SOFTWARE PATENTS – EPO PRACTICE: HISTORY AND STATE OF PLAY

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INTRODUCTION

I would like to start with a statement which should not be controversial but sometimes is, and that is that there are some kinds of innovation which we reward with patents, and some that we do not, and that it is a matter of public policy, what kinds of innovation those are.

As you know, I work for the European Patent Office (EPO). Seen as a global institution, it is the job of the EPO to put into effect public policy, as it is written into the law. We have to interpret what the law is about, what the policymakers want, and what that means in awarding patents or not.

I bought a game recently. It is called *Pandora's Box*. It is very good. It is made by a corporation which is large enough not to need any endorsement from me. It consists of a number of visual puzzles. There are ten different kinds. They are all similar to traditional games but they have been adapted for computers. Each of them is somewhat innovative. As an example, there is one which is based on the jigsaw but you have to move the pieces which overlap until they make the picture. The point I am trying to make is that the company that owns this, or the inventor, depending how you look at it, would probably like to protect the idea of these puzzles. It is a valuable idea. These puzzles have a commercial value, so they would like to protect them, they would like to get patents for them. It is up to our policymakers, law makers, to decide whether or not this is the kind of innovation we want to reward with patents.

The second question is, how do we distinguish between the things we want to reward with patents and the things we do not? That is my problem. I work as the Director of a group of examiners and we have the responsibility to formulate ways in which the examiners can, in a transparent, comprehensible way, say yes or no.

TOPICS

- Provisions of the European Patent Convention (EPC)
- Distinction between 'technical character' and 'technical contribution'
- Technical character in the context of computer software – major EPO Boards of Appeal decisions
- What can be protected – allowable forms of claims
- Technical contribution – the objective technical problems

Those are the topics I will cover. I will briefly review the relevant Articles in the European Patent Convention (EPC). Then I want to try to lay the foundations for the way in which we distinguish patentable from non-patentable innovation, in particular today, in relation to computer software. I have talked about the EPO being a single global body, but what happens in fact is that the interpretation of the EPC is done by the Boards of Appeal. They always deal with individual cases and they are effectively the guidance for ourselves in terms of everyday granting or refusing of patents. We have to formulate our approach so as to be consistent with what has been given to us. So I want to talk about what the Boards of Appeal have said about the patentability of computer software and then I want to look, very roughly speaking, at the scope of protection that is available. Finally, I will address the issue of the way we judge new invention.

Provisions of the European Patent Convention

Provisions of the European Patent Convention (1)

- Art 52(1): "European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step."
- Art 52(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."
- Art 52(3): "The provisions of paragraph 2 shall exclude patentability ... only to the extent to which a European patent application ... relates to such subject-matter or activities as such."

Provisions of the European Patent Convention (2)

- Rule 27(1): "The description shall:
  (a) specify the technical field to which the invention relates;
  ...
- (c) disclose the invention, as claimed, in such terms that the technical problem (even if not expressly stated as such) and its solution can be understood, ..."
- Rule 29(1): "The claims shall define the matter for which protection is sought in terms of the technical features of the invention. ..."
- Rule 30(1): "Where a group of inventions is claimed in one and the same European patent application, the requirement of unity of invention referred to in Article 82 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression 'special technical features' shall mean those features which define a contribution which each of the claimed inventions considered as a whole makes over the prior art."

These are the provisions. In some ways the central provision of the entire Convention is Article 52(1). Basically, there are four conditions. It says, "....shall be granted for any inventions which....", and the next clause states that some things are not inventions. So there are four conditions: it has to be an invention and then it has to be susceptible of industrial application, new, involve an inventive step.

Article 52(2) goes on to give a list of things which are not to be regarded as inventions. It includes methods of doing business, methods of playing games, and also programs for computers. The important point is that it says first, "The following *in particular* shall not be regarded as inventions...". That is a list which is supposed to be illustrative; it is not exclusive, it is not total. So that is one of the questions: what other things fit into this list? So that gives you a degree of fuzziness.

The next Article, 52(3), says, "The provisions of paragraph 2 shall exclude patentability ... only to the extent to which a European patent application ... relates to such subject-matter or activities as such."

That is about as obscure as you can get. This is not straightforward, it is not clear what that means, anybody who tells you it is has got his own agenda. It does not even refer to what is claimed. It says, 'relates to'. It is a very fuzzy condition.

What it is saying somehow is that this is some kind of restriction on Art 52(2). We can discuss for ever why it is there but the general view is that

the people who formulated the Convention realised that they did not want a black and white regulation; they wanted the Boards of Appeal, or the national courts, to have a certain flexibility to keep up with events. Maybe that is what the reason was.

At other places in the Convention we have various references to 'technical'. Rule 27(1): "The description shall ... specify the technical field ...". Rule 27(c): "... disclose the invention, as claimed, in such terms that the technical problem ... and its solution can be understood,...". Rule 29(1): " The claims shall define the matter for which protection is sought in terms of the technical features of the invention. ...".

These are rules. They do not have quite the same status as the Articles but nevertheless they are very important; they are part of the Convention and these ones that I have quoted were written at exactly the same time as the Convention, in 1977.

There is a further rule, Rule 30(1). I have to say that was not part of the original Convention. It came into effect in 1990, with the agreement of the Americans, by the way, and they seem to have forgotten about that! It is actually about unity. Nonetheless, it tells us a great deal about what is the issue of technicality in patentable innovation: "... the requirement of unity of invention ... shall be fulfilled only when there is a technical relationship amongst those inventions involving one or more of the same or corresponding special technical features. ..." All right, just some vague reference to 'technical' and 'technical features'. And then: "The expression 'special technical features' shall mean those features which define a contribution which each of the claimed inventions considered as a whole makes over the prior art.". So it is the contribution made by the invention considered as a whole. It is a very interesting formulation.

So technicality comes into it somewhere, the issue of being technical. Greg Aharonian will tell you this afternoon that the term 'technical' is not defined clearly anywhere, either in the Convention or in the case law as yet formulated, and I will not deny this. You can say that this is the playground for public policy. This is where we put the limit for technicality. Greg will suggest that economics should be included as technical subject-matter. So far the Boards of Appeal have rather given the impression that they do not think it should be. But this is where there is some room for discussion and movement.

‘Technical Character’ and ‘Technical Contribution’

‘Technical character’ and ‘technical contribution’

- Technical character: A machine, an article of manufacture, a process of operating a machine, etc.

  A priori (not judged by comparison with the prior art)

  Example: a lampshade.

  Claimed subject-matter lacking technical character is excluded under Art 52(2) and (3) EPC.

- Technical contribution: What (technical) is added to the prior art.

  Negative example: a new pattern on a known lampshade.

  Claimed subject-matter not making a technical contribution is excluded as lacking novelty or inventive step.

In order to understand our approach you have to realise that there are two separate issues. One of them is so-called ‘technical character’. We talk about what is claimed as a whole. What do you want protection for, as a whole? The claim defines what you want protection for. You look at the whole of that and ask whether it does have technical character, is it a technical thing. Fundamentally, that is a very easy idea, and it is also very easy to define normal innovations in terms of technical features, in terms of something which has technical character. A machine, an article of manufacture, a process of operating a machine, and so on – these are things that are clearly of a technical nature.

I used to have the idea of an artist, Leonardo da Vinci, walking into the European Patent Office with the Mona Lisa under his arm and asking to patent it. They send him to see a patent agent. He writes a claim and he says it is a painting of a beautiful woman, with a nice smile, and so on. The patent application comes in and the examiner says that it is an aesthetic creation, it is not patentable, it does not have technical character. So the patent agent sits down with Leonardo and asks what else can be said about it. What kind of material is it made of? It is on wood. How big is it? It is 24 inches by 19 inches, or whatever. And so on. So he puts those features into the claim and then it is something which has technical character. It is a physical object. And you can do that with more or less anything.

So technical character means defining something in terms of its physical properties. The example we usually give is a lampshade. A lampshade is something that is made in industry, it is clearly technical. If you have a claim which has the features of a lampshade, how big it is, how transparent it is, what shape it is, you have something of a technical character.

If you have something which does not have that technical character in the claim it is excluded straightaway, it is not an invention under Article 52(2). As I say, it is very easy to claim most things in terms of technical character so we are generally talking about something which is purely abstract. You could define an abstract business method, if you like. If one party offers goods at a certain price, the other party offers to buy at half the price, which causes a certain response, and so on, you could do it in purely abstract terms and then it would not have technical character. But if you, let us say, describe a machine for carrying out the same thing, that really has got technical character.

The second concept which is extremely important is the so-called technical contribution. That is, you have in all cases some prior art. The question is, what is the contribution which is made by this particular innovation? You have to look at the claim as a whole, but you have to look at the technical effect, the effect or the contribution. For example, we might have a lampshade, and the only new thing about it is the pattern. Instead of having lilies on it, it has roses. Then we have to judge whether there is a technical contribution, and if there is no technical contribution we do not say it is excluded under Article 52(2), we do not say it is not an invention in the absolute sense, that it does not have technical character. We say it does not make a technical contribution, and that is an issue which according to the recent case law of the Boards of Appeal means it either lacks novelty or inventive step.

Frankly, I do not care. This is not a big issue, what the exclusion is. The point is that we still say, and the Boards of Appeal still say, that if there is no technical contribution it is not patentable. It is only a detail under which Article it is not patentable.

Technical character of software inventions (1)

- The Boards of Appeal determine the interpretation of the EPC.
- Leading cases:

Koch & Sterzel	T26/86	Official Journal	(OJ)	1988,19
Vicom	T208/84		OJ	1987,14
Sohei		T769/92		OJ1995, 525
IBM	T1173/97		OJ	1999, 609
Pension Benefit Systems	T931/95		To be published	

- A method or program requires a 'further technical effect' (T1173/97)
- An apparatus, e.g. a computer loaded with a program, is always technical (T931/95)

Altogether there are probably 100 cases from the Boards of Appeal which deal with the issue of technical character of software inventions. The basic line come from Koch & Sterzel and Vicom, the first two on the list, in which it was said that you must deal with subject-matter claimed as a whole, and fundamentally you are looking for a technical effect. Koch & Sterzel was a computer-controlled X-ray machine. So there was the idea of computer-controlled machines falling into the area of patentability. Vicom was to do with image enhancement, but by means of a computer program. This was also considered to fall within the realms of patentability.

For a long time we used to say that computer programming, or the field of programming, was one of the things that was not included. The Sohei decision, in 1994, was really ground breaking because the Boards of Appeal said that if the invention was to do with how you programmed something, how you implement something on the computer, and if that implementation requires inventiveness, then that is patentable. What they were saying was that programming is a technical art, in the view of the Board of Appeal. That was the first time that was said and that changed our approach a great deal.

That is a practical rule for those of you out there. If you want to have software patented then put in the details of the way it is implemented. You may find that the overall concept is not a patentable one because it is a game or a business method, but the implementation may be.

The IBM decision, T1173/97, was very important for two reasons. One of them was the scope of protection, or what is protectable. The other one was that it resolved for the first time the issue of what clause or what Article we

use for refusing applications. This was the first one that said that if it was an issue of no technical contribution, then it must be refused for lack of novelty or inventive step.

Pension Benefit Systems, T931/95, made that very concrete. In T1173/97, that was not really the issue at hand. They could have not bothered to say it. But in the Pension Benefit Systems case, that was what it was all about. There was a business method implemented on a computer. The implementation details given were no more than a straight translation of the financial system into steps at the same level of the computer program. There was no issue of difficulty of implementation. The Board of Appeal came to the decision that there was no technical contribution and therefore it lacked inventive step. In that decision they also came to the conclusion that a computer loaded with a program always has technical character. You do not have to consider whether or not it is patentable under Article 52(2).

T1173/97 introduced a rather ugly idea that a method of operating a computer or a program in order to be have a technical character, requires a so-called 'further technical effect'. They said that whenever you run a program on a computer, you have a technical effect. But that is not sufficient. They wanted something beyond what happens whenever you run any old program. So they said for methods or programs you have to have a further technical effect, but the apparatus is always within the realms of patentability.

Technical character of software inventions (2)

- A software invention has a 'further technical effect' if:

  it acts on physical data; or

  it has an effect on the way the computer operates (OS, GUI, saving memory, increasing speed, ...): or

  its structure involves 'technical considerations' (implementation details).
- Money, business data and text are not physical data.

We do not have a definition of 'further technical effect'; we have examples and we can make some fairly good generalisations. One of them is if it acts on physical data, e.g. an image, or the control data for an X-ray machine. If it has an effect on the way the computer, as a whole, operates, the operating system. A graphical user interface can be a good example, maybe reducing something to a single click. Or if it is saving memory, increasing speed, and

so on. The third one, which is what I tried to explain from Sohei, is if what is claimed is an implementation which requires technical programming skill, if you like, programming inventiveness.

What has also been decided – and I emphasise *decided* – in the Boards of Appeal decisions is that, for example, money, business data and text are not physical data; they do not in themselves give the necessary further technical effect.

Forms of Claims

Forms of claims

- "A method of operating a data-processing system comprising the steps of:
  step A;
  step B; ..."
- "A data-processing system comprising:
  means for carrying out step A;
  means for carrying out step B; ..."
- Program claims are allowable, if the equivalent method claim would be allowable (T1173/97):
  "A computer program comprising code adapted to perform the following steps when executed on a data-processing system:
  step A;
  step B; ..."

For many years there were two forms of claims which we allowed. In fact, the Vicom decision, which was on the list I gave you, laid down that you could have a claim for a method of operating a computer, or a claim to the computer loaded with the program. There is a kind of jargon that is used, but that is what it boils down to.

As a result of a change in practice in the US, there was a great deal of pressure in Europe to grant claims to programs as well, to the programs themselves. It eventually came to the Board of Appeal, and the Board of Appeal said, yes, if – and this is the big point – if an equivalent method claim would be allowable, then a claim to the program itself is also allowable.

Is It Inventive?

Technical contribution – objective technical problem

- Find the closest prior art.
- Determine the difference in effect of the claimed invention compared to this prior art.
- Determine the 'objective technical problem' to overcome.
- If no technical problem can be determined there is no inventive step.
- Else would the problem and its solution be obvious to the skilled person given the state-of-the-art?

This is the scheme we use for deciding whether or not something is inventive. It is a scheme which applies to everything. It is not specifically to do with computers as such. It is a scheme that has been worked out as some transparent, to some extent reliable method by which people can estimate whether things are going to be patentable, and also judge whether we have done our job correctly.

So you have to find the closest prior art. You look at the difference between what is claimed as a whole over this prior art. From that you try to determine what technical problem the inventor was faced with, or rather would have been faced with if he knew of this prior art. Then you look and ask whether the solution would have been obvious to him.

What is relevant to us in relation to software is that the Boards of Appeal have said that we have to restrict it to a technical problem faced by the inventor, not a question of entertainment, or aesthetics. It has to be restricted to the underlying technical problem.

I finish there, but I have another little illustration. You all know this. I was in Ireland in May for PATLIB. There was a booth there and it had a big poster up saying Rubik did not patent his cube and lost millions. He always patented everything else after that. So you should patent things. That was the message.

Because this is my everyday business I said to myself, could he have patented it? Was it patentable? Well, I think in the abstract that it was not patentable. But here is a very good case, and a practical thing for you to think of. What could he patent? ... Yes, the way it was put together. I think that is a good illustration. Patents are about engineering. What happens if you give a Rubik cube to an engineer? He takes it apart. How many people here know how to

take a Rubrik cube apart? You twist it through 45˚ and you lever under there, and that is how it comes apart. That is what an engineer does. I bought a Rubik cube when these things came out. I got into a hopeless mess. I found out how to take it apart, and how to put it together again in the right order, and I never learned how to solve it!