



## Patentability of computer programs: what if the EPO was wrong?

### The current law

At the European level, the European Patent Convention (EPC) regulates today most of the patentability of inventions in Europe, regardless of their technical domain.

The EPC seeks to grant European patents which have the same effect as a national patent in each of the Contracting States (Article 2).

In accordance with the EPC, it is provided that (Article 52):

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

*(2)*

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

*(a) discoveries, scientific theories and mathematical methods;*

*(b) aesthetic creations;*

*(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;*

*(d) presentations of information.*

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

On this basis, the approach of considering that computer programs are not patentable if considered “as such” led to a whole bunch of decisions and practices that still evolve today.

### A bit of history

In fact, from the very beginning, that is to say the preparatory work of the EPC, the question of the exclusion of computer programs was raised, particularly at the request of the British representatives<sup>1</sup>.

The preparatory work already mentions the concept of using a computer<sup>2</sup>, a concept that is finally close to the actual “computer implemented inventions (CII)” one.

However, the preparatory work did not specify in the expression “as such”. And even if, at that time, “all the organizations which have been expressed have asked for its abolition”<sup>3</sup>, it must be noted that the exclusion was nonetheless introduced and is still in force at the present time in the legislative part of the EPC, despite requests for transferring these provisions in the Implementing Regulations, which would facilitate the amendment of such a text<sup>4</sup>.

<sup>1</sup>

[http://webserv.epo.org/projects/babylon/tpepc73.nsf/0/13910EE3F5D94B9FC1257427004517F5/\\$File/Art52fPCTBE1973.pdf](http://webserv.epo.org/projects/babylon/tpepc73.nsf/0/13910EE3F5D94B9FC1257427004517F5/$File/Art52fPCTBE1973.pdf) page 66 of the PDF file (French version)

<sup>2</sup> Op.Cit. page 87

<sup>3</sup> Op.Cit. page 78

<sup>4</sup> Modification of an article of the EPC requires a diplomatic conference, whereas modification of a rule (implementing regulation) can be made by the EPO itself



*The question of definitions was raised even before the EPC entered into force*

At present, various actors are dissatisfied with the legal situation as it brings about, at least in Europe, a lack of clarity or a true legal uncertainty as to the extent of the protection sought, the extent of the third parties rights, as well as an uncertainty on the ability to value software, when dealing either with licensing or infringement cases.

In fact, the vagueness of the terms used is voluntary and, although necessary, may lead to various considerations discussed below.

## Definitions (if any)

First of all, none of the terms or expressions "invention", "computer program", "computer" or "as such" used in the exclusions of Art. 52 are defined by the EPC.

The concept of invention is deliberately vague at the international level, as Article 27(1) of the TRIPS Agreement leaves open the question of what is meant by "invention", which allows WTO member States to understand and interpret the concept of invention in accordance with their respective legal traditions.

*There is no current harmonisation of the definitions at the international level*

With regard to the notion of a computer program, according to the British representatives (Preparatory work of the EPC 1973), a computer program just represents the mathematical application of a logical succession of operations<sup>5</sup>. The notion of a computer can range from the simple calculator to current complex systems.

According to the EPO (OJ 3/2009, 145), a computer is any programmable apparatus (such as a mobile phone or an embedded processor), and a computer program is a series of steps (instructions) which will be carried out by the computer when the program is executed.

According to the European Community (Dir. 2009/24/EC) 'computer program' shall include programs in any form, including those which are incorporated into hardware. This term also includes preparatory design work leading to the development of a computer program provided that the nature of the preparatory work is such that a computer program can result from it at a later stage.

This definition is therefore broader than the algorithms or program code instructions referred to by the EPO.

At this stage, one shall notice that there is no definition for embedded firmware: should they be considered as computer programs or as hardware?

Lastly, and almost amusingly, the EPC does not explicitly define the terms "patent application" and "claim", which may, however, form the basis of a different approach to the topic of non-inventions.

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<sup>5</sup> Op.Cit. page 66

There is therefore a need for harmonization of definitions at the international level.

Beyond these aspects, let us now look deeper at the some notions which are covered by Art.52 EPC.

## Patents

Art.52(3) refers to "patents".

However, Art.97 states that "*If the Examining Division is of the opinion that the European patent application and the invention to which it relates meet the requirements of this Convention, it shall decide to grant a European patent*".

Then for a patent application to be granted there is a double step condition: one on the invention, and another one on the application.

Consequently, if an application or an invention relates to a computer program as such, it would not comply with the requirements of the EPC and therefore could not be granted.

Provisions of Art.52 (3) then shall be applied to an application which is not excluded and which, once granted, would become excluded.

The only reasons supporting this hypothesis are, on the one hand, the opposition procedure and, on the other, the limitation procedure.

*The exclusion of a "patent" relating to a computer program as such makes no sense!*

In practice, a granted patent falling under an exclusion after limitation appears very unlikely, almost impossible: why a patent owner would voluntarily limit its own patent to such an extent and risk its patent to be excluded?

Thus the only reasonable case would probably be limited to the opposition proceedings, Art.52 being, moreover, a ground for opposition [(Art. 100a); G1/95].

In this regard, it would be interesting to know the number of decisions in opposition which resulted in revocation of the patent under Art.52.

Let us bet that this figure is very low and that the application of the exclusion of Art.52(3) to a patent is also very unlikely in opposition proceedings.

Accordingly, **in practice, it seems that provisions of Art.52(3) EPC would not apply to a patent.**

Therefore, let us concentrate not on patents but on patent applications, also referred to in Art.52(3), and as seen above with reference to Art.97.



## Patent applications

A patent application includes a set of 5 documents making up the application: a request, a description, some claims, some drawings and an abstract (Art.78, R. 49 (4)).

*A patent application = 5 documents.  
Which one(s) is(are) concerned by the exclusion?*

Let us remind that Art.52(3) excludes the patentability of computer programs only to the extent to which a European patent application relates to a computer program, as such.

The exclusion of patentability is then an exception which, it is a basic principle of law, shall be strictly interpreted.

Although the patent right is itself an exception by the monopoly it confers, let us assume that the exception (to patentability) applied to the exception (of monopoly) is nevertheless interpreted as an exception...

Then the question arises as to **whether a single document, several documents or all documents making up the application must relate to a computer program in order to exclude the patent application?**

Let us see each of these 3 possibilities one by one.

1. If **only one document** making up the application must relate to a computer program to be considered "as such", then which one to choose? Is it any of the documents or is it a specific one?

The hypothesis of a single document randomly chosen appears unrealistic.

As a matter of principle first of all:

On the one hand, because the wording of Art. 52(3) relates to "the application" and not one of the documents making up the application. Therefore, choosing (randomly or not) one of the documents making up the application would surely lead to a legal uncertainty.

On the other hand, because the choice of a single document would contradict the principle of a strict interpretation of an exclusion.

As a matter of practice then:

Let's take each of the documents listed in Art.78 & R.49(4) individually:

1.1 The **abstract** is clearly excluded for the purposes of Art. 54 (3) (see Art.85). It could also be explicitly excluded for the application of Art.52. But since the abstract must contain a concise summary of what is stated in the description, the claims and the drawings (R.47), its content could make sense in the question that concerns us. There is therefore no reason, *a priori*, to exclude the abstract as a potentially relevant document for the exclusion of patentability. However, excluding a patent application on the basis of its abstract seems to contradict the principle of Art.85: an abstract could not altogether exclude a patent application from patentability and have no effect on novelty.

=> The abstract therefore can not reasonably be accepted as a single document to determine whether the "application" is relating to a computer program as such.

1.2 The **request for grant** appears to be a document which can not reasonably be accepted, even if it must contain the title of the invention. Indeed, the title alone is probably not sufficient to qualify the invention as a computer program as such. In addition, the quality of the applicant could introduce inequity between applicants, for example, software editors and others. The request for grant may therefore give an indication as to whether the "application" relates to a computer program but can not in itself suffice to determine whether the application relates to a computer program as such. Also note that it could lead to issues with regard to ownership assignments.

=> The request for grant can at best give an indication as to whether the patent application comes from a software editor, but is not enough in itself to determine if the patent application relates to a computer program as such.

1.3 Concerning the **drawings**, not only they are not compulsory (R. 42(1)(d)) but the EPC only provides for formal requirements (R.46).

=> The drawings therefore can not reasonably be regarded as a single document to determine whether the application relates to a computer program as such.

1.4 The **description** must describe the invention (R.42(1)(c)). It therefore appears as a serious candidate for our purpose. However, the EPC states that the description must set out the invention "as characterized in the claims". Therefore, any part of the disclosure describing the invention "as characterized in the claims" would be in duplicate of the claims. In other words, these elements of the description would no longer be unique and therefore can not reasonably be regarded as unique elements to determine whether the application relates to a computer program as such. For the parts of the description relating to the prior art, they can not be retained either, since this would be in contradiction with Art.69, which provides that the scope of protection conferred by the European patent application is determined by the claims. There would thus remain the hypothesis of the part of the description showing in detail at least one embodiment of the claimed invention (R.42(1)e) which for the same reasons can not be retained.

=> The description can therefore not reasonably be accepted as a single document to determine whether the application relates to a computer program as such.

1.5 The **claims** determine the scope of the protection conferred by the European patent application (Art.69). They are therefore the ideal candidate for our purpose. However, the EPC also provides that the description and the drawings shall be used to interpret the claims (Art.69(1)). Consequently, the interpretation of the claims by the description is sufficient to destroy the hypothesis of claims being a unique document used to determine if such document relates to a computer program as such.

=> Consequently, the claims can not reasonably be accepted as a single document to determine whether the application is related to a computer program as such.

**Thus, according to the approach proposed here, none of the documents making up the application can reasonably suffice as a single document to determine in itself whether the application relates to a computer program as such.**

2. If **several documents** making up the application must relate to a computer program to be considered as "as such", then as seen above, it seems reasonable to take simultaneously the claims, the description and, where applicable, the drawings.

This hypothesis remains consistent with Art.69. However, in this case, it would result in drafting the content of Art.52(3) as relating to "the claimed invention" instead of the actual "European patent application".

Therefore, **the assumption by which several documents making up the application shall be considered** to assess whereas a patent application relates to a computer program as such **can not be upheld**.

3. On the basis of the foregoing considerations and the strict interpretation of exclusions, there only remains the assumption that **all the documents** making up the application must relate to a computer program in order for it to relate to a computer program as such.

However, even this assumption is not satisfactory. Indeed, as seen in point 1.2 above: it seems unlikely that a request for grant could be regarded as relating to a computer program as such.

Therefore, within the framework of a strict interpretation of an exclusion and *a contrario* of the present wording of Art.52, **it would suffice for a single document** making up the application **not to relate to a computer program**, for the application not to be regarded as a non-invention within the meaning of Art.52 (3).

As a consequence, **the assumption by which all documents making up the application shall be considered** to assess whereas a patent application relates to a computer program as such **can not be upheld**.

*The exclusion of all or part of the documents making up the patent application is not satisfactory!*

Indeed, as discussed above, the request for grant alone would be sufficient to extract a patent application from the exclusions referred to in Art.52.

This would mean that decisions of the EPO rejecting patent applications exclusively on the basis of Art.52(3) would not be correctly grounded, which would be inconvenient to say the least!

In fact, most of the decisions of the EPO today are not intended to reject applications on the basis of Art.52 but on the basis of Art.56, by "shifting" the problem of non-inventions to the inventive step, by the concept of "mixed inventions".



## Mixed inventions

Mixed inventions are inventions whose claims combine both technical features with non-technical features.

Early on (T26/86) the EPO's case-law has held that, in deciding whether a patent claim concerns a computer program as such, a weighting of its technical and non-technical characteristics is not necessary: If the invention defined by the claim employs technical means, it does not fall within the categories excluded from patentability and, subject to the other conditions, may give rise to the grant of a patent.

Thus, the mixed invention approach consists in splitting a claim into all its constituent features and if at least one of them is "technical", then the EPO considers that the invention is not an "as such", and the claim is not rejected on the basis of Art.52.

*The exclusion of mixed inventions is efficient in practise but legally questionable.*

However, if the patent application is not rejected on that basis, "non-technical" features are not taken into account in the inventive step (T 641/00 (COMVIK), OJ EPO 2003, 35).

As a result, many such inventions are rejected at the inventive step level.

The principle set out in paragraph 4 of the grounds of Decision T641/00 (COMVIK) states that a non-technical characteristic is a "*characteristic relating to non-inventions within the meaning of Art.52(2).*"

The EPO is certainly correct in asking the question of non-invention also at the level of inventive step, and the approach to mixed inventions seems legitimate and consistent with the preparatory work of the EPC.

However, the mixed inventions regime must be approached precisely so that their legal basis is indisputable.

Indeed, we have seen in point 1.5 above that the claims alone can not suffice to consider that the patent application concerns a computer program as such.

*A fortiori*, a feature of a claim can not be excluded on the ground of Art.52.

Thus, the definition of non-technical characteristics given in paragraph 4 of the grounds of Decision T641/00 (COMVIK) should not be understood as the possibility of applying Art.52 to certain features of a claim.

Doing so would be tantamount to removing any feature of a claim that relates to a program code instruction, which would lead to the impossibility of patenting computer implemented inventions...



## Technical problem

It seems that the ambiguity of the interpretation of the content of Art.52 originates in its very wording which concerns (non) inventions.

As discussed above, the EPC does not define the term invention. However, the invention must be described (R.42) and claimed (R.43).

In particular, the description should state the technical problem and the solution of this problem (R.42c).

In this sense, to replace the term "invention" by its constant equivalent in jurisprudence, of a technical solution to a technical problem becomes meaningful.

Indeed, Art.52 as we have discussed so far applies to a claim taken as a whole, irrespective of any reference to the prior art.

In this case, the question is whether the purpose of the invention relates to one of the exclusions listed in Art.52(2), ie whether the problem solved by the invention is a technical problem or not (for example commercial, intellectual or otherwise).

However, if the technical problem can be determined a first time, apart from any reference to any prior art, it can also be reformulated, and therefore determined a second time, within the problem-solution approach of Art. 56<sup>6</sup>, with reference to the closest prior art.

Thus, rephrasing the problem in the context of the application of Art.56 could lead to the rejection of a claim under Art.52 on the ground that the reformulated problem is not a technical problem, provided that the current wording of Art. 52 be amended to this effect.

*The question of "technical problem" is consecrated by the case law and by the guidelines, but not by the EPC.*

The EPO's conventional case-law definition that an invention is a technical solution to a technical problem could or should be explicitly introduced in the EPC, which would allow, for example, to pursue the current jurisprudential approach by excluding all inventions of commercial / abstract methods, the fact that they are implemented by a computer or not being of not matter at all.

Accordingly, any solution (hardware or software) aimed at solving, for example, a high frequency trading problem, auction method, emotional perception, etc. should be rejected, independently of any prior art and any examination of novelty or inventive step; and independently of the technical features that it would implement.

At the very least, introducing into the EPC the fact that the claims must relate to a technical problem could simplify the current legal situation.

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<sup>6</sup> [G VII 5](#)





## Conclusion

Beyond the slightly provocative title of this article, it is proposed here to focus the interpretation of Art.52 not on the words "as such" but on the terms "patent application" combined with the strict interpretation of exclusions.

In this context, the proposal discussed here could, without solving it, at least clarify the current legal situation.

In our opinion, the present wording of Art.52, is confusing:

- by the absence of any distinction between an invention and the purpose of the invention,
- by the strict interpretation that should be given to its content, and
- by the non-exhaustive list of non-inventions mentioned in paragraph 2, which is totally silent both on the criteria linking the listed elements and on the criteria which would make it possible to anticipate other elements likely to supplement this list<sup>7</sup>.

In fact, there is a question of interpretation which, if the proposition discussed here is adopted, could lead to a re-thinking of the current law.

*Modifying the content of Art.52 requires a diplomatic conference of the member states...*

A first possibility, probably the most practical one, is to suppress the "computer programs" from the list of non-inventions referred to in Art.52(2)(c).

Indeed, the EPO grants patents in this field, entire pages of guidelines<sup>8</sup> and case law<sup>9</sup> are devoted to it, representatives often bypass the exclusion of Art.52 by language tricks, introduction of technical features or drafting the invention as a "device".

Moreover, from a global point of view, the number of applicants in this field is increasing, without harming the economy of the IT field. Computer programs tend to have a technical function, so they go well beyond the exclusions of the "mental" activities referred to in Art.52. They also do not prevent life-saving, so they go well beyond the exceptions referred to in Art.53 (c) relating to the medical activities.

Patent applications for computer programs that are rejected by the EPO are often rejected because they relate to a mathematical method, presentation of information, intellectual activity or economic activity (see in this respect again T641/00 (COMVIK)), that is to say on pre-existing exclusions in the list of Art.52.

### **Excluding a computer program in this context is therefore redundant.**

Thus, to date, exclusions raised by Art.52, and in particular that relating to computer programs, seem to bring a certain complexity to applicants, third parties and practitioners, whether they be examiners or representatives.

The question of the patentability of computer-implemented inventions actually arises in terms of acquisition of right, that is to say, non-invention, search for prior art, and examination; and

<sup>7</sup> See « Initiation à la protection des valeurs incorporelles », Jean-Paul Bentz, Les éditions du Net, p.202

<sup>8</sup> [G II 3.6](#)

<sup>9</sup> Case Law of the Boards of Appeal [IA2.4.2](#)



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in terms of the valuation of right, that is to say, assignment, licensing, and infringement proceedings.

The targeted exclusion of computer programs seems to complicate the economic and legal situation and be ineffective in practice.

To simplify the present situation, another possibility would be to introduce at least the concept of a technical problem in order to be able to apply this notion once (without reference to the prior art) under Art. 52 and then (with reference to the prior art) according to Art.56.

*Economic stakes relate to valuation of software, valuation of software editing companies and infringement proceedings (seizure).*

This possibility, although not entirely satisfactory, in particular as a result of the discrepancy between the non-definition of the term "invention" and the non-definition of the term "technique", would, nevertheless, initially reduce legal uncertainties.

Of course, such a possibility would probably not prevent practitioners from protecting an invention whose problem is non-technical by a language trick. For example, an aesthetic method of making the appearance of a jewel more attractive would be formulated as a metal deposition and / or oxidation process. But is that not already the case in many other areas?

On the other hand, such a possibility would perhaps, and this is the aim, be able to exclude the non-technical features of a claim, in particular the economic or commercial features.

Having said that, it seems to us that the approach developed for the mixed inventions should be exclusively used with regard to the inventive step, apart from any reference to the present wording of Art.52.

According to the proposed discussion, an invention should be excluded from patentability only if all the features of the invention fall within the scope of an exception listed in Art.52.

*Shall we open Pandora's box or use existing provisions in the EPC?*

If at least one feature of a claim does not fall within the scope of an exception listed in Art.52, then the invention should not be excluded as such, unless the problem it seeks to resolve is itself qualified under one of these exceptions.

This definition of the technical problem can be raised again when the problem is rephrased as part of a problem-solution approach during the examination of the inventive step of a patent application.

Finally, let us not forget that Art.57 on industrial application aims to exclude from patent protection any purely abstract invention, and that this possibility of exclusion is now utterly underutilized by the EPO.

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