International and comparative law of patents, trade secrets and related rights

Section D: Current issues in international patent law and policy

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Chapter 5: Patenting computer software and business methods

The patenting of computer software has been one of the most dynamic and complicated areas in patent law. This is particularly true in Europe and the United Kingdom. In this chapter you will study the issues that surround computer programs and, in particular, the often misunderstood exclusion from protection of computer programs and business methods. This chapter contrasts the approaches to the subject in the United States, the European Patent Office and the United Kingdom.

Learning outcomes

Having studied this chapter and the relevant readings, you should be able to:

- explain the problems under the European Patent Convention
- discuss the developments in the practice of patenting computer software in:
  - the European Patent Office
  - the United States
  - the United Kingdom
- outline the history of patenting software from the 1960s until today
- discuss the issues surrounding the debates over the patenting of computer software.

Essential reading

- Bently and Sherman, pp.405–20
- Guadamuz, A. 'The software patent debate' (2006) 1 *Journal of Intellectual Property Law and Practice* 196.
- Lea, G. 'The revolution that never was: a cynic's eye view of the software, business and e-commerce method patenting controversy in the wake of *State Street*' 2(1) *Digital Technology Law Journal*. Available at: http://www.austlii.edu.au/au/journals/DTLJ/2000/4.html
- Reeve, N. 'Down to business' (2007) 2 JIPLP 445.

5.1 European Patent Convention: the basic problem

Both the EPC and the Patents Act 1977 appear, at first blush, to exclude computer programs from patentability. In the EPC the relevant provision is Article 52, which reads:

> 1. European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.
>
> 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. The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

The exclusion of computer programs as such is not the only restriction on patentablity that such things face. In addition, computer programs may not be patentable because they represent a mathematical method or are merely a presentation of information. These restrictions are combined with the problem that certain things might also be a method of doing business. The rules relating to the exclusion of business methods are closely linked to the exclusion for computer programs; accordingly, we will not consider them separately.

There is no clear definition of a 'computer program'. In *Gale's Application* [1991] RPC 305 the Court of Appeal suggested that it is 'a sequence of instructions' which may be in binary (machine/executable code) or something closer to natural language (assembly code/high-level languages).

5.1.1 The European Patent Office

During the 1980s a number of applications were filed for computer programs, otherwise called computer-implemented inventions. This ultimately led to the decision in *VICOM* T-208/84 *VICOM* [1987] EPOR 74, where it was held that a computer program could be patented where it involved a technical contribution. The basic approach this advocated was finding a technical contribution based on the claimed invention against the known art.

An early example of the technical contribution approach denying an invention protection was *IBM/Text clarity processing* [1990] EPOR 606. In that case it was found that software which simplified the language in a document was a mental act and so unpatentable. This conclusion was not affected by using a computer to perform the function.[1]

In *Sohei* [1996] EPOR 253 the Technical Board of Appeals began its departure from the technical contribution approach. Instead, it started to consider the contribution by reference to the prior art. This approach re-appeared some time later, but only after the technical contribution requirement became easier to overcome by reason of the decision in T0935/97 *IBM/Computer Programs* [1999] EPOR 301. In that case, the Board allowed a claim for a computer as programmed because it resulted in a physical modification of the computer's hardware when the program was running. It did not matter that this modification was miniscule in nature.

[1] *See also* Siemens/ Character Form *[1992] EPOR 69, which was for a similar invention and was also rejected.*

Pension Benefit System

The *PBS* case – *Pension Benefit System* [2002] EPOR 52 – set out a new approach to the patentability. The claims were for a method of controlling a pension benefit program which involved entering certain information, then processing it and determining the outcomes. The basic method of doing this was excluded as a business method as such, but the claim for the product (or apparatus) of a suitably programmed computer was allowed. This was held because the EPC does not expressly exclude apparatus under EPC Article 52. This case also confirmed several important points:

- A technical invention does not lose its technical character simply because it is used for a non-technical purpose such as a business method.
- A method claim is patentable so long as it is technical.
- An apparatus (or product) claim, even if it is a computer as programmed, cannot be an example of excluded matter since such things are not mentioned in Article 52(2) of the EPC.

There are now three versions of the hardware approach:

- *Pension Benefit System*. If the claim relates to a method which consists of excluded subject matter, it is excluded even if hardware is used to carry out the method. A claim relating to the apparatus (such as a computer as programmed) is not excluded, but is bad for lack of inventive step because the notional skilled person must be taken to know about the improved, excluded method.
- T258/03 *Hitachi* [2005] EPOR 55. A claim to hardware is necessarily not caught by Article 52(2). A claim to a method using that hardware is also not within the excluded matter. But either type of claim is bad for lack of inventive step for the reason described above.
- T424/03 *Microsoft* [2006]. It is proper to ask whether the claim is for something concrete (like hardware/apparatus). If it is then Article 52(2) does not apply, but inventive step, novelty and so forth should be applied in the normal way.

These cases demonstrate the desire of the EPO to bypass the exclusions under Article 52 and to consider only inventive step and novelty. The correct approach, it has recently been suggested,[2] is that something which is technical falls outside the exclusion, and so what is necessary is to identify a technical problem.

[2] *In* DUNS Licensing *[2006] OJ EPO 46.*

5.2 Approach in the United Kingdom

In the United Kingdom, the law is presently in a state of some flux. In *Aerotel* v *Telco Holdings* [2006] EWCA Civ 1371 it was believed that some clarity had been brought the field and the correct approach to computer programs had been identified. In *Symbian* v *Comptroller-General* [2008] EWCA Civ 1066 the Court of Appeal endorsed *Aerotel*.

Aerotel does not represent a departure from previous UK practice; rather, it is a return to the earlier decision of the Court of Appeal in *Merrill Lynch's Application* [1989] RPC 561. This decision endorsed the EPO's decision in *VICOM* and introduced the technical contribution requirement to British law. This technical contribution approach was applied in *Gale's Application* [1991] RPC 305, an application for a method of calculating a square root where the court held that this was simply a method of doing a mental act. Similarly, in *Fijitsu's Application* [1997] RPC 608 a claim for a method and apparatus for modelling synthetic crystal structures of inorganic materials was rejected on the basis that the program was merely a method of displaying an image faster than could be done with a physical model. *Aerotel* leaves these decisions in place and provides a four-step approach to the exclusion:

1. Properly construe the claim.
2. Identify the actual contribution.
3. Ask whether it falls solely within the excluded subject matter.
4. Check whether the actual or alleged contribution is actually technical in nature.

What was interesting about the approach in *Aerotel* was that the Court of Appeal (Jacob LJ in particular) asked the President of the EPO to refer a question on computer programmes to the Enlarged Board of Appeal. The question was which of the four approaches of the EPO, as discussed above in section 5.1.1, was correct. The then President of the EPO believed that the matter was clear and declined to refer any questions to the Enlarged Board. Subsequently, following *Symbian*, the new President of the EPO referred similar questions to the Enlarged Board and many third parties have submitted amicus briefs: G 3/08 *Computer Programs*. This being the case, the law relating to computer programs remains somewhat dynamic.

Activity 5.1

What is the difference between the patenting of computer software in the United Kingdom and in the European Patent Office?

Feedback: page 25.

5.3 Approach in the United States

The US courts began, in cases such as *Prater & Wei*, 415 F. 2d 1378 (1969) and *Bernhart*, 417 F. 2d 1395 (1969) by being quite permissive in relation to the patenting of software-related inventions. This made it clear that the mental steps doctrine did not automatically preclude software from patentability. In *Gottschalk* v *Benson*, 409 US 63 (1972), however, the Supreme Court found a patent for an algorithm which transformed binary coded decimal numbers into pure binary to be invalid. The Court held that the invention was a sham pre-emption of a mathematical formula and so was unpatentable.

This decision, however, did not greatly restrict the incidence of computer software patenting. This decision was followed some years later by *Parker* v *Flook*, 437 US 584 (1978), where the Supreme Court found a computer-implemented invention to be little more than a mathematical formula. This situation finally changed when the Supreme Court gave judgment in *Diamond* v *Diehr*, 450 US 175 (1981). In that case, a claim for the implementation of the famous 'Ahrrenius equation' for the moulding and curing of rubber was found to be patentable. The Court of Appeals for the Federal Circuit reacted over the following years by handing down a number of decisions on the patentability of software. Notable among these were *Alappat*, 33 F 3d 1526 (Fed Cir 1994), where the CAFC upheld the claim on the basis that it clearly disclosed a machine (albeit a programmed computer) and so was patentable. This decision was finally extended to allow 'pure' software patents in the infamous *State Street Bank* v *Signature Finance*, 149 F 3d 1368 (Fed Cir 1998).

That case relied on the famous dictum that 'everything under the sun is patentable' to make it clear that computer programs must be patentable. Accordingly, a computer program only has to satisfy the same rules as any other invention (novelty, non-obviousness and utility) to obtain a patent. The *State Street* decision led to the widespread patenting of software and business methods, but this has not been welcomed by many groups who believe that patenting of computer software is harmful to the computer software industry.

In *re Bilski*, 545 F 3d 943 (Fed Cir 2008) the liberal approach of *State Street* was criticised and the court reiterated the machine or transformation test. This means that the invention must be either tied to a particular machine or apparatus, or transform a particular article into a different state or thing. The case has now been appealed to the Supreme Court and has attracted many amicus briefs from those interested in the issue. The decision of the Supreme Court will be significant for patenting within the United States, but it may also have implications beyond.

Activity 5.2

Do you think the US approach to the patenting of computer software would be well received in Europe?

No feedback available.

Reminder of learning outcomes

Now that you have studied this chapter and the related readings, you should be able to:

- explain the problems under the European Patent Convention
- discuss the developments in the practice of patenting computer software in:
  - the European Patent Office
  - the United States
  - the United Kingdom
- outline the history of patenting software from the 1960s until today
- discuss the issues surrounding the debates over the patenting of computer software.

Self-assessment questions

- Which exclusions under Article 52 of the EPC might be relevant to computer-implemented inventions?
- How should a claim for a computer-implemented invention be interpreted according to *Aerotel*?
- In practice do you think the approach of the EPO and the USPTO are the same?

Feedback to activities

Activity 5.1 *You should identify the four approaches set out in the Appendix to the* Aerotel *decision. You should also mention that the UK still applies the technical contribution test, but the EPO generally applies a more liberal test based on later cases such as* PBS, Hitachi *and* Microsoft.

Activity 5.2 *No feedback provided.*