Patenting Business Methods and Software in the US

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An Article discussing the patent eligibility of software and computer-implemented business methods in the wake of the Supreme Court's decision in *Alice Corp. Pty. Ltd. v. CLS Bank Int'l.* This Article also includes guidance for patent and litigation counsel on avoiding the abstract idea exception to patent eligibility under 35 U.S.C. § 101.

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With the rise of the internet and the proliferation of software-implemented methods and technologies, the question of whether and to what degree software and computer-implemented business methods can be protected by US patents has become one of increasing importance. Earlier this year, the Supreme Court addressed this question in *Alice Corp. Pty. Ltd. v. CLS Bank International*, the last of a chain of Supreme Court cases on this topic that has spanned a period of more than 40 years (*134 S. Ct. 2347 (2014)*).

Patent eligibility is defined in broad terms in *35 U.S.C. § 101*. However, courts have historically identified the following three judicial exceptions to what may be patented:

- Laws of nature.
- Natural phenomena (even if just discovered).
- Abstract ideas.

Patent claims that fall within these three exceptions are not eligible for patent protection, even if the claimed inventions are novel (*35 U.S.C. § 102*) and not obvious (*35 U.S.C. § 103*).

The issue presented in *Alice* was whether patent claims directed to a computer-implemented escrow service for reducing risk in settling financial transactions were ineligible for patent protection. The Supreme Court unanimously found that the patent at issue was invalid because its claims were directed to the abstract idea of intermediated settlement. In so doing, the Supreme Court ostensibly provided guidance for determining whether a patent claim is drawn to a patent-ineligible "abstract idea" by using the following two-part test:

- Determine whether the claims at issue are directed to one of the three judicial exceptions to Section 101 (abstract ideas, laws of nature or natural phenomena).
- If the claims are directed to a judicial exception, then consider the claim limitations individually and as an ordered combination to determine if they also recite an "inventive concept" that sufficiently ensures that the claim covers more than just the ineligible abstract idea.

Unfortunately, this test leaves much unsettled because *Alice* provided no guidance on how to determine whether a claim covers an "abstract idea" in the first instance, leaving it to the lower courts to wrestle with this issue. For more information on the procedural and substantive history of the *Alice* decision, see *Practice Note, In Dispute: CLS Bank International v. Alice Corporation*.

In the wake of *Alice*, a growing number of district court and ***US Court of Appeals for the Federal Circuit*** (Federal Circuit) decisions have invalidated patents because they covered patent-ineligible abstract ideas. This Article provides observations regarding the current state of the law in this important area and includes suggestions on how to protect software or business method patents from eligibility challenges at the ***US Patent and Trademark Office*** (USPTO) and in litigation.

Observations

The two step test for Section 101 patentability described in *Alice* is really no different from the test described by the Supreme Court almost four decades earlier in *Parker v. Flook*, where it decided that a claim incorporating a mathematical formula was not patent eligible (*437 U.S. 584 (1978)*). In *Parker*, the Supreme Court stated:

"[O]nce that algorithm is assumed to be within the prior art, the application, considered as a whole, contains no patentable invention. Even though a phenomenon of nature or mathematical formula may be well known, an inventive application of the principle may be patented. Conversely, the discovery of such a phenomenon cannot support a patent **unless there is some other inventive concept in its application**." (*Flook, 437 U.S. at 594*.)

However, despite multiple Supreme Court decisions on the issue of Section 101 patentability in the decades since *Parker*, the question of what constitutes an abstract idea and what does not remains subject to debate.

Technological Arts Requirement?

Some have argued that the Supreme Court's recent *Alice* decision has effectively set a "technological arts" requirement for Section 101 patentability (see *I/P Engine, Inc., v. AOL Inc., 576 F. App'x 982, 992 (Fed Cir. 2014) (Mayer, J., concurring)*). However, the Supreme Court has not:

- Expressly required that the additional inventive concept be in the technological arts, even though it has had multiple opportunities to do so.
- Articulated what constitutes a technological art in the first instance.

Rather than stating that a claim to an abstract idea is simply one that does not recite any tangible structures or transform materials from one form to another, the Supreme Court has also clearly stated that the “machine or transformation” test is not determinative of what is or is not an unpatentable abstract idea.

Inventive Concept

Despite the Supreme Court's recent pronouncements, it is unclear whether inventions directed to, for example, innovative advances in computer software (rather than hardware), can provide the inventive concept needed to move those claims into the realm of patent-eligible subject matter. For example, answers to the following questions must await future case law that can hopefully bring much needed clarity to this body of patent law:

- Do inventions directed to novel software structures, such as implementations of file allocation tables, or other organizational software features, possess a sufficient inventive concept beyond an abstract idea to pass the Section 101 patentability hurdle?
- Can inventive concepts be found in new software technologies that improve on the operation of computers, even if they can be implemented on existing conventional computers? For example, are innovative search algorithms, such as those powering internet search engines, inventive enough?

Because novel software applications are necessarily implemented in computer hardware, there is arguably no principled reason to base patent eligibility on the distinction between abstract software and tangible hardware, or between the implementing that software using conventional or unconventional hardware, when the novelty resides in the software itself.

Federal Circuit Judge Bryson's recent comments in *Loyalty Conversion Systems Corp. v. American Airlines, Inc.* provide interesting insight into these questions (see *Civ No. 2:13-CV-655, 2014 WL 4364848 (E.D. Tex. Sept. 3, 2014)*). Sitting by designation in the US District Court for the Eastern District of Texas case, Judge Bryson issued a memorandum opinion and order finding the claims at issue to be invalid abstract ideas based on *Alice* and *Bilski v. Kappos* (*130 S. Ct. 3218 (2010)*).

Commenting on the future patent eligibility of business method patents under Section 101, Judge Bryson stated that:

"[S]ome patents that can be regarded as “business method” patents employ highly complex and inventive algorithms or have technological aspects to them, such as improvements in computer technology that make particular business functions more effective. Those patents are not invalid simply because the algorithms or technologies are directed to a business purpose."
(*Loyalty Conversion, 2014 WL 4364848, at * 13*.)

Judge Bryson noted that during oral argument in *Alice*, both sides had agreed that methods for encrypting business transactions over the internet, which involve complex algorithms, should be able to withstand Section 101 challenges to patent eligibility. Judge Bryson also cited to his opinion in *TQP Development, LLC v. Intuit Inc.*, in which he denied summary judgment of invalidity under Section 101 of claims directed to transmission of encrypted data even though they raised an "abstractness" issue, because they contained a specific method for changing encryption keys that amounted to an inventive concept (*No. 2:12-CV-180-WCB, 2014 WL 651935 (E.D. Tex. Feb. 19, 2014)*).

Bright Line Rule

Although the Supreme Court usually avoids bright line rules, it seems to have adopted a bright line exclusion from patent eligibility of any claim that only calls for implementing an algorithm on a conventional computer. This exclusion seems to apply regardless of how narrowly applicable that algorithm is because this type of bright line rule can be more easily administered by courts and judges that are not comfortable dealing with scientific or technological issues.

In *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, which dealt with the related "law of nature" exception to Section 101, the Supreme Court stated:

"In any event, our cases have not distinguished among different laws of nature according to whether or not the principles they embody are sufficiently narrow. See, e.g., Flook, 437 U.S. 584 (holding narrow mathematical formula unpatentable). And this is understandable. Courts and judges are not institutionally well suited to making the kinds of judgments needed to distinguish among different laws of nature. And so the cases have endorsed a bright-line prohibition against patenting laws of nature, mathematical formulas and the like, which serves as a somewhat more easily administered proxy for the underlying "building-block" concern."
(*132 S. Ct. 1289, 1303 (2012)*.)

Lessons from *Ultramercial*

The final disposition of the *Ultramercial Inc. v. Hulu LLC* also provides insight into how the Federal Circuit interprets the *Alice* decision (*No. 2010-1544, 2014 WL 5904902 (Fed. Cir. Nov. 14, 2014)*).

The *Ultramercial* claims cover a computer-implemented method for permitting consumers to view, for example, copyrighted videos on the internet, but only after they have clicked on an advertisement. Like many Section 101 cases, the procedural history of *Ultramercial* is convoluted:

- In 2011, the Federal Circuit held the *Ultramercial* claims to be patent eligible, reversing the district court's decision that they were not.
- The Supreme Court granted certiorari, but after its 2012 *Mayo* decision, vacated the Federal Circuit's decision and remanded for further consideration in view of *Mayo*.
- As a result of the first remand, in 2013 the Federal Circuit again upheld the patent eligibility of the *Ultramercial* claims.
- The Supreme Court again granted certiorari, however, this time vacating the Federal Circuit's 2013 decision, but again remanding for further consideration in view of *Alice*.

For more information on the *Ultramercial* case, see *Practice Note, In Dispute: Ultramercial v. Wildtangent*.

Given this procedural history of successive remands, it can be reasonably surmised that the Supreme Court was expecting the Federal Circuit to invalidate the *Ultramercial* claims as being directed to an abstract idea, which it finally did the third time around.

Ultramercial had argued that its claims did not cover ideas that are so fundamental to invoke the

preemption concerns that lie at the heart of the abstract ideas exception, but rather covered previously unknown methods of advertising and content distribution. In finding the claims not patent eligible based on "the added benefit of the Supreme Court's reasoning in *Alice*," the Federal Circuit first stated that "[w]e disagree with Ultramercial that the addition of merely novel or non-routine components to the claimed idea necessarily turns an abstraction into something concrete." While this statement seemed to acknowledge that Ultramercial's claims may have included novel or non-routine components, the Federal Circuit still went on to the second step of the *Alice* framework and concluded that the claims only implemented the abstract idea with routine, conventional steps, which made them patent ineligible.

Echoing the Supreme Court's open-ended position on patent eligibility of software inventions, the Federal Circuit did caution that "[w]e do not purport to state that all claims in all software-based patents will necessarily be directed to an abstract idea. Future cases may turn out differently." What factors the Federal Circuit and Supreme Court may rely on in future cases to more clearly demarcate the line between patent ineligible abstract ideas and those that are patent eligible remain to be seen. Notably, Judge Mayer, who replaced Chief Judge Rader on the *Ultramercial* panel, wrote a concurring opinion that re-emphasized his earlier views that the *Alice* decision set up a technological arts requirement for patent eligibility.

Conclusions and Suggestions

It is an open question whether the courts can develop a more nuanced approach to patent-eligibility questions over time. Future decisions by the lower courts and possibly yet again by the Supreme Court, must address the many unanswered questions with more definitive guidance regarding the patent eligibility of claims that involve abstract ideas.

However, despite the remaining uncertainties in this area, some things are reasonably clear from *Alice* and the present line of Supreme Court cases:

- There is no categorical proscription against the patenting of software or business methods. With appropriately drafted claims that add an "inventive concept" to an otherwise abstract idea, it should be possible to obtain coverage on at least certain types of software and business method inventions.
- Claims that only recite steps of a mathematical formula or algorithm will fall into the abstract ideas exclusion to Section 101 patent eligibility:
    - even if the claims are limited to a field of use;
    - where the claims simply process the algorithm using generic computer components; and
    - no matter whether the claims are drafted as system, method or physical media claims.

  These claims must also include an inventive concept to be patent eligible.
- The machine or transformation test, while not an exclusive test, remains an important clue that may suggest whether a claim is patent eligible under Section 101. If a claim is limited to a particular machine or transforms something into a different state or thing, then the claim is likely patent-eligible under Section 101, even if it involves a mathematical formula or algorithm.

- The abstract ideas exception is based in part on the policy that the public should not be precluded from using the basic tools of scientific and technological work or the fundamental principles of knowledge that are part and parcel of the creative process. However, the Supreme Court has not distinguished between mathematical formulas and algorithms that truly are basic and fundamental abstract ideas (such as, $E=mc^2$ or the axioms of geometry) and more limited mathematical formulas and algorithms that are arguably downstream useful applications of these basic and fundamental truths. Therefore, to pass the Section 101 patentability hurdle under current case law, claims to software algorithms and business methods may be per se ineligible unless the claims include additional limitations that articulate an inventive concept beyond simply processing the algorithms using generic computer components.

To reduce the chances that patent claims run afoul of the abstract idea exception to patentability, patent applicants, prosecution counsel and litigation counsel should keep the following in mind:

- If an invention is limited to an idea that is stated algorithmically as a series of functional steps and implemented on a conventional computer, then the invention will likely not pass the Section 101 patentability threshold. Assuming the invention involves concepts that go beyond implementing an idea using a conventional computer, counsel should ensure that those concepts are:
  - identified at the start of the patent preparation process;
  - included in the claims; and
  - discussed and emphasized in the specification, to ensure there is sufficient support for the claim language in the specification.
- After the *Alice* decision, the USPTO issued a memorandum to its patent examiners that includes guidance on claim limitations that may be sufficient to serve as the necessary inventive concept (see *Preliminary Examination Instructions in View of the Supreme Court Decision in Alice Corporation Pty. Ltd. v. CLS Bank International, et al.*). For example, the patent should include an explanation of and claims covering any improvements to:
  - the functioning of a conventional computer; or
  - some other technology or technical field.
- If the invention involves a new way of doing business, the specification should discuss the state of the art and explain how the claimed invention covers a technological advance in the relevant field. In particular, the patent should:
  - describe the real world benefits of the new business method; and
  - claim the specific application of those benefits.
- If the invention relies on complex computer code that is organized in a specific manner or that interacts in a non-conventional way, the patent should discuss those features in the specification and claim them to distinguish the invention from one that only involves a purely conventional computer implementation. These distinctions also may serve as a required inventive concept to augment an

otherwise abstract idea and make it patent eligible.

- When drafting a patent specification and claims, patent counsel should consider arguments that may be used in support of patent eligibility in future litigation, including arguments showing that the invention is substantially more than just implementing an abstract idea using a conventional computer. For example, counsel should consider tangible improvements provided by the invention, such as:
  - better or faster video compression;
  - better security against cyber attacks; or
  - other improved functionality not realized in the prior art.
- When analyzing issued patents that may raise Section 101 patent eligibility issues, counsel should consider whether the claims can be amended to add the inventive concept required by *Alice*. This can be accomplished, for example, by filing a narrowing reissue application in the USPTO (see *Practice Note, USPTO Post-prosecution Patentability Proceedings: Reissue Applications*).

For many companies, obtaining patent protection that adequately covers software and business methods is an important component of their strategies for protecting intellectual property. However, now more than ever, obtaining and defending patents in these areas requires special consideration, care and handling.

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