



## Study Question

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Sarah MATHESON, Reporter General  
Jonathan P. OSHA and Anne Marie VERSCHUUR, Deputy Reporters General  
Yusuke INUI, Ari LAAKKONEN and Ralph NACK, Assistants to the Reporter General  
**Patentability of computer implemented inventions**

Responsible Reporter: Ralph NACK

National/Regional Group	Sweden
Contributors name(s)	Christian ARKELIUS, Louise JONSHAMMAR, Per KARLSSON, Niclas LARSSON, Mika SILFVER, Joakim WIHLSSON, Johanna WRIGHT, Fredrik ÖHRSTRÖM
e-Mail contact	louise.jonshammar@iamlaw.se

### I. Current law and practice

#### 1 Does your current law contain any statutory provisions which specifically apply only to CII?

Yes

Please Explain

Section 1 of the Swedish Patents Act excludes i.a. computer programs as such from the notion of invention.

Section 1 also excludes subject-matter which is exclusively a discovery, scientific theory or mathematical method, an aesthetic creation, a scheme, rule or method for performing mental acts, for playing games or for doing business, or a presentation of information from being inventions.

It shall be noted that such subject-matter or activities as described in Section 1 are considered non-technical and are therefore excluded from patentability, albeit only to the extent to which the patent application or patent relates to the specified subject-matter or activities *as such*.

#### 2 Please briefly describe the general patentability requirements in the written statute based law of your jurisdiction which are specifically relevant for the examination of the patentability of CII.

If the CII is not excluded from the notion of inventions under Section 1 of the Swedish Patents Act, patentability of CII is examined under the same requirements as any other invention. Briefly and generally, this means that patents are only granted for inventions which are new in relation to what was known before the filing date of the patent application (novelty) and which also differs essentially therefrom (inventive step). What is known before the filing date, and therefore not novel, shall be understood as everything made available to the public, regardless of whether this has been made in writing, by lectures, by use or otherwise. Additionally, the invention must be susceptible of industrial application, meaning that the invention shall be reproducible and shall have a technical effect. The latter is of specific relevance to patentability of CII.

**3 Under the case law or judicial or administrative practice in your jurisdiction, are there rules which specifically apply only to CII? If yes, please explain.**

Yes

Please Explain

The European Patent Convention (EPC) and the development within the European Patent Office have been given particular weight by the Swedish Supreme Administrative Court and the Swedish Supreme Court. Sweden became a party to the EPC in 1978, and the Swedish Patents Act is harmonized with the EPC. Also, practice in Sweden develops in conformity with the EPC as interpreted by the European Patent Office.

For that reason, it should be noted that Section 1 of the Swedish Patents Act, as referred above in Q1, is implemented by the Swedish Courts and administrative authorities with reference to practice concerning Article 52(2) of the EPC, and that Section 39 of the Swedish Patents Act, which regulates claim interpretation, is implemented with reference to practice under Article 69 of the EPC.

The EPO Guidelines for examination includes guidelines pertaining only to CII. Also, the Swedish Patent and Registration Office has issued guidelines for examination of CII which in general mirrors the EPO Guidelines.

It follows from case law and practice, as well as the above-mentioned guidelines, that when a claim comprises a mix of technical and non-technical features, a non-technical feature must interact with a technical feature to produce a technical effect, to contribute to novelty and inventive step.

**4 Please briefly describe the general patentability requirements under the case law or judicial or administrative practice of your jurisdiction which are specifically relevant for the examination of the patentability of CII.**

Practice and case law pertaining to the technical effect of an invention are specifically relevant for examination of patentability of CII.

Briefly and generally it follows from said case law and practice that when assessing inventive step, all features which contribute to the technical character of an invention are considered. This also includes non-technical features interacting with technical features to produce a technical effect. However, non-technical features (even though interacting with technical features) which do not contribute to the technical character of the invention, cannot contribute to an inventive step.

Technical character presupposes that the inventions solves a problem by using natural forces. In case law, technical character has been defined as "methodically utilizing controllable natural forces to achieve a causal, perceivable result". If the subject matter of the invention involves technical considerations, resulting in a solution of technical type, the invention has the necessary technical character.

**5.a Exclusion of non-patentable subject matter per se. Do the statutory provisions, case law or judicial or administrative practice (hereinafter collectively referred to as Law / Practice) in your jurisdiction exclude any particular subject matter relating to CII from patentability per se? In this context, "per se" means that the non-patentable subject matter is identified without any implicit or explicit examination of the contribution to the state of the art the claimed CII makes.**

***If yes, please answer questions 5.b-5.e, if no, please go to question 6.a***

Yes

Please Explain

As described under Q1, Section 1 of the Swedish Patents Act excludes from the notion of invention which is exclusively a computer program, a discovery, scientific theory or mathematical method, an aesthetic creation, a scheme, rule or method for performing mental acts, for playing games or for doing business, or a presentation of information from being inventions in so far as the patent application or patent relates to the specified subject-matter or activities as such. Hence, the mere implementation of such exclusions on a computer does not constitute an invention and is therefore not examined for patentability.

**5.b** Please describe the subject matter excluded from patentability per se and explain in detail how it is identified in practice

A computer implemented invention (CII) comprises of a mix of technical and non-technical features. If a claim is drafted such that it discloses a non-technical feature which does not interact with any technical feature, then said non-technical feature cannot contribute to novelty and inventive step. Said non-technical feature is thereby excluded from patentability .

**5.c** If there is any subject matter identified in a patent claim relating to CII that is excluded from patentability per se, is it possible to overcome a rejection of the patent claim by adding other subject matter to the claim?

*If yes, please answer questions 5.d-5.e, if no, please go to question 6.a*

Yes

Please Explain

**5.d** Does the “other subject matter” need to have a certain quality, e.g. does it need to be inventive?

No

Please Explain

The added subject matter needs to be a technical feature but it does not need to provide a technical contribution to the state of the art (add novelty, i.e. be inventive). On the contrary, the assessment of technical character pertains to the whole of the patent claim.

**5.e** Can you describe the areas of human endeavour the “other subject matter” needs to relate to?

Yes

If yes, please explain

To overcome a rejection of the patent claim by adding other subject matter, the added subject matter needs to be a technical feature and it needs to interact with the excluded non-technical feature.

**6.a** Requirement of a contribution in a field of technology.

**Does the examination of the patentability of CII in your jurisdiction implicitly or explicitly involve an examination of the contribution the claimed CII makes to the state of the art (such examination may be part of a general “patentability” test or part of the novelty and inventive step/non-obviousness test)?**

*If yes, please answer questions 6.b-6.d, if no, please go to question 7*

No

Please Explain

Patents shall be granted for inventions in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application. It is consequently of no relevance whether a CII contributes in a certain field of technology.

Under the previous legal framework of EPC 1973, the boards of appeal applied the so-called "contribution approach" to assess whether the claimed subject-matter was an invention within the meaning of Article 52(1). Under the contribution approach, an invention had a technical character if it provided a technical contribution to the state of the art in a field not excluded from patentability. In other words, to assess the presence of an invention within the meaning of Article 52(1) EPC 1973, a criterion was established which relied on meeting further

requirements mentioned in that Article, in particular novelty and/or inventive step. Hence, some prior art was taken into account when determining whether subject-matter was excluded under Article 52(2) and (3) EPC 1973. The contribution approach has been abandoned by later case law because comparison with prior art is considered inappropriate for determining whether an invention is present. Under EPC 2000, the test of whether a claimed invention is an invention under Article 52(1) is therefore separate and independent from the examination of novelty (Article 54) and inventive step (Article 56).

**6.b** Does this test implicitly or explicitly involve excluding contributions from areas of human endeavour which are not deemed to be sources of patentable inventions? In other words, does patentability of CII implicitly or explicitly require a contribution from areas of human endeavour which are deemed to be sources of patentable inventions (e.g. engineering, natural sciences)? If yes, please explain.

**6.c** Does this test also implicitly or explicitly require that the relevant contribution the CII makes to the state of the art qualifies as inventive/non-obvious? This additional test may be integrated into the general inventive step / non-obviousness examination, or may be a stand-alone test. If yes, please explain.

**6.d** Is there an implicit or explicit consensus in your jurisdiction as to the areas of human endeavour which are accepted as sources of patentable CII? If yes, are these areas of human endeavour defined, and if so how?

**7** Does the Law / Practice in your jurisdiction contain any specific claim drafting or other formal requirements which are applicable to CII, i.e. which deviate from the Law / Practice applicable to inventions which are not CII? If yes, please explain.

No

Please Explain

**8** Does the Law / Practice in your jurisdiction contain any specific requirements as to sufficiency of disclosure and/or enablement which are applicable to CII, i.e. which deviate from the Law / Practice applicable to inventions which are not CII? If yes, please explain.

No

Please Explain

**9** Do courts and administrative bodies in your jurisdiction apply the Law / Practice for patentability of CII in your jurisdiction in a harmonized way? If not, please explain.

Yes

Please Explain

Sweden has one District Patent Court (the Patent and Market Court) and one Patent Appeal's Court (the Patent and Market Court of Appeal). These courts were implemented only in September 2016, and it is expected that the Patent and Market Court will handle roughly 60 patent cases per year. The Swedish Patent and Registration Office handles roughly 2500 national patent applications per year. That does not provide for a large basis of practice regarding CII and practice is harmonized within these case matters. However, it shall be noted again that both courts and administrative bodies apply the Swedish Patents Act in conformity with EPC and as interpreted by the European Patent Office and the Boards of Appeal.

## II. Policy considerations and proposals for improvements of your current Law/Practice

**10** Is the current Law/Practice in your jurisdiction regarding the patentability of CII considered by users of the patent system and practitioners to be understandable and workable? If not, please explain.

Yes

Please Explain

Case law and office guidelines pertaining to patentability of CII are both understandable and workable. There has been significant development of case law and practice in the past 10 years, and Computer Implemented Inventions are no longer excluded from examination by a strict application of Section 1 of the Swedish Patents Act when non-technical features are included in the patent claim. Instead, the patent claim shall be examined as a whole, meaning that the technical effect of the invention is examined based on the technical features, regardless of any non-technical features being presented in the patent claim.

However, the current actual practice before the EPO and the Swedish Patent and Registration Office is not considered workable as examiners' view of what's technical or not, differs from one examiner to another. While the technology is developing quickly and venturing into new fields, the EPO's view on what's technical is more static. Especially, inventions relating to a field excluded from patentability although having technical character and comprising technical features contributing to patentability, might encounter difficulties during prosecution simply because the invention relates to a field being non-patentable as such – at least in the patent examiner's own view.

It is experienced that different directorates within the EPO treat applications differently. In certain CII related fields, it is very unlikely that the claimed invention is considered as non-technical, whereas in other less conventional fields the threshold is lower for the examiner to define it as non-technical, even if the invention in the less conventional field would be as, or even more, technical than the case in the more conventional field. This is especially true if the invention resides in a field excluded from patentability although having technical character.

Further, it is considered that there are differences between examiners, and thereby also between e.g. the Swedish Patent and Registration Office and the EPO on how CII are judged. In particular, it can often be argued whether a feature is business/administrative or technical. Such differences in examiners' judgement makes the patent system unpredictable.

**11** Does the current Law/Practice in your jurisdiction regarding patentability of CII provide appropriate outcomes, in particular from an economic perspective? If not, please explain.

No

Please Explain

The experience is that the view on what is technical in EPO/Swedish office practice is very old fashioned, which causes different incitements in different technological areas of investment. A typical example of such old fashioned view often raised is data analytics, which often is seen as an administrative process by EPO, whereas companies and societies invest much money in the development of such technology. Consequently, it is more valuable for companies to invest in the areas in which it is easier to get patent protection than in more difficult areas. There is no reason why the law, or practice, should discriminate certain fields of technology. In addition, due to irregularities between examining divisions/examiners and patent offices, it is experienced that inventions in some business domains are unduly difficult to patent. For example, technology related to business support systems and financial systems may involve complex technologies. These are large and growing industries with the same needs of patent protection as more mature industries but due to irregular handling by offices it appears as though the mere existence of a patent specification mentioning these areas may create a prejudice of lack of patentability. If the invention is technical, it shouldn't matter in which layer the invention resides. Many companies avoid using certain terms in the specifications and some even file applications under a different company name in an attempt to avoid certain directorates/art units which underlines the experienced uncertainty.

**12** In your jurisdiction, is copyright protection of CII regarded as sufficient from an economic standpoint? Please state why in either case.

No

Please Explain

Copyright protection is not sufficient from an economic standpoint. The scope of protection for copyrights are too narrow to provide a sufficient protection of CII. Copyrights protect only a literal copy of the program code as such, not the functional concept behind a given software/CII, and thus does not provide for protecting various embodiments of an inventive technical solution. The same is true also for other industries and technologies. A software may be copied. The creation of CII is a lengthy and expensive process while a software is simple to copy, without an

apparent infringement of the copyright.

Also, copyright is not a registered protection in Sweden which provides for evidence collection complications.

**13** Alternatively, is there an explicit or implicit consensus that patent protection of CII is required to ensure sufficient reward on investments made into the development of CII? If yes, please explain.

No

Please Explain

There are diverging views on whether patent protection is required depending on type of company, such as large companies with big patent portfolios, companies not using patents, and SMEs.

In principle, the software industry is no different than other industries, however, some of the players within the industry believe open source collaborations are preferable. Other industries which invest largely in CII, such as IT and automobile industries, are of the opinion that patent protection is required to ensure ROI.

**14** In your jurisdiction, is there an implicit or explicit consensus that availability of patent protection should be limited to contributions from certain areas of human endeavour, excluding contributions from all other areas of human endeavour, no matter how advanced these contributions?

No

Please Explain

There is no consensus. Some are pro and some are against.

### III. Proposals for harmonisation

**15** Do you consider that harmonisation regarding patentability of CII is desirable?  
*If yes, please respond to the following questions without regard to your Group's current Law/Practice.  
Even if no, please address the following questions to the extent your Group considers your Group's current Law/Practice could be improved.*

Yes

Please Explain

**6.a** **Exclusion of non-patentable subject matter per se.**  
**Should there be any exclusion from patentability per se of subject matter relating to CII?**  
*In this context, "per se" means that the non-patentable subject matter has to be identified without any implicit or explicit examination of the contribution to the state of the art the claimed CII makes.*  
  
*If yes, please answer questions 16.b-16.e, if no, please go to question 17.a*

No

Please Explain

Patentability of CII should be assessed on the same merits as other inventions. However, the Swedish AIPPI Group is of the opinion that the notion of invention shall exclude non-technical ideas, per se.

**6.b** Please describe the subject matter that should be excluded from patentability per se and explain in detail how it should be identified in practice.

**6.c** If there is subject matter identified in a patent claim related to CII you consider should be excluded from patentability per se, should it possible to overcome a rejection of the patent claim by adding other subject matter to the claim?

*If yes, please answer questions 16.d-16.e, if no, please go to question 17.a*

**6.d** Should such “other subject matter” be required to have a certain quality, e.g. should it need to be inventive? Please state why in either case.

**6.e** If yes to question 16.d above, please describe the areas of human endeavour to which such “other subject matter” should relate.

**7.a** Requirement of a contribution in a field of technology.  
Should the examination of subject matter eligibility of CII involve an examination of the contribution the claimed CII makes to the state of the art? If not, please explain.

*If yes, please answer questions 17.b-17.e, if no, please go to question 18*

No

Please Explain

Assessing whether an invention is present or not by comparing the subject-matter with prior art should not be put (back) in practice.

**7.b** Should such examination be made under a test specific to CII, or should it be part of the usual novelty and inventive step/non-obviousness test? Please state why in either case.

**7.c** Under this test, should patentability of CII require a contribution from areas of human endeavour which are deemed to be sources of patentable inventions (e.g. engineering, natural sciences)? In other words, should contributions from areas of human endeavour which are not deemed to be sources of patentable inventions be disregarded? If not, please explain.

*If yes, please answer questions 17.d-17.e, if no, please go to question 18*

**7.d** Should this test also require that the relevant contribution the CII makes to the state of the art qualifies as inventive/non-obvious? This additional test may be integrated into the general inventive step / non-obviousness examination, or may be a stand-alone test. Please state why in either case.

**7.e** Should there be a non-exhaustive list of areas of human endeavour which are accepted as sources of patentable CII, taking into account the ultimate purpose of patent law (protecting unforeseen, non-obvious subject matter)? If yes, please provide such a list. If not, why?

**18** Should there be any specific claim drafting or other formal requirements which are applicable to CII, i.e. which deviate from the rules or practice applicable to inventions which are not CII? Please explain why in either case.

No

Please Explain

There should not be specific formal requirements on how patent claims are worded. As specified above, Computer Implemented Inventions are not a technical field of its own, or limited to e.g. electrical engineering. A mechanical invention implemented by using a computer should not be examined any differently than a mechanical invention which does not involve the use of a computer.

However, two issues arise regarding claim drafting for CII. The first issue deals with unity of invention, the second with claim coverage in infringement situations.

First, the applicant should always have the right to protect different embodiments of the invention, which proves difficult under the current implementation of the "Special Technical Feature" criteria. With new technologies, such as cloud deployment, several independent claims in the same claim category might be needed to protect the different embodiments of the invention and act against infringement. Nevertheless, it has proven difficult to claim a single unit/node whereby two or more interacting units must be claimed, resulting in non-unity of invention remarks from patent offices. If the invention may be implemented variably in unit/node, different claim constructions are needed to protect the invention. In order to address vendors that never touch the hardware, computer program claims may be valuable, whereas for others unit/node claims may be more useful. The variables cause certain applications to have a large number of independent claims, which in turn may raise various objections from an examiner. Part of the problem seems to be that the examiners do not fully understand the difficulties of detecting infringement, if they had such understanding threshold for raising a non-unity restriction may be set higher.

Second, for certain CII, claim categories are a challenge. A computer program claim should be understood as a product claim rather than belonging to the method claim category, the latter being implied by the current practice of the EPO. To be certain that protection of the computer program covers a product as well – to stop someone from selling infringing computer software without having to rely on indirect infringement – claims such as signal/carrier claims to cover the downloading of a program implementing the invention are needed. If a computer program claim would cover also downloading (in line with the Japanese practice), signal/carrier claims would not be needed, thereby lowering patenting costs.

**19** Should there be any specific requirements as to sufficiency of disclosure and/or enablement which are applicable to CII, i.e. which deviate from the rules or practice applicable to inventions which are not CII? Please explain why in either case.

No

Please Explain

No specific requirements should be needed. What matters is what the skilled person understands, not any formal requirements on flowcharts etc.

**20** Please comment on any additional issues concerning patent protection of CII your Group considers relevant to this Study Question.

Differences in patent laws, and in how case law has evolved, in different jurisdictions poses harmonization challenges. Short term, however, there are advances to be made – to the benefit of user predictability and thereby cost – if application of existing practices becomes harmonized within and between patent offices.

It is important that the patent system offers good ways of protecting CIIs, especially in view of the predicted technical development within the area in which large amounts of money and effort is invested. Therefore, the patent offices' view on what is technical should evolve together with the industry view. If the technical solutions may not be protected in ways securing predictable economic outcomes there is a risk that the industry transfers from open collaborative innovation towards more closed systems based on trade secrets. Such a development would hinder technical development, since interoperability between products from competing companies would in such a case be lost.

The Swedish AIPPI Group is very reluctant to pointing out certain human endeavours as being patentable, thereby excluding other features which may be technical in certain contexts when assessing an invention as a whole. We fear that this would create a patent system which is inflexible and which, over a longer period of time, would hinder technology development if new and innovative technology fell outside such a



list of patentable human endeavours. Such a list would necessarily have to be kept updated continuously, as new technology develops which is now unforeseen. A negative consequence is thus that such a list would inevitably always be one step behind the technical development process, making the first technical developments in each new field un-patentable. As the first technical developments in each new field are possibly also the most important/pioneering developments and/or the product of a very time- and money consuming development process, it would be detrimental to the industry if these developments should not be protectable under the patent system.

It shall be stressed that the exclusions from the notion of invention which are listed in the EPC as well as in the Swedish Patents Act, exclude only such endeavours as such. What is not considered to have technical character shall be understood and implemented narrowly, so as to not hinder innovative progressions in technology. Also, the exclusions from the notion of invention does not differentiate between various technical fields. This is important and the Swedish AIPPI Group would like to stress, as pointed out in the report above, that CII is not a technical field of its own. Most method claims today are implemented using a computer, and looking only at Internet of Things we can already foresee that the areas of technology which are relevant for CII are almost unlimited.

Therefore, the Swedish AIPPI Group appreciates the efforts of AIPPI to reach a common denominator list of human endeavours to be excluded from patentability, but recommends that the issue shall be focused on technical and non-technical features and on the technical effect of the invention.

**Please indicate which industry sector views are included in part "III. Proposals of harmonization" on this form:**

This report has been drafted by a working group in which industry representatives from the **ICT**-sector and from a **digital music service provider** have participated.

Please enter the name of your nominee for Study Committee representative for this Question (see Rule 12.8, Regulations of AIPPI). Study Committee leadership is chosen from amongst the nominated Study Committee representatives. Thus, persons not nominated as a Study Committee representative cannot be in the Study Committee leadership.

Louise Jonshammar