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The patentability of software and business methods in Europe

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The debate on the patentability of computer programs and business methods is rooted in the general objectives of the patent system. The patent system is traditionally grounded in an assumption that a time-limited monopoly over the exploitation of a certain innovative process or device rewards inventors for their creative effort and encourages innovation and thus technical progress. This general assumption is the foundation of each national and transnational patent system.

On the one hand, computer-implemented inventions demand significant investment; but on the other, they are extremely easy and cheap to copy. It was thus recognised that such inventions might benefit from patent protection. Meanwhile, the importance of computer-implemented inventions has dramatically increased as a result of the growth of the Internet and e-commerce. Thus, the application to computer programs of patent, copyright or *sui generis* protection has been hotly debated in Europe in recent years, since computer programs (like business methods) were (and still are) not patentable *per se*.

European patent framework

Pursuant to Article 52(1) of the European Patent Convention (EPC), European patents will be granted for all inventions in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application. As explained in the following Articles 54, 56 and 57 of the EPC, these characteristics are found whenever an invention does not form part of the state of art, is not obvious to a person skilled in the relevant art, and can be made or used in any kind of industry.

While the EPC describes the three key features of an invention, it does not define the term itself: it states not what an invention is, but rather what it is not. Thus, Article 52(2) provides a list of what “shall not be regarded as an invention” – a list which includes methods for doing business and computer programs. However, not all subject matter or activities mentioned in Article 52(2) are not patentable. Article 52(3) establishes an important limitation to the scope of this list: it provides that “paragraph 2 shall exclude patentability only to the extent to which a European patent application or a European patent relates to subject matter or activities as such”.

Unfortunately, Article 52(3) does not explain what is meant by “as such” (presumably leaving it up to case law to establish a workable definition). Nevertheless, one may reasonably argue from this wording that computer programs and business methods (together with other products or processes set forth in paragraph 2) are not excluded from patentability under all circumstances, but may be the subject matter of a patent where they are not regarded as being “as such”.

Patentability of computer programs

In order to identify those computer programs which, as result of not being considered “as such”, are eligible for patent protection, the Boards of Appeal of the European Patent Office (EPO), in the leading *IBM I* and *IBM II* cases (T1173/97 and T935/97), highlighted the “technical effect” which represents the very nature of an invention – that is, the essential requirement for an invention to be patentable. In particular, the technical effect of running a computer program is that which causes the hardware to do something in the material world, such as to display items on screen, to store a particular pattern in a memory, to activate a peripheral device or, at the very least, to cause a certain

electrical current to run over particular connections. Within this context, the technical effect is the very element – in addition to those set forth in Article 52(1) – which allows an invention to overcome the exclusion from patentability under Articles 52(2) and (3) of the EPC. In other words, the question of what is a computer program “as such” may therefore be construed as another question: when is a computer program to be considered as a mere abstract creation, lacking in technical effect?

All computer programs are technical in the sense that they all have a technical effect merely through their execution on a computer – they all cause physical modifications to the hardware on which they are run. Even though this modification may be deemed “technical”, it is a common feature of all programs and thus cannot be used to distinguish computer programs with a *technical effect* from computer programs *as such*. It is thus necessary to find a further effect deriving from the execution of the instructions given by the computer program. Where this further effect has a technical character (or causes the software to solve a technical problem), the invention which brings about such effect may be considered an invention under Article 52(1) and can therefore be the subject matter of a patent if all other requirements of patentability are satisfied (ie, novelty, inventive step and industrial application).

On the basis of this reading of the EPC provisions on computer programs, the EPO refused a patent application for an online auction system because the system used conventional computer technology and computer networks, making no technical contribution to the state of existing technology. In contrast, a computer program which improves the signal strength of a mobile phone resolves a technical problem through a further technical effect of the program and is thus patentable. In such case the subject matter of the application is not the computer program as such, but rather the entire system as a whole – that is, the interaction between the mobile phone and the computer program.

A technical effect could also be recognised in a computer program that achieves, for example, reduced memory access time, enhanced control of a robotic arm or improved reception or decoding of a radio signal. In such cases it is of no consequence that the technical problem is solved by modifications to software rather than hardware.

Thus, applying the vague concept of “further technical effect”, EPO practice has developed to permit the patenting of computer programs through a narrow interpretation of the “as such” exclusion in Article 52(3). In particular, a patent may be granted in every case where a computer program is the only means, or one of the necessary means, to obtain a technical effect which goes beyond the inherent technical interactions between hardware and software.

Patentability of business methods

Although no legislation sets forth a precise definition of “business methods”, the traditional position in Europe was to exclude this category of invention from patentability. Business methods were generally identified as mere “ideas” that do not belong to any technical field and have no technical effect. However, the technological revolution has introduced to the market many new services that are carried out using computers, in both the financial and commercial sectors. The proliferation of online transactions revealed that new business methods were often performed by newly created computer programs. The patentability of business methods has thus become a major issue, on which EPO case law and guidelines have developed certain guiding principles.

Computer-implemented business methods are a sub-category of computer-implemented inventions. If a claimed business method involves new elements that are implemented by a computer program, it is indeed a computer-implemented invention. Like any other invention, the computer-implemented invention will then be patentable if it is new, is industrially applicable and involves an inventive step.

Under Articles 52(2) and 52(3) of the EPC, business methods shall not be considered inventions as such. The EPO has expressly stated that this exclusion is applicable to a wide range of subject matter which, while not literally constituting a business method, shares the same quality of being concerned more with interpersonal, societal and financial relationships than with engineering (EPO 2000/05/19 – Examination of “business methods” applications). Examples might include asset valuation, advertising, teaching, recruitment and so forth. The EPO has divided claims for business methods into three main categories:

- Claims for a business method in abstract, which do not specify any device

- or apparatus for implementing the method;
- Claims that specify computers or other digital devices or apparatus for implementing all or part of the method; and
- Claims that specify apparatus (often in addition to computers).

Claims in the first category are to be rejected and excluded from patentability, since they concern business methods “as such” and thus fall within the scope of the Article 52(2) exclusion.

Claims in the second category are to be assessed like any other computer-implemented invention.

Claims in the third category should be assessed as computer implementations.

Indeed, the exclusions in Articles 52(2) and 52(3) of the EPC relate only to method claims, and not to apparatus claims. Where a physical object or device is involved, technical character will be recognised and the invention will be assessed under the standard three criteria of patentability.

In certain cases it is difficult to determine what is technical or non-technical, and in such cases applicants should rely on

EPO case law. According to the EPO, some categories of activity are definitely technical. For example, “processing physical data” (T208/84), and “processing which affects the way in which a computer operates” are considered to be technical activities.

However, the assessment of patentability here is based more on the grounds of inventive step than of technical character. Method claims which are not rejected for lack of a technical consideration are often rejected for lack of an inventive step, insofar as the apparatus claim is self-evident (or non-inventive). What might constitute a business step may be implemented without any inventive activity (from a strict patent perspective). Any inventive business method implemented through technical means which are commonplace or which do not solve any technical problem are thus excluded from patentability in Europe.

The landmark case in this respect remains *Sohei/General Purpose Management System* (T769/92), in which the EPO held that a business method may be patentable if it utilises technical features or has a technical character that contributes to the state of the art. The management



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system filed by the applicant was implemented by a computer program and was found to be patentable, since the EPO Board of Appeal deemed that certain system files and processing means required to perform the method had a technical character. Business methods as such are therefore still excluded from patentability in Europe. Consequently, a method implemented by a standard computer program without any additional technical effect – as in the well-known US *State Street* case, which effectively abolished the business method exception and opened a new frontier for business method patentability in the US – is still excluded from patentability in the European patent system.

EU Directive on Computer-Implemented Inventions

The indistinct concepts of “as such” and “technical effect” prove a constant source of uncertainty for inventors and companies seeking patent protection before the EPO Board of Appeal. Moreover, although the Board of Appeal provides a uniform interpretation of the EPC, its decisions are not binding on the EPO member states,

whose courts may have different views of patentability under Article 52(2). As a result, European patents issued by the EPO may subsequently be revoked (or deemed unenforceable) in a particular country in the event of a patent infringement lawsuit or revocation proceedings before a national court.

In order to overcome these problems and to achieve a clear understanding of what constitutes patentable subject matter, in February 2002 the European Commission drafted Directive COD/2002/0047 to “harmonise and unify” the patentability criteria in order to establish a common practice for national courts. The proposed Directive would have also introduced a requirement for national courts of final instance to seek rulings from the European Court of Justice in such cases.

The Directive, which was largely supported by the European Commission and most member state governments, proved highly controversial, and the attempt to ground patents claiming computer-implemented inventions in clearer language than that of Article 52 was overwhelming rejected by the European Parliament in July 2005.