0000000000175949.pdf.

whole information world with a priceless service. The most widely known, but not the only open source product by far, is LINUX operating system. Amounts of money to be paid for patent licenses is unacceptable for open source community and many loose interest in creating open source programs in attempt to avoid inadequate license costs or even a direct threat of a law suit for infringing patent rights. Patent searches are also very demanding concerning the time and the expenses.

However, not even a patent search prevents from a patent being granted on a generally known solution in the category of computer programs. There are many complications with novelty of the applied inventions and related prior art. If prior art is found a patent can not be granted because of lack of novelty of the solution. The criterion of novelty applies to a world wide novelty and a patent can be granted only when the solution is not known to date.²⁵

Even though it is evident that there is an enormous quantity of prior art, it is technically impossible to find every reference to every known and already used software solution, as many of these references are being archived variously, often at the most bizarre places.

The period of patent protection, which lasts 20 years, goes against software patents as well, since due to a rapid progress in the software development an average active "life" of a computer program has come down to five years at most.

Conclusion [8]

Although within the legal protection of computer programs throughout the world copyright prevails, it can not be claimed to cover all aspects of legal relations, which exist in the area of computer programs and which keep springing up, changing and wearing off.

The effort of the U.S., Japan as well as Europe in the last few years to support copyright by means of granting patents on computer programs, adverts to many gaps through which the purpose of software protections itself leaks out partially. A computer program as an author craft is too

²⁵ Vojčík, P. Miščíková, R. (2004)., *Základy duševného vlastníctva*. Košice, TypoPress Košice, p. 166.

specific to be covered by present copyright law. Some consider copyright protection of software to be the best option out of the worst; others consider patent protection of software to be the worst among the worst. The differences of computer programs as author crafts concerning number of involved ideas and solutions, visual forms, appropriate protection period and many others lead the legislation to search for an alternative protection of software, what might point to creating protection sui generis.

Therefore, it is to believe, that in the future Europe will take advantage of the next opportunity to deal with inconsistencies in patenting software, and will learn from its previous failure and from not overly fortunate American way as well as succeed in escaping terminology traps, which are going to complicate legitimate attempts to patent computer programs for some time to come.