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AMENDMENT by:

To DRAFT
REPORT/OPINION by **Michel Rocard**

PE 357.776

**On the patentability of computer-implemented
inventions**

Proposal for a Directive

COM (02): 0092

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0058/2

005

Date: Monday, 27 June 2005

Signature:

Council common position

Amendment by Parliament

(Amendment 1)

Article 1

This Directive lays down rules for the patentability of **computer-implemented** inventions.

This directive lays down the rules **concerning** the patentability of **computer-aided** inventions.

Or. en

Justification

This replacement is to be performed at all places in the text where the expression “computer-implemented invention” is used.

The expression “computer-implemented” is not suitable, because it implies that an invention can be wholly realised by means of a computer, which would mean that pure software is patentable. Since both the Commission and the Council agreed that software should not be patentable, the terminology used in the directive should not imply the contrary. The scope of the directive is thus the one of the patenting of devices that use software in order to aid the performance of the claimed invention.

The concept of a computer-implemented invention is not used by computer experts either, and in fact is not in wide use at all. It was introduced in May 2000 by the European Patent Office (EPO) to justify the patenting of "computer-implemented business methods" and bring EPO practice into line with Japanese and US practice. The term "computer-implemented invention" implies that solutions involving only generic computers are patentable inventions.

This idea is contrary to Article 52 of the European Patent Convention, which states that algorithms, methods for doing business, and computer programs do not constitute inventions within the meaning of patent law. The directive can not be intended to declare computer programs to be patentable inventions by presenting them in some other wording.

Amendment 2
Article 2(a)

(a) "computer-implemented invention" means ***any*** invention the performance of which involves the use of a ***computer, computer network or other*** programmable apparatus, ***the invention having one or more features which are realised wholly or partly by means of a computer program or computer programs;***

(a) computer-***aided*** invention means any invention ***in the sense of patent law*** the performance of which involves the use of programmable apparatus;

Or. en

Justification

In some jurisdictions, the understanding of the term "invention" has gradually been slipping towards meaning "anything appearing in a patent claim". By adding the requirement that it should be an invention in the sense of patent law, this article stresses that this definition has to be read in conjunction with the requirements laid down for inventions in general patent law (such as the patent law of member states, the European Patent Convention, or the future community patent directive).

Amendment 3
Article 2(b)

(b) “technical contribution” means a contribution to the state of the art in a field of technology *which is new and not obvious to a person skilled in the art*. The *technical contribution shall be assessed by consideration of the difference between the state of the art and the scope of the patent claim considered as a whole, which must* comprise technical features, *irrespective of whether or not these are accompanied by non-technical features*

(b) “technical contribution” means a contribution to the state of the art in a field of technology. 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. *The contribution must be technical, that is,* comprise technical features *and belong to a field of technology. Without a technical contribution, there is no patentable subject-matter and no invention. The technical contribution must fulfil the conditions for patentability. In particular, it must be novel and not obvious to a person skilled in the art.*

Or. en

Justification

The concept of technical contribution has pervaded the discussion about the directive and generated great confusion and therefore to some extent deserves to be clarified. While intuitively and in the subjective belief of most commentators the technical contribution appears to be related to the question of patentable subject matter (Article 52 EPC), the EPO used the term as a means of abolishing the subject-matter test by mixing it with the non-obviousness test (Article 56 EPC) in obscure ways, which national courts and ministerial patent officials have found difficult to follow. A similar amendment was adopted in first reading by the EP. This amendment adds some ideas of the Council such as that of subtracting the prior art from the claimed object.

*This amendment is very similar to what was approved in JURI. It corrects one error in the second sentence however: the JURI version states that the **technical** contribution is the set of features which is claimed to differ from the state of the art. This implies that all features not part of the state of the art are by definition technical, which is of course not necessarily the case.*

Amendment 4
Article 2(ba) (new)

(ba) a “field of technology” is a field of applied natural science;

Or. en

Justification

The Council's draft draws heavily on terms such as "technology", "technical", "fields of technology", "technical contribution", "technical effect" etc, without explaining whether "technology" here is "applied natural science", i.e. the traditional meaning in patent law, or "applied exact science", a wider meaning which includes mathematics, business methods and in fact anything that can be programmed on a computer. The consequence of this wider meaning, which is implied in some decisions of the EPO, is, in the words of a leading EPO theoretician, that "all practical problem solutions are technical inventions".

The German Federal Court of Justice insists on the narrower meaning, as witnessed in the revocation of a computer-implemented "communication solution" patent in 2004 with the reason that "the problem does not require the use of controllable forces of nature". As their presiding judge recently stressed at a hearing in Berlin, a choice by the legislator for this narrower meaning is absolutely necessary, as otherwise there would no longer be any secure legal basis for rejecting business method patents

Amendment 5
Article 2(bc) (new)

(bc). A “computer” is a realisation of an abstract machine, consisting of entities such as processing units, storage space and interfaces for information exchange with external systems and human users. “Data processing” is calculation with abstract component entities of computers. A “computer program” is a data processing solution which can, once it has been correctly described, be executed by computers.

Or. en

Justification

Definition of the computer program is important for determining the patentability. This amendment also restricts overly broad interpretations of the term “data processing” by defining it as an abstract process. The Council defined “computer program” in its Article 4.2 indirectly as “the source code or object code of one individual computer program”. This is inappropriate, since patent law does not deal with computer programs at that level.

Amendment 6
Article 3

*In order to be patentable, a **computer-implemented** invention must **be susceptible of industrial application and new and must involve an inventive step. In order to involve an inventive step, a computer-implemented invention must make a technical contribution.***

*In order to be patentable, a **computer-aided** invention must **make a technical contribution. The technical contribution must be new and not obvious to the person skilled in the art.***

Or. en

Justification

The Council's proposal is inconsistent here. In its article 2b, the Council says that a technical contribution must be new and non-obvious (= involve an inventive step). In this article the Council says that for an invention to be non-obvious, there must first be a technical contribution. This amendment resolves the contradiction by bringing this article in line with Article 2b, which represents the common sense of patent law in Europe as used by most national courts today. It was also used by the EPO before 2000, when the "Controlling Pension Benefits System" decision brought the confusion, apparently in a hectic attempt to create new rules for the planned directive.

This amendment is a simplified version of the amendment adopted in JURI. It also fixes that amendment's second sentence which indicates that the contribution can consist entirely out of non-technical features.

Amendment 7
Article 4 paragraph 1

*1. **A computer program as such cannot constitute a patentable invention.***

*1. **While products and processes in all fields of technology are patentable inventions regardless of whether or not they involve computer programs, the subject matter and activities within the computer programs are not patentable on their own.***

Justification

Article 52(2) EPC states that programs for computers, along with aesthetic creations, mathematical methods, business methods et al, are not inventions in the sense of patent law. Art 52(3) limits the exclusions to subject matter and activities as such. There has been much dispute about how article 52(3) should be applied to 52(2). While it is a good idea to transfer Art 52 EPC into EU law, care should be taken to transfer not only the words, but also to resolve the ambiguities and thereby achieve harmonisation and clarification.

Amendment 8
Article 4 paragraph 2

2. A computer-implemented invention shall not be regarded as making a technical contribution merely because it ***involves the use of a computer, network or other programmable apparatus.*** Accordingly, ***inventions*** involving computer programs, ***whether expressed as source code, as object code or in any other form, which implement business, mathematical or other methods and do not produce any technical effects beyond the normal physical interactions between a program and the computer, network or other programmable apparatus in which it is run*** shall not be patentable.

2. A computer-aided invention shall not be regarded as making a technical contribution merely because it ***uses better algorithms so as to reduce the need for processing time, storage space or other resources within the data processing system.*** Accordingly, ***innovations*** involving computer programs ***which do not solve any problems of applied natural science beyond the improvement of data processing efficiency*** shall not be patentable.

Justification

The Council's version is tautological and implies that business methods are patentable inventions when they "produce a further technical effect", i.e. when they fulfill a condition which the European Patent Office, which invented this rhetoric in 1998, has admitted to be meaningless.

Since computers are well known, the presence of a computer can of course not by itself constitute a technical contribution. The question is whether the presence of a computer in combination with an improved algorithm can constitute a technical contribution. By failing to pose this question, the Council seems to imply a positive answer. The distinction between "business method" and "invention which implements a business method" is a common technique for circumventing Art 52 EPC.

The question of how the "invention" is expressed has never been relevant, nor has the distinction between more or less human-readable descriptions of programs. This subsentence serves no regulatory purpose, apart from insinuating that Art 52(2)c EPC should be interpreted in a way that makes it meaningless.

The sentence

"inventions involving ... business methods ..., which implement ..., shall not be patentable."

is syntactically ambiguous but probably means that "business method inventions" are patentable, if they "produce a further technical effect".

The term "normal physical interactions between a program and a computer" means about as much as "normal physical interactions between a recipe and a cook".

In 2000, EPO itself has criticised this wording and explained that it was merely a wordplay temporarily used in the IBM decision of 1998 in order to circumvent the European Patent Convention, in anticipation of a change of law that would render it unnecessary:

<http://www.european-patent-office.org/tws/appendix6.pdf>:

There is no need to consider the concept of "further technical effect" in examination, and it is preferred not to do so for the following reasons: firstly, it is confusing to both examiners and applicants; secondly, the only apparent reason for distinguishing "technical effect" from "further technical effect" in the decision was because of the presence of "programs for computers" in the list of exclusions under Article 52(2) EPC.

If, as is to be anticipated, this element is dropped from the list by the Diplomatic Conference, there will no longer be any basis for such a distinction. It is to be inferred that the Board of Appeals would have preferred to be able to say that no computer-implemented invention is excluded from patentability by the provisions of Articles 52(2) and (3) EPC.

This amendment fixes the errors while trying to stay as close to the original wording as possible.

Amendment 9
Article 5 paragraph 2

2. A claim to a computer program, either on its own or on a carrier, shall not be allowed ***unless that program would, when loaded and executed in a programmable computer, programmable computer network or other programmable apparatus, put into force a product or process claimed in the same patent application in accordance with paragraph 1.***

2. A patent claim to a computer program, either on its own or on a carrier, shall not be allowed.

Or. en

Justification

It is contradictory to say that computer programs can not be inventions and yet can be objects of patent claims. This is why the Commission also did not allow program claims in its original proposal.

The condition after "unless" in the Council version is always true, provided that the patent application was properly drafted. The Council amendment appears to pretend that, while it is allowing program claims, it really only means to allow process claims, and that the program claims are really included -- in defiance of the logic of the patent system -- as a kind of additional enforcement tool in cases where the inventor did not invent software as such but some kind of technical process beyond software.

This however would mean that the inventor could obtain a monopoly on something which he did not invent and which, in most cases, will be neither new nor non-obvious nor even original. Such a monopoly would moreover be economically undesirable. There is no good rationale for allowing anyone, not even automobile makers, to control the market of software publishing with property claims based on anything other than copyright.

It must suffice that the /user/ of a computer-aided automobile engineering invention needs to obtain a patent license, regardless of which software he uses. In practise, this usually does suffice. The only case where program claims would really perform an economic function is in the software industry, where the computer program as such would constitute the "invention"

The effect of allowing program claims is to make the publication of a program which can express the underlying invention a direct patent infringement -- regardless of how in fact the program would be used.

This would mean

- * the program would be unusable for legitimate discussion and non-commercial experimentation, normally encouraged in patent law.*
- * the program would be unusable for legitimate purposes other than those specified in the patent application -- for example, a patented program method for predicting automotive engine dynamics could not be used to predict stock-market behaviour (and separate amendments saying that this is not infringement will not help, because such claims cover the distribution of said program and not only the use).*
- * EU companies would be forbidden to use the program method to compete against foreign companies overseas in territories where the patent was not in force.*

Amendment 10
Article 5.2 (b) (new)

2b. The creation, publication or distribution of information can never constitute a patent infringement.

Or. en

Justification

This amendment does not make any patents invalid, rather it limits the ways in which a patent owner can enforce his patents.

Freedom of publication, as stipulated in Art 11 of the European Convention on Human Rights (ECHR), can be limited by copyright but not by patents. Copyright provides a narrow exclusion scope which already takes the freedom interests of publishers into account.

Patents allow for much broader, more sweeping exclusions and involve slow and costly legal procedures. The use of patents as a limit on the freedom of publication was traditionally never intended and can not be justified today in view of the increased interest of today's information society in freedom of publication.

Amendment 11
Article 6 (a) (new)

Wherever the use of a patented technique is necessary in order to ensure interoperability between two different data processing systems, in the sense that no equally efficient and equally effective alternative non-patented means of achieving such interoperability between them is available, such use is not considered to be a patent infringement, nor is the development, testing, making, offering for sale or licence, or importation of programs making such use of a patented technique to be considered a patent infringement.

Or. en

Justification

Interoperability of data processing systems (e.g. computers) lies at the foundation of the information economy and allows for fair competition by all players large and small.

Article 6 of the Council only refers to the exemption provided for by the Copyright directive. This means that a software developer is allowed to find out how to make his data processing system interoperable with that of a competitor, but afterwards he cannot necessarily use his gained knowledge, since that could be covered by patents.

This amendment makes sure that patents also cannot be used to prevent interoperability. It was passed in an almost identical form by ITRE and JURI prior to the first reading ("data processing systems" read "computer systems or networks"). In first reading, a more sweeping version of this amendment was passed (with 393 vs 35 votes), which appeared as Article 9 in the consolidated version.

The expression "for the sole purpose" reverts to the spirit of the original ITRE/JURI version of the interoperability exemption (which is more limited), which was also supported by Luxembourg and several others in the Council (but didn't make it).

Amendment 12
Recital 6

The Community and its Member States are bound by the Agreement on trade-related aspects of intellectual property rights (TRIPS), approved by Council Decision 94/800/EC of 22 December 1994 concerning the conclusion on behalf of the European Community, as regards matters within its competence, of the agreements reached in the Uruguay Round multilateral negotiations (1986-1994) 1. Article 27(1) of TRIPS provides that patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Moreover, according to that Article, patent rights should be available and patent rights enjoyable without discrimination as to the field of technology. ***These principles should accordingly apply to computer-implemented inventions.***

The Community and its Member States are bound by the Agreement on trade-related aspects of intellectual property rights (TRIPS), approved by Council Decision 94/800/EC of 22 December 1994 concerning the conclusion on behalf of the European Community, as regards matters within its competence, of the agreements reached in the Uruguay Round multilateral negotiations (1986-1994) 1. Article 27(1) of TRIPS provides that patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Moreover, according to that Article, patent rights should be available and patent rights enjoyable without discrimination as to the field of technology. ***This means that patentability must be effectively limited in terms of general concepts such as "invention", "technology" and "industry", so as to avoid both unsystematic exceptions and uncontrollable extensions, both of which would act as barriers to free trade. Thus inventions in all fields of applied natural science are patentable, whereas innovations in fields such as mathematics, data processing and organisational logic, are not patentable, regardless of whether a computer is used for their implementation or not.***

Or. en

Justification

It must be made clear that there are limits as to what can be subsumed under "fields of technology" according to Art 27 TRIPS and that this article is not designed to mandate

unlimited patentability but rather to avoid frictions in free trade, which can be caused by undue exceptions as well as by undue extensions to patentability. This interpretation of TRIPS is indirectly confirmed by lobbying of the US government last year against Art 27 TRIPS, on the account that it excludes business method patents, which the US government wants to mandate by the new Substantive Patent Law Treaty draft.

In its first reading, Parliament deleted this recital, and therefore the amendment that proposed the above change was not voted upon. Deletion is better than keeping the original, but clarification regarding the applicability and interpretation of the TRIPS agreement is better.

Amendment 13
Recital 7

(7) Under the Convention on the Grant of European Patents signed in Munich on 5 October 1973 (European Patent Convention) and the patent laws of the Member States, programs for computers together with discoveries, scientific theories, mathematical methods, aesthetic creations, schemes, rules and methods for performing mental acts, playing games or doing business, and presentations of information are expressly not regarded as inventions and are therefore excluded from patentability. This exception, **however**, applies **and is justified only to the extent that a patent application or patent relates to the above subject-matter or activities as such**, because the said subject-matter and activities **as such** do not belong to a field of technology.

(7) Under the Convention on the Grant of European Patents signed in Munich on 5 October 1973 and the patent laws of the Member States, programs for computers together with discoveries, scientific theories, mathematical methods, aesthetic creations, schemes, rules and methods for performing mental acts, playing games or doing business, and presentations of information are expressly not regarded as inventions and are therefore excluded from patentability. This exception applies because the said subject-matter and activities do not belong to a field of technology.

Or. en

Justification

Art 52 EPC says that programs for computers etc are not inventions in the sense of patent law, i.e. that a system consisting of generic computing hardware and some combination of calculation rules operating on it can not form the object of a patent. It does not say that such systems can be patented by declaring them to be "not as such" or "technical". This amendment reconfirms Art 52 EPC. Note that the exclusion of programs for computers is not an exception, it is part of the rule for defining what an "invention" is.

This amendment corresponds to recital 7 in the consolidated text of the EP's first reading.

Amendment 14
Recital 9

Patent protection allows innovators to benefit from their creativity. Whereas patent rights protect innovation in the interests of society as a whole; they should not be used in a manner which is anti-competitive.

Patents are temporary exclusion rights granted by the state to inventors in order to stimulate technical progress. In order to ensure that the system works as intended, the conditions for granting patents and the modalities for enforcing them must be carefully designed. In particular, inevitable corollaries of the patent system such as restriction of creative freedom, users' rights or legal insecurity and anti-competitive effects must be kept within reasonable limits.

Or. en

Justification

Innovators can benefit from their creativity without patents. Whether patent rights "protect" or stifle innovation and whether they act in the interests of society as a whole is a question that can only be answered by empirical study, not by statements in legislation.

Amendment 15
Recital 10

In accordance with Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, the expression in any form of an original computer program is protected by copyright as a literary work. However, ideas and principles which underlie any element of a computer program are not protected by copyright.

In accordance with Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, property in computer programs is acquired by copyright. General ideas and principles which underlie a computer program must stay freely usable, so that many different creators may simultaneously obtain property in individual creations based thereon.

Or. en

Justification

Copyright does not only apply to literary works, but also to textbooks, operation manuals, computer programs and all kinds of information structures. Copyright is the system of "intellectual property" for computer programs, not only a system for a "literary" side aspect of computer programs.

Amendment 16
Recital 12

It is a condition for inventions in general that, in order to involve an inventive step, they should make a technical contribution to the state of the art.

It is a condition for inventions in general that they ***must*** make a technical contribution to the state of the art. ***The technical contribution must be new and not obvious to the person skilled in the art. If there is no technical contribution, there is no patentable subject matter and no invention.***

Or. en

Justification

This amendments was newly inserted by the Council. It attempts to further codify the EPO's "technical contribution in the inventive step" doctrine. What one invents is his contribution to the state of the art, and for this contribution to be patentable it has to (among other things) involve an inventive step. Not the other way round.

Amendment 17
Recital 13

(13) Accordingly, ***although a computer-implemented invention belongs to a field of technology, where it does not make a technical contribution to the state of the art, as would be the case, for example, where its specific contribution lacks a technical character, it will lack an inventive step and thus will not be patentable.***

(13) Accordingly, ***an innovation that does not make a technical contribution to the state of the art is not an invention within the meaning of patent law.***

Or. en

Justification

The Council text declares computer programs to be technical inventions. It removes the independent requirement of invention ("technical contribution") and merges it into the requirement of non-obviousness ("inventive step"). This leads to theoretical inconsistency and undesirable practical consequences, as explained in detail in the justification of the amendment to article 4.

Amendment 18
Recital 16

(16) Furthermore, an algorithm is inherently non-technical and therefore cannot constitute a technical invention. ***Nonetheless, a method involving the use of an algorithm might be patentable provided that the method is used to solve a technical problem. However, any patent granted for such a method should not monopolise the algorithm itself or its use in contexts not foreseen in the patent.***

(16) Furthermore, an algorithm is inherently non-technical and therefore cannot constitute a technical invention.

Or. en

Justification

The nature of the problem solved should be irrelevant to patentability. It's the nature of the solution that counts. Problems are not invented, but solutions are, and it's the invention that must be technical (or have technical character).

Amendment 19
Recital 19

(19) This Directive should be limited to laying down certain principles as they apply to the patentability of such inventions, such principles being intended in particular to ensure that inventions which belong to a field of technology and make a technical contribution are susceptible of protection, and conversely to ensure that those inventions which do not make a technical contribution are not susceptible of protection.

(deleted)

Or. en

Justification

Similarly to Council recital 13, this amendment claims that there are non-technical inventions. See the justification under the amendment to recital 13 for more information.

Amendment 20
Article 4 paragraph 3 (new)

3. Computer-aided inventions are not considered to make a technical contribution merely because they make better use of data processing resources such as processing time or storage space.

Or. en

Justification

This amendment reflects current case law in Germany, and a similar decision in the UK case 'Gale's Application'.

In the words of the justices of the German Federal Patent Court (BPatG, decision of 26. March 2002, 17 W (pat) 69/98):

"The applicant sees as a decisive indication of technicality of the method that it is based on a technical problem. Because the proposed method does not need a dictionary, the memory space for this can be saved. [...] As far as the technical problem is concerned, this can only be considered as an indication but not as a proof of technicality of the process. If computer implementations of non-technical processes were attributed a technical character merely because they display different specific characteristics, such as needing less computing time or less storage space, the consequence of this would be that any computer implementation would have to be deemed to be of technical character.

This is because any distinct process will have distinct implementation characteristics, that allow it to either save computing time or save storage space. These properties are, at least in the present case, not based on a technical achievement but result from the chosen non-technical method. If the fact that such a problem is solved could be a sufficient reason for attributing a technical character to a computer implementation, then every implementation of a non-technical method would have to be patentable; this however would run against the conclusion of the Federal Court of Justice that the legal exclusion of computer programs from patentability does not allow us to adopt an approach which would make any teaching that is framed in computer-oriented instructions patentable".

Amendment 21
Recital 11

In order for any **invention** to be considered **as** patentable it should have a technical character, and thus belong to a field of technology.

In order for any **innovation** to be considered **a** patentable **invention** it should have a technical character, and thus belong to a field of technology.

Or. en

Justification

The Council text is not in line with Art 52 EPC. Art 52(2) EPC lists examples of non-inventions. It is not permissible to subsume these under "inventions" and then test their technical character. Moreover, while it can not be inferred from Art 52 EPC that all technical innovations are inventions, it can, based on a unanimous tradition of patent law, be assumed that all inventions have technical character.