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The Final Frontier

**What should be the limits of
patent protection for software?**

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Introduction

Ladies and Gentlemen,

I would like to start with three preliminary remarks from times long before the computer age started.

In **1899** Charles H. Duell, representative of the USPTO, stated:

(1) "Anything, which could be inventive, was already invented."

You wonder, why we still have patent offices.

In **1929** Pietzcker, a well-known commentator of the German Patent Law, stated:

(2) "... that a patentable invention must be of technical nature"

(3) "According to these principles newly invented calculating methods are not patentable; it is true that they may be used in trading commerce ("Handelsgewerbe") but do not have technical application."

Now you see, where the European Parliament, following the Open Source movement took their ideas from.

If you would take citations (1) and (3) as granted today, we would have to close this session immediately. You will understand that this is not my opinion.

The topic "Patent Protection for Computer Programs/Software" has been extensively discussed for more than 40 years. For about 10 years¹ it has been requested to cancel the term "programs for computers" from Art. 52(2) EPC

¹ *Betten* in a remark to the presentation of Remandas (EPO) during the FICPI Congress on June 22, 1994 in Vienna; report of the British Patent Office from the "Public Forum" on October 19, 1994; Round Table of UNION on December 9/10, 1997

because this clause is deceptive and turned out to be detrimental to the European inventors and software industry², especially to the SMEs.

Just before amending Art. 52(2) EPC in 1999/2000 new players appeared, like the Open Source movement with a categorical denial of patent protection for computer programs or software, partly using arguments similar to those used by IBM people in the seventies and beginning eighties to prevent a strong software protection and therewith a strong software industry.

The Open Source community wants on the one side to be, like other users of the internet, "free" of any limitations (also free to take over ideas of others, irrespective of any copyright or patent), but on the other side wants to impose its business model on the rest of industry, which business model, however, is not "free", but is actually a different form of monopoly by imposing a copyright license system on users³.

This is, however, only one, admittedly successful part of the software industry. The other, not less successful part comprises the big software players, like Microsoft, Oracle, SAP or the like, but also a lot of SMEs and single inventors who want to use the traditional business model, namely to sell their innovative software products worldwide and to protect this against big or small competitors by patents.

Both business models have a right to exist⁴ and I do not see why a balanced patent system should be a real obstacle for the further development of the Open Source business model.

Need for patent protection for software?

It is argued that copyright protection is sufficient for computer programs. The copyright protects the expression of all types of non-trivial computer programs, i.e.,

² Follow-up Paper to the Greenbook on Community Patent and Patent Protection System in Europe, KOM (1999) 42 of 5 February 1999, Chapter 3.2.1

³ MEP (Member of European Parliament) *Arlene McCarthy* in *The Guardian*, June 12, 2003 "Small fry patently need protection"

⁴ *Straus*, MPI, in a remark during EPO International Forum, November 21/22, 2002, EPO Munich

particularly the program listing and the source code, including the design material, whereas the underlying ideas and principles are not protected.

In comparison, the patent law protects the functions, the technical teaching, or the technical realization of the ideas and conceptions of a computer program.

In the following table I have made a comparison between patent and copyright protection.

	Copyright	Patent
protects	expressions	functions, ideas, conceptions
protects	any non-trivial program	only new and inventive program
protects	program listing and code against copying	against use of the technical teaching indicated in the patent claim
protection	weak	strong
private use	prohibited	allowed
benefit for public	none, code is kept secret	publication after 18 months

Patent protection and copyright protection need not and should not exclude each other.

Main arguments against patents

- copyright protection sufficient
- patents hinder development of innovative software
- patents hinder free exchange of source code
- examination is poor
- trivial patents are granted
- high costs for protection⁵
- term of protection too long
- patents are only for the benefit of big business
- Open Source movement (and Microsoft!) are successful without patents
- no patent protection for business methods as such

⁵ The high amount of € 49,000 for a European patent in 8 states (the computer industry normally denominates only 3-4 states) is not very helpful. In practice for the first 2 ½ years the costs for the European patent application and the PCT application only amount to € 8,000 to 15,000 which is affordable by SMEs (Small and Medium Enterprises).

Main arguments for patents

- hardware and software solutions are equivalent
- patent protects function, conception and ideas of the program (the "real invention")
- innovations can effectively be protected **only** by patents
- especially important to SMEs to defend their innovations
- a patent or patent application helps a young company or a start-up company to find investors for going public (a patent (application) is, like trademarks, a valuable asset of the company)
- a patent or patent application shows that the company is innovative which helps an SME on getting orders from big companies or organizations or winning a call for tender
- at least in Germany, it is possible and affordable for SMEs to enforce their patents against a big company or to negotiate a license agreement, with the latter being done extensively by the big companies
- better to have examined and published software patents than unexamined copyright-protected software kept secret
- at least with the EPO and in Germany an opposition can be filed (or prior art could be sent to the examiner) to correct the decisions of the offices
- "technical considerations" approach of EPO **and** German Federal Supreme Court (FSC) understandable for program developers
- Europe must have similar possibilities of protection as US and Japan

You see that patent protection is especially important for single inventors and SMEs⁶ if they have invented a software product which they want to distribute worldwide.

It is my opinion that, if patents would already have been granted for software 15 or 20 years ago, Microsoft would not have become as dominant as it is today.

⁶ About 66% of the software patent applications filed with the German Patent and Trademark Office are filed by SMEs (*Tauchert*, GPTO, EPO International Forum, November 21/22, 2002)

Microsoft became dominant under the umbrella of IBM and Intel. At that time SMEs could not defend themselves against taking over of their ideas which were not protected by copyright. It is reported⁷ that since 1998 Microsoft was sued in 35 cases based on alleged patent infringement. These cases were mostly filed by SMEs trying to defend their innovations.

With programming tools that are common today, it is easy to take over and to re-implement⁸ brilliant concepts of successful programs developed by others which are only protected by copyright. In this connection only a patent can help.

It is sometimes said that the first mover advantage is sufficient for the software industry. However, if we look at the breakdown of the New Economy, it is understandable, that the principle to be always faster as the competitors might work for some time only.

Therefore, innovative software products can effectively be protected **only** by patents. Copyright protection is too weak.

If the software industry, one of the most important fields of modern technology, is excluded from patent protection as it is proposed by the European Parliament, within a few years we would have two monopolists: Microsoft on the one side and LINUX, represented by the global players Red Hat and Suse⁹, on the other side, which would be very detrimental to the rest of the software industry, especially to the SMEs, who file e.g. in Germany about 66% of all software patent applications. These SMEs will be excluded from patent protection, whereas Microsoft sets the Microsoft standard and LINUX and Red Hat or Suse the LINUX standard.

Need for a global approach?

⁷ *VDI nachrichten*, Düsseldorf, September 5, 2003, page 2 "Dürfen Software-Lösungen patentiert werden?" by *M. Ciupek*

⁸ by former employees or in countries with low labour costs, such as India and Russia

⁹ these LINUX distributors were successfully lobbying before the European Parliament; according to the US market research institute IDC (*Handelsblatt*, 9.10.03, 15) the market shares with new server system software are: Microsoft 55%; LINUX (Red Hat, Suse Linux) 23,1%; Unix 11%, Novell 9,9% (the last two falling back more and more); to avoid the falling back or to increase the LINUX share (?), Novell has bought Suse Linux in October 2003.

In view of the internet, the fact that computer programs play a crucial role in the internet, and that computer programs can be distributed through the internet, and in view of a global market, a global approach for the patent protection of computer programs/software is necessary.

Limits to patentability

It is long established practice, at least in Europe, that the "technical character" or the term "Technik" ("technique" in French or "technology"(?) in English) defines the marked line¹⁰ between patentable achievements and e.g. copyrightable achievements. This is confirmed by Art. 27 TRIPS according to which "patents shall be available for any inventions in **all** fields of technology, provided that they are new, involve an inventive step (are non-obvious) and are capable of industrial application (are useful)".

Further the old decision "Red Dove" (Rote Taube)¹¹ should be quoted:

*"The main object of the patent law is to include those results that are worth patenting according to the **latest** state of science and research."*

The term "**latest state**" means that not the year 1929 (mentioned in the preliminary remarks) when the software industry did not yet exist, nor the year 1973 are decisive, when the software protection was only an academic problem and was excluded **as such** from EPC. Today, we have a big software industry and in my opinion this industry should not be excluded from patent protection, already on economic and competition reasons.

Therefore the term "in all fields of technology" of Art. 27 TRIPS should not only cover the conventional fields of technology, i.e. engineering, physics, chemistry, or biology, but also computer technology, or computer science, which was still a

¹⁰ German FSC, GRUR 1984, 659 - "Ausschreibungsunterlagen" ("Documents for Tender")

¹¹ German FSC, GRUR 1969, 677 and IIC 1970, 136 - "Rote Taube" ("Red Dove")

relatively new field of technology when drafting the European Patent Convention¹². At least in English speaking countries "computer science" is part of the "Technik" (technology) whereas the German word "Informatik" for computer science tends more towards mathematics.

The Boards of Appeal of the EPO followed the long established European practice and ruled that the "technical character", which makes an invention patentable, can lie

- (1) in the underlying problem **or**
- (2) in the means (technical features) forming the solution to the underlying problem
or
- (3) in the effects achieved by solving the problem **or**
- (4) can be present if technical considerations (or technical knowledge) are required in order to realize a computer program.

Concerning the requirement of "technical considerations" supported by the EPO **and** the German Federal Supreme Court¹³ it should be added that this concept is something which helps the engineer considerably in understanding what "technical character" is, whereas lawyers seem to have some problems with this concept.

The "technical considerations" approach is especially important for the evaluation of the technical character of business models. In principle, there are four categories:

	Business Model	Implementation
(1)	known	known
(2)	known	not obvious
(3)	new	known
(4)	new	not obvious

¹² German FSC, GRUR 2002, 143 and IIC 2002, 753, 758 - "Suche fehlerhafter Zeichenketten" ("Search for faulty character strings")

¹³ OJ EPO 1995, 525 - "SOHEI"; German FSC, GRUR 2000, 408/409 - "Logikverifikation" and IIC 2002, 231 - "Logic verification"

In the cases of (2) and (4) according to the concept of "technical considerations" in "SOHEI" the technical character could be present¹⁴. In the case of (3) the patent might be granted in the United States, but not in Europe. In Europe the mere transforming of the business model into computer language by straightforward programming as every programmer will do, will not be considered an invention.

This concept was further refined by the following two decisions of the Boards of Appeal of the EPO:

"PBS"¹⁵

- Method claims describing only the business method as such are not considered inventions even if technical features are mentioned in the claim.
- If the improvement envisaged by the invention is non-technical, e.g., if it lies in the field of economy, it cannot contribute to inventive step.

"COMVIK"¹⁶

- Only technical features can contribute to the inventive step.

Today we have a harmonized and balanced system for patent protection of computer-implemented inventions with the EPO, Germany, UK, France and Finland¹⁷. Therefore the starting point of the Directive has changed in the last years.

Scope of patent protection

A patent should be enforceable against direct use of the invention (Art. 25 CPC) which is possible by device claims:

- (1) computer (system) claim
- (2) computer program claim
(= computer program product claim)

¹⁴ same opinion as the Gesellschaft für Informatik e.V. (GI) (Association of the German Professional Program Developers (Informatiker)) in its statement of 30 June 2001

¹⁵ OJ EPO 2001, 441 - "PBS"

¹⁶ OJ EPO 2003, 352 - "COMVIK"

¹⁷ CRi (Computer Law Review International) 2003, 92

(3) data carrier claim comprising a computer program

whereas a method claim is only enforceable against indirect use of the invention (Art. 26 CPC).

Considering that the computer program is normally not sold as part of the computer or the computer system, but as a separate product, a computer program claim (or computer program product claim) is necessary for effectively protecting an invention.

Limitations of the effects of the patent

For a patent attorney who can give advice, at least in Germany, in computer program cases not only in connection with Patent Law but also with Copyright, Trade Secret, Contract and other laws, and who represents right owners and alleged infringers, a well-balanced system is most important for the functioning and acceptability of the whole protection system. It is therefore not astonishing that e.g. with the Copyright Directive for computer programs of 1991 the Patent Attorney Chamber, the Computer Software Commission of which I headed at that time, made the proposal that

"the access to the interfaces¹⁸ must be guaranteed"

which turned out to be the decisive point for the solution of the problems of this directive.

Considering this and the current discussion I would like to make the following **proposal**.

According to Art. 27 CPC the patent does **not** extend to

- acts done privately and for non-commercial purposes

¹⁸ With the help of our clients (especially SMEs) we could show and clarify how the knowledge on the interfaces (at that time the BIOS in the DOS program) could be and was misused.

- acts done for experimental purposes relating to the subject matter of the patented invention
- (limitations as to the use on boards of vessels or aircraft)

Considering that the Open Source movement writes their programs in public, i.e. "open", it has been proposed¹⁹ to exclude the process of drafting a computer program and circulating such code within the (restricted) community from patent protection. This would take away the fear of the Open Source community that writing some code lines would infringe a patent. Therefore the list could be enlarged by

- acts done on drafting a computer program, including circulation of the source code within a limited number of persons also drafting on the computer program.

Such exceptions are possible according to Art. 30 TRIPS.

Such an exception would really help the Open Source movement and would not harm the patent system. If, however, the finished program or a new release thereof is put to the market by organizations like LINUX or global players like Red Hat or Suse, such organizations or companies would have to make sure that no patent is infringed. Such organizations or companies watch the market and can afford a patent search or patent clearing process and want to earn money, at least with installing, customizing, maintenance etc. of the program.

¹⁹ *Betten*, e.g. during the EPO International Forum 21/22 November 2002

Term of protection

I do not see any convincing argument to reduce the normal protection period of 20 years. If the product is obsolete, the patent makes no sense any more. However, it has to be remarked that a lot of programs, especially their crucial parts, have an astonishingly long life, see e.g. the RSA, gif or MP3 patents. A new release does not mean that the basic product has been changed totally.

Final remarks

Due to the extensive public discussion, the few examining offices in Europe have considerably improved their practice, hired computer specialists and are prepared to grant patents on computer-implemented inventions ("software patents") only to a very limited extent. As a practitioner, I would agree if the inventive step is raised so that patents are only granted for innovations which deserve that name.

As long as the rights of the others are respected, both business models, Open Source software and traditional patenting of innovative software products can coexist to the benefit of the society in general and of SMEs and individual inventors especially.

Considering that the differences in the application of the patent law for computer-implemented inventions have diminished or disappeared in all countries with examining offices (DE, EP, FI, GB) or where court decisions (FR) have decided on computer-implemented inventions, in principle the Directive could be withdrawn. Nevertheless the Commission should carefully watch

- (1) how the "software patents" are used or whether they are misused and
- (2) whether a new monopoly is established by LINUX, Red Hat and Suse.