Patent Eligibility of Software Patents in the U.S. and Europe: A Post-Alice Consideration

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In the past, software patent practitioners have faced subject matter eligibility standards that varied greatly between the United States and Europe. The conventional wisdom has been that many unpatentable software-related inventions in Europe will be patentable in the United States. After Alice, is this still true?

The line separating patent-eligible patent claims from patent-ineligible patent claims has shifted in the United States. The universe of patent-eligible software-related inventions has shrunk. But the standard applied in Alice does not demarcate the line of patent eligibility with certainty. As a result, lower courts and patent practitioners have struggled to understand and apply the new standard.

It seems that the U.S. and European standards are closer than they were before. This circumstance presents an opportunity for U.S. patent practitioners. In the United States, our post-Alice jurisprudence is immature. In Europe, there are well-developed precedents as to a standard that bears some similarities to the new U.S. standard. Are there lessons to be learned from the European approach to subject matter eligibility?

The Alice Test

In Alice Corp. Pty. Ltd. v. CLS Bank International, the Supreme Court considered patent eligibility of computer software–related patent claims under 35 U.S.C. § 101. The Court provided some much-needed guidance as to how patent eligibility of computer software–related patent applications should be analyzed. Subsequent decisions of the courts and the United States Patent and Trademark Office (USPTO) have shown, however, that critical aspects of this analysis remain unclear.

Section 101 defines patentable subject matter as encompassing “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” This broad general rule is subject to well-established exceptions that preclude patenting laws of nature, natural phenomena, and abstract ideas.
In *Alice*, the Court analyzed patent claims directed to a computer-implemented method for mitigating settlement risk. The Court described this as “the risk that only one party to an agreed-upon financial exchange will satisfy its obligation. In particular, the patent claims are designed to facilitate the exchange of financial obligations between two parties by using a computer system as a third-party intermediary.”

In applying the so-called abstract idea exception to find that the claims in issue were not patent eligible, the Court adopted the two-part test of *Mayo v. Prometheus*. Calling that test “a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts,” the Court made clear that the *Mayo* test is now the standard by which all claims will be judged for patent eligibility.

In step one of the test, a determination is made as to whether the patent claims under consideration are directed to a patent-ineligible concept, namely a law of nature, natural phenomenon, or an abstract idea. If the patent claims are in fact directed to a patent-ineligible concept, step two of the test considers whether the claim includes something more than mere application of the abstract idea that would transform the claim “into a patent-eligible application” of the otherwise patent-ineligible concept.

The Court had little difficulty concluding that the claims in issue were directed to an abstract idea. After characterizing the claims as being directed to “intermediated settlement,” the Court cited evidence showing that intermediated settlement is a long-standing practice. The patent owner did not agree, quoting *Mayo* in support of its position that abstract ideas should be limited to “preexisting fundamental truths.” This position was found to be at odds with *Bilski v. Kappos*, where risk hedging was held to be an abstract idea. The Court described the similarity between intermediated settlement and risk hedging as justifying its conclusion that the claims in issue related to an abstract idea.

After concluding that the claims related to the abstract idea of intermediated settlement, the Court considered whether the claims included something more than mere application of the abstract idea. The Court noted that “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” In considering the claim elements individually, the Court described each as conventional. In considering the claim as a whole, the Court took the position that the elements in combination resulted in nothing more than is present when the elements are considered individually. The Court concluded that the claims “simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer” without transforming the claim into a patent-eligible implementation of the abstract idea.

The analysis in *Alice* is not complex. It is a straightforward application of an apparently simple standard. But aspects of that standard invite subjectivity and differing approaches without strong guidance as to how the test is to be applied. Unfortunately, that guidance is not present. As put subsequently in *Caltech v. Hughes*, “[a]lthough computer software is patentable generally, neither *Alice* nor any other Supreme Court precedent defines when software is patentable.”
There are three aspects of the test that have the potential to create uncertainty. The first aspect is how the subject matter of a claim should be characterized. The second aspect relates to determining what is and what is not an abstract idea. The third aspect relates to what qualifies as something more that will make a claim patent eligible.

How Should Claims Be Characterized?
Analysis of the first step of the *Alice* test is invariably approached by first characterizing the claim in no more than a few words. In *Alice*, the patentee agreed that the claims described intermediated settlement and focused its arguments on whether intermediated settlement is an abstract idea. Was “intermediated settlement” the only possible characterization of these claims? Of course not.

The manner in which a claim is characterized is potentially determinative of the outcome of the *Alice* test. Reducing a patent claim to a few words can serve as a strawman. Yes, the claims at issue in *Alice* can be characterized as being directed to “intermediated settlement.” Alternatively, the same claims might be described as being directed to reconciling data from multiple sources using shadow records. This sounds far less abstract than intermediated settlement.

The potential for differing characterizations of an abstract idea was well illustrated in *DDR Holdings v. Hotels.com*. The appellant variously characterized the abstract idea as “‘making two web pages look the same,’ ‘syndicated commerce on the computer using the Internet,’ and ‘making two e-commerce web pages look alike by using licensed trademarks, logos, color schemes and layouts.” The court characterized the claims as addressing the problem of “retaining website visitors.” In his dissent, Judge Mayer characterized the claims as describing the concept “that an online merchant’s sales can be increased if two web pages have the same ‘look and feel.’” Although the court took the position that the claims would satisfy step two of the *Alice* test regardless of how the claims were characterized, the potential for the name given to the alleged abstract idea to guide the remainder of the analysis is very real.

What Qualifies as an Abstract Idea?
*Alice* provides no clear guidance as to what is and what is not an abstract idea. Instead, the Court left this task to later cases considering the subject matter eligibility of software-related patent claims, stating that it “need not labor to delimit the precise contours of the ‘abstract ideas’ category in this case.” The Court’s reluctance to delimit the contours has left lower courts to define them. In some cases, lower courts analyze abstract ideas by analogy to prior Supreme Court decisions. There is not, however, always a clear analogy. And attempting to reconcile these cases into a coherent rule is no easy task. Indeed, it is one that might not be possible without further action by the Supreme Court itself.

What Qualifies as Something More?
As with identifying whether a claim relates to an abstract idea, there is no clear framework for determining whether a claim includes “something more.” We know that a claim includes something more when there is no risk that the claim will impose a monopoly on an abstract idea. Although *Alice* did imply that something more may be found where a claimed invention will “improve the functioning of
the computer itself” or “effect an improvement in any other technology or technical field,” there must surely be ways in which a claim to software could pose no risk of monopolizing an abstract idea without meeting these seemingly high bars.

In a number of decisions discussing whether “something more” is present in a claim, the lower courts focus on the nature of the problem addressed by the claim and the nature of the solution. For example, in DDR Holdings v. Hotels.com, the Federal Circuit distinguished the claims from mere computer implementation of known business practices, stating “the claimed solution is necessarily rooted in computer technology to overcome a problem specifically arising in the realm of computer networks.”

A similar rationale was followed in Caltech v. Hughes, in which the claims in issue were directed to data encoding and decoding methods using a specific type of error correction code. Although the claims were considered to be directed to an abstract idea, the court concluded that the claims were directed to patent-eligible subject matter, stating that “[w]hen claims provide a specific computing solution for a computing problem, these claims should generally be patentable, even if their novel elements are mathematical algorithms.”

In OpenTV v. Apple, absence of a computing solution to a computing problem was cited in support of a finding that claims were not directed to patentable subject matter. In particular, the court explained that the patent claims in issue did not “claim a solution to a problem that arose uniquely in the context of interactive television networks” but instead “merely describe the use of identifiers to code confidential information.”

In the absence of a clear definition of “something more,” some courts have utilized presence or absence of a computing solution to a computing problem as a sort of shorthand test for determining whether patent-eligible subject matter is present. Although it may or may not be intentional, this shorthand formulation bears a strong resemblance to the standard for analyzing subject matter eligibility in Europe.

Patentability of Software: The European Approach
How then does the post-Alice patent landscape compare to European practice? Is there any lesson to be learned from Europe? The principles governing the patentability of software in Europe are now considered.

The European Patent Convention (EPC) provides the legal framework under which European patents are granted. There is no specific definition in the EPC of the term “invention.” However, article 52(2) EPC provides a nonexhaustive list of things not regarded as inventions, including programs for computers as well as discoveries, scientific theories, mathematical methods, aesthetic creations, schemes, rules and methods for performing mental acts, playing games or doing business, and presentations of information.
Critically, article 52(3) EPC limits the scope of exclusion of article 52(2) EPC, opening up the possibility for European patents directed toward computer programs. Article 52(3) EPC specifies that the patentability of the subject matter or activities referred to in article 52(2) is excluded only to the extent to which a European patent application or European patent relates to such subject matter or activities “as such.”

**Programs for Computers “as Such”**

For a consideration of the “as such” clause, in relation to claims directed toward computer programs, it is necessary to look to the case law of the Technical Boards of Appeal of the European Patent Office (EPO). A leading case in this regard is T 1173/97 (*IBM*), which held that “[a] computer program product is not excluded from patentability under Article 52(2) and (3) EPC if, when it is run on a computer, it produces a further technical effect which goes beyond the ‘normal’ physical interactions between program (software) and computer (hardware).”

It follows that computer programs are not considered to be programs for computers “as such” (and are therefore not excluded from patentability by article 52 EPC) when those programs have a technical character as a result of producing a further technical effect.

**What Qualifies as a Further Technical Effect?**

For an understanding of what may constitute the required further technical effect, it is necessary to first comprehend what constitutes the “normal” physical interactions between program and computer. These “normal” physical interactions must be discounted from the consideration of technical character. *IBM* specifies the “normal” physical interactions as those that occur when any program runs on a computer, such as transmission of digital signals.

Having discounted the generic base operations common to all software from the consideration of technical character, *IBM* provides further guidance regarding the further technical effect, stating:

> It could be found in the further effects deriving from the execution (by the hardware) of the instructions given by the computer program. Where said further effects have a technical character or where they cause the software to solve a technical problem, an invention which brings about such an effect may be considered an invention, which can, in principle, be the subject-matter of a patent.

Consequently a patent may be granted not only in the case of an invention where a piece of software manages, by means of a computer, an industrial process or the working of a piece of machinery, but in every case where a program for a computer is the only means, or one of the necessary means, of obtaining a technical effect within the meaning specified above, where, for instance, a technical effect of that kind is achieved by the internal functioning of a computer itself under the influence of said program.

The *Guidelines for Examination in the EPO* specify additional guidance:
A further technical effect which lends technical character to a computer program may be found e.g. in the control of an industrial process or in the internal functioning of the computer itself or its interfaces under the influence of the program and could, for example, affect the efficiency or security of a process, the management of computer resources required or the rate of data transfer in a communication link. A computer program implementing a mathematical method that itself makes a technical contribution would also be considered to be capable of bringing about a further technical effect when it is run on a computer.

In essence, following the principles of IBM, the further technical effect must be found in the results of running a computer program. Critically, those results must themselves be technical in nature and fall outside the list of excluded items in article 52(2) EPC.

**Practical Application of Principles before the EPO**

The EPO holds all excluded items listed in article 52 EPC to be “abstract” or “nontechnical.” In application of the above principles, a claim that relates to one or more of these excluded items “as such,” without reciting any further technical effect, will be rejected by the EPO under the provisions of article 52 EPC for lack of technical character.

Where a claim contains a mix of “technical” and “nontechnical” features, the claim will not be rejected under the provisions of article 52 EPC for lack of technical character. In line with the established principles laid out in decision T 641/00 (COMVIK) of the Technical Boards of Appeal of the EPO:

> An invention consisting of a mixture of technical and non-technical features and having technical character as a whole is to be assessed with respect to the requirement of inventive step by taking account of all those features which contribute to said technical character whereas features making no such contribution cannot support the presence of inventive step.

Such claims may thereby be rejected for lack of inventive step.

To illustrate these principles, a simple example may be considered. A first claim defines a computer program for implementing a business method. A second claim defines the same computer program running on a generic computer.

Article 52 EPC excludes the first claim from patentability for lack of technical character. The claim lacks any technical feature because the business method, which is the result of running the program, is excluded from patentability under article 52 EPC. The computer program thereby has no further technical effect.

The second claim is rejected for lack of inventive step. The computer is a technical feature and thereby provides the claim with technical character as a whole. However, the computer program is excluded from any inventive step analysis because it does not contribute to the technical character of the claim. The claim is held to lack inventive step because there is nothing inventive about the generic computer itself.
The Alice Test as Compared to Europe
There are clear comparisons to be drawn between the European analysis described above and the Mayo test adopted in Alice, which forms the new standard for considering patent eligibility for software inventions in the United States.

In the first step of the Alice test, it is determined whether the patent claims are directed to a patent-ineligible concept, namely a law of nature, natural phenomenon, or an abstract idea. In contrast, European practice assumes that a software-related claim is nontechnical, which corresponds to concluding that an abstract idea is present in step one of Alice.

In the second step of the Alice test, it is considered whether a claim includes something more that transforms the claim “into a patent-eligible application” of the otherwise patent ineligible concept. In Europe, following IBM, it is considered whether claimed software when it is run on a computer “produces a further technical effect which goes beyond the ‘normal’ physical interactions between program (software) and computer (hardware).” The notion of further technical effect in Europe is clearly analogous to the “something more” requirement in the second step of the Alice test.

Furthermore, in both the United States and Europe, the recitation of a generic computer is not enough to meet any lack of patent eligibility. Alice states, “mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” In Europe, following COMVIK, the patent-ineligible claim features are discounted from any inventive step objection, such that a generic computer cannot provide an inventive step.

There has clearly been some convergence of practice when considering the patent eligibility of computer software inventions in the United States and Europe. While the principles elucidated in Alice are yet to be fully tested by the courts in the United States, and a good deal of uncertainty remains, it is difficult to see how software-related inventions that are not patentable in Europe will now be patentable in the United States.

Lessons to Be Learned from the European Approach to Subject Matter Eligibility
Returning to the three aspects of the Alice test that have the potential to create uncertainty, does Europe offer any useful guidance?

Applying European principles, the aspect of how the subject matter of a claim is characterized, and the determination of what constitutes an abstract idea, can be swiftly resolved. Claim characterization cannot be relied upon to salvage an otherwise patent-ineligible claim. An analysis of such a claim will find it to lack a further technical effect. Any claim directed toward software is abstract, leading straight to a determination of patent ineligibility under the second step of the Alice test.

This leaves only the final aspect open for consideration. What qualifies as something more that will make a claim patent eligible? There is the clearest convergence between U.S. and European practice when considering this question. Applying European principles, the “something more” must be identified in the results of running a computer program, as opposed to in the notion of the computer program
itself. Those results must not be abstract in themselves and must go beyond the normal physical interactions between the software and the computer. The application of these principles would seemingly conform to the post-\textit{Alice} decisions referenced above. Guidance may thereby be provided to some degree by the established European practice detailed herein, as far as it is analogous to the second step of the \textit{Alice} test.

\textbf{Conclusion}

Analyzed under U.S. or European law, there will be a measure of uncertainty with respect to whether particular software-related claims are patentable. Ultimately, most questions as to patentability of software in the United States will be resolved with reference to the second step of the \textit{Alice} test. Because this is the portion of the U.S. standard that most closely resembles the European standard, there is an opportunity to look to European decisions and practices as a guide. The convergence of the two standards should result in a markedly lower occurrence of different outcomes in the United States and Europe. This convergence allows U.S. practitioners to consider the European approach in addition to the \textit{Alice} test, wherein patent claims that are likely ineligible in Europe are also likely ineligible in the United States.

\textbf{Endnotes}

4. \textit{Alice}, 134 S. Ct. at 2352.
6. \textit{Alice}, 134 S. Ct. at 2355.
7. \textit{Id.}
8. \textit{Alice}, 134 S. Ct. at 2356.
10. \textit{Alice}, 134 S. Ct. at 2357.
11. \textit{Id.} at 2358.
12. \textit{Id.} at 2359–60.
14. \textit{Alice}, 134 S. Ct. at 2356.
16. \textit{Id.}
17. \textit{Id.} at 1263 (Mayer, J., dissenting).
18. \textit{Alice}, 134 S. Ct. at 2357.
19. \textit{Id.} at 2355.
20. \textit{Id.} at 2359.
26. Id. at ¶¶ 6.4–6.5.
27. EUROPEAN PATENT OFFICE, GUIDELINES FOR EXAMINATION IN THE EUROPEAN PATENT OFFICE, at G-II, 3.6 (Nov. 2014) (citation omitted).