European patents for software, E-commerce and business model inventions ☆

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Abstract

It is commonly held that software, e-commerce and business model related inventions are inherently unpatentable in Europe. In reviewing the situation, this article emphasises the large number of inventions in this field which have in fact been patented through the EPO or through the national patent offices in Europe. The author provides many specific examples and draws parallels with the interpretation of the patent law in other technical fields. He shows that, if proper attention is paid to both the substance and the form of the claims and description, to direct the reader to the technical problem and its solution, effective protection is in fact very often available. The article also provides a brief introduction to the technology of computers for the non-expert and makes a brief mention of the differences in the law in Europe and the USA in this field. © 2001 Keith Beresford. Published by Elsevier Science Ltd. All rights reserved.

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1. Introduction

There has been a widespread misconception that computer software cannot be protected by patents in Europe. The unfortunate consequence is that a significant body of both the legal community and the software industry believes that the only protection available to software innovators is copyright. Copyright protection is narrow. Patent protection is considerably broader. As in other fields, software patents can protect novel concepts regardless of the form in which the concept is reduced to practice.

As will become clear, patent protection for software is indeed available, and the software industry, with the assistance of its advisers, may take advantage of the patent system wherever commercially appropriate.

2. The misconception

The misconception has no doubt arisen at least in part from the wide publicity given to a few appeal decisions, particularly in the UK, in which certain specific patent applications involving software were rejected. Numerous commentaries have been published analysing these decisions, and they are also discussed in various textbooks on patent law. [1] I do not propose to repeat these analyses here, though it will be necessary for me to refer to some of those decisions.

The true picture as to patentability of software in Europe cannot be obtained merely by analysis of the various appeal decisions. On the contrary, it is necessary to look at the software patents which are being granted without objection. These are substantial in number. The actual position was discussed in an article entitled "Patenting Computer Software" which appeared in the

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[1] The subject is treated in full in the book "Patenting Software under the European Patent Convention" by the same author, recently published by Sweet & Maxwell, London. In addition to analysis of the EPO Board of Appeal decisions, this work discusses specification and claim formulation for securing grant of software patents and for maximizing the protection obtained.

1994 Annual Report of the European Patent Office. This stated:

> Since its founding, the EPO has granted over 11,000 patents for software related inventions in the core areas of information technology alone i.e., digital data processing, data recognition, representation and storage... Fewer than 100 applications in this area were refused on the grounds that the subject matter lacked technical character. In addition, several thousand patents were granted in other technical areas such as automotive and mechanical engineering where the rapid pace of innovation derives from the use of computer and software technology, e.g. program controlled processors.

The position today, I understand, is that more than 15,000 European patents for software-based inventions have been granted.

It is very clear, therefore, that the vast majority of software patent applications proceed through the European Patent Office without objection. As I will show below, patent protection for software of widely differing types is being routinely obtained. The applications rejected on appeal are the exception rather than the rule, hence my earlier point that a consideration of these decisions without reference to the large number of patents being granted in the software field can give an erroneous and negative impression of the position.

Despite the large volume of software patents and applications granted and being processed by the European Patent Office, there is a need for positive publicity by the national patent offices, the professions and government organisations, if the misconception is to be dispelled once and for all and the whole European software industry is to become aware of the availability of this form of protection for its investment. It is not good enough for the national patent offices and the professions merely to quote in their publicity the apparent prohibition in EPC Article 52(2) and its national equivalents without further explanation. If it is the case that patents can be obtained in, for example, USA and Japan for software which could not be protected by patents in Europe, official publicity should be making clear to the industry that protection in such countries is possible. European industry might well consider that it could benefit from obtaining software patents in such important overseas markets, even if it were not possible to patent the same software in Europe.

3. Some technical background

This brief technical background is for the assistance of readers not familiar with computer and software technology.

The programmable general-purpose electronic computer was first developed around 50 years ago. Like all electronic apparatus, it needed electrical circuits and components to perform the required functions on the electrical signals supplied to, or generated in, the apparatus. For example, television receivers need circuits to extract, from the electrical carrier, signals broadcast by the transmitter, the signal components containing the colour pictures and sound to be reproduced, and they need further circuits to process the extracted signals to make them suitable for reproduction by the display screen and loudspeakers of the television set.

At first, the circuits for performing the required signal processing in all electrical machinery were made of various components connected by pieces of wire. The functions to be performed within the apparatus could therefore not easily be changed. When electronic computers were developed, there was a need for them to be more flexible so that they could have their circuits modified for the performance of different tasks. Originally, the circuits could be changed by rearranging the connections of a set of external electrical plug-in leads, like an old-fashioned telephone exchange. This was a laborious operation, but it did enable a given machine to carry out different functions according to the circuit arrangements selected by rearranging the external leads.

A major step forward was the creation of a machine in which the internal circuit connections were made by means of a large number of internal electronic switches (vacuum tubes in those days) whose settings could be easily changed by feeding in control signals which had been previously worked out and recorded on some carrier medium. In this way, the internal circuits could be rapidly reorganised to perform different functions. Originally, the carrier medium was a strip of paper having a pattern of holes in it representing the required settings of the internal switches. The computer was provided with a device for receiving the paper, detecting the positions of the holes and appropriately resetting the internal switches. This is precisely how the modern general-purpose computer works, but instead of vacuum tubes it uses tiny transistors and instead of punched tape it receives its control signals for resetting its internal transistor switches from a CD-ROM, floppy disc, the internet or other suitable devices. These control signals are the "programs" or "software".

Modern manufacturing techniques have made it possible to provide within the computer many millions of minute resettable transistor switches, so that the computer can be arranged to carry out very complex processing tasks. It has also become possible to record many millions of control signals on media such as CD-ROMs and floppy discs, making it easy to supply to the computer the multitude of control signals necessary to reset the switches within. Modern programming tech-