

PATENTING SOFTWARE AND BUSINESS METHODS IN 2007

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Introduction: This paper has been created for the Intellectual Property Owners Association Software and Business Methods Committee to provide background to IPO members regarding the patenting of software and business methods. It should not be construed as providing legal advice or as representing the views of IPO.

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**White Paper on Patenting Software
and Business Methods in 2007**

Recent developments at the U.S. Patent and Trademark Office, the Court of Appeals for the Federal Circuit, and even the United States Supreme Court seem to signal a shift in the treatment of software and business methods under United States patent laws. This paper examines the growing challenges to patenting software and business methods, including a brief overview of the evolution of patent protection for software and business methods, a discussion of recent developments at the U.S. Patent and Trademark Office, and recent pronouncements and decisions from the judiciary.

I. The Evolving Interpretation of Patentable Subject Matter

Section 101 of the U.S. patent statute provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter...may obtain a patent therefor....” 35 U.S.C. § 101 (2000). Software and business methods typically fall into the first statutory category, i.e., processes. Although the statute contains a definition of the term ‘process,’ it is not particularly illuminating. “The term ‘process’ means process, art or method....” 35 U.S.C. § 100(b) (2000). Therefore, it has been left to the courts to determine what constitutes a process that can be patented under U.S. law.

Over time, U.S. courts have identified three categories of subject matter that are excluded from patent protection, namely, abstract ideas, natural phenomena, and laws of nature. “[A] new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that $E=mc^2$; nor could Newton have

patented the law of gravity. Such discoveries are ‘manifestations of ... nature, free to all men and reserved exclusively to none.’” *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citing *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

Although an abstract idea, such as a mathematical algorithm, cannot be patented on its own, patent protection has long been available for its practical application. "An idea of itself is not patentable, but a new device by which it may be made practically useful is." *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. 498, 507 (1874). Indeed, a ‘practical application’ has become the hallmark of a patentable invention involving an abstract or natural phenomenon. “He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law of nature to a new and useful end.” *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948).

Although “process” is one of the categories of subject matter eligible for patent protection, the courts have made clear that not every method claim is patentable under section 101. “The question is whether the method described and claimed is a ‘process’ within the meaning of the Patent Act.” *Gottschalk v. Benson*, 409 U.S. 63, 64 (1972). “The statutory definition of ‘process’ is broad....An argument can be made, however, that this Court has only recognized a process as within the statutory definition when it either was tied to a particular apparatus or operated to change materials to a ‘different state or thing.’” *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978).

A process that physically transforms material has long been held to be patentable. For example, a mathematical algorithm used in a process to cure synthetic rubber has been found

patentable. *Diamond v. Diehr*, 450 U.S. 175, 188 (1981). Another example of a patentable process involving a physical transformation is the mixing of chemicals to produce a chemical compound. "But where the result or effect is produced by chemical action, by the operation or application of some element or power of nature, or of one substance to another, such modes, methods, or operations are called processes." *Corning v. Burden*, 56 U.S. 252, 267 (1853). Indeed, the first U.S. patent issued by the U.S. Patent Office was for a process for making pot and pearl ashes, a cleaning formula used in making soap.

More recently, the Federal Circuit has stated that a "'physical transformation'... is not an invariable requirement, but merely one example of how a mathematical algorithm may bring about a useful application." *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1358 (Fed. Cir. 1999). The Federal Circuit has also stated that the Supreme Court "never intended to create an overly broad, fourth category of subject matter [i.e., mathematical algorithms] excluded from § 101." *In re Alappat*, 33 F.3d 1526, 1543 (Fed. Cir. 1994). "[T]he *Alappat* inquiry simply requires an examination of the contested claims to see if the claimed subject matter as a whole is a disembodied mathematical concept representing nothing more than a 'law of nature' or an 'abstract idea,' or if the mathematical concept has been reduced to some practical application rendering it 'useful.'" *AT&T Corp.*, 172 F.3d at 1357.

The Federal Circuit has also expressly stated that there is no prohibition to patenting business methods under section 101. "We take this opportunity to lay this ill-conceived [business method] exception to rest.... Since the 1952 Patent Act, business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method." *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149

F.3d 1368, 1375 (Fed. Cir. 1998). In that case, the court affirmed the patentability of a hub-and-spoke system for managing financial services. “Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces ‘a useful, concrete and tangible result’ - a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” *Id.* at 1373.

Examining its own precedent, the court reasoned:

In *Alappat*, we held that data, transformed by a machine through a series of mathematical calculations to produce a smooth waveform display on a rasterizer monitor, constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced ‘a useful, concrete and tangible result’ - the smooth waveform. Similarly, in *Arrhythmia Research Technology Inc. v. Corazonix Corp.*, 958 F.2d 1053, 22 USPQ2d 1033 (Fed. Cir. 1992), we held that the transformation of electrocardiograph signals from a patient's heartbeat by a machine through a series of mathematical calculations constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete or tangible thing - the condition of a patient's heart.

State Street Bank, 149 F.3d at 1373. Thus, in the *State Street Bank* case, the Federal Circuit articulated a second way to show a practical application of an otherwise unpatentable abstract idea. “[C]ertain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., ‘a useful, concrete and tangible result.’” *Id.* (emphasis added).

II. Recent Developments at the United States Patent and Trademark Office

A. *Ex parte Lundgren*

The recent shift in the treatment of software and business methods at the USPTO began in September 2005 when a panel of the Board of Patent Appeals and Interferences issued a rare precedential opinion regarding the test for patentable subject matter in method claims. The Board purported to lay to rest the “technological arts” requirement that patent examiners began applying to business method claims following the *State Street Bank* decision. “[T]here is currently no judicially recognized separate ‘technological arts’ test to determine patent eligible subject matter under § 101.” *Ex Parte Lundgren*, 76 U.S.P.Q2d 1385, 1390 (B.P.A.I. 2005). As the applicant in that case admitted, the claims did not recite any computer components or means, instead reciting a method for compensating a manager based on the performance of his firm relative to other firms in the industry. Noting that the examiner found that the claimed method produced a useful, concrete, and tangible result, the Board reversed the examiner’s rejections. *Id.*

B. Examination Guidelines

On the heels of the *Lundgren* opinion, the USPTO published guidelines for its examiner to follow when deciding whether a claim recites patent-eligible subject matter. The guidelines, later incorporated into the Manual of Patent Examining Procedure, set forth four steps for analyzing subject matter eligibility of a claim under section 101.

First, the examiner must consider whether the claim falls within one of the four statutory categories set forth in 35 U.S.C. § 101, i.e., process, machine, manufacture, or composition of matter. M.P.E.P. § 2106 (IV)(B) (8th ed. rev’d 2006). For computer-related and business method claims, the “process” category is most common. If the subject matter, such as a literary work or compilation of data, is outside these four categories, then the claim is rejected under section 101.

If the claim recites subject matter within one of the four statutory categories, the examiner must next determine whether the subject matter has been judicially excluded from patent protection because it includes an abstract idea, natural phenomenon, or law of nature. *Id.*, at § 2106 (IV)(C). A claim that falls within these three judicially-excluded areas is not patentable unless it recites some practical application of the abstract idea, natural phenomenon, or law of nature.

According to the guidelines, the requisite practical application can be shown in one of two ways: either the claimed process includes a physical transformation or it produces a useful, concrete, and tangible result. Finally, even if a practical application is shown, an otherwise statutory claim may still be unpatentable under section 101 if it would effectively preempt use of the underlying abstract idea, law of nature, or natural phenomenon. *Id.* The guidelines contrast a computer with the sole purpose of calculating a mathematical formula (a non-statutory attempt at preemption in *Gottschalk v. Benson*, 408 U.S. 63 (1972)) with the use of a mathematical formula in combination with other steps in a process (the patentable rubber-curing process in *Diamond v. Diehr*, 450 U.S. 175 (1981)). *Id.*

The Manual of Patent Examining Procedure also sets forth additional explanation of “computer-related non-statutory subject matter.” M.P.E.P. § 2106.01 (8th ed. rev’d 2006). Data structures and computer programs, if claimed merely as a set of instructions or data, are non-statutory descriptive material. However, if this functional descriptive material is recorded on some computer-readable medium that permits its function to be realized, such a claim would be statutory. Non-functional descriptive material, including music, literary works, and data

compilations, is non-statutory whether claimed alone or recorded on a computer-readable medium. *Id.*

Although the interim guidelines have been incorporated into the Manual of Patent Examining Procedure, USPTO officials have said they are “still working on” final guidelines. In fact, several administrative patent judges at the USPTO have complained publicly of several problems within the interim guidelines that limit their usefulness severely. *Ex parte Bilski*, 2006 WL 4080055, at **15-16 (B.P.A.I. 2006). Another administrative patent judge termed the USPTO’s quest for a bright line test on § 101 “an exercise in futility.” *Id.*, at * 31. (APJ McQuade, concurring).

C. *Ex parte Bilski* at the USPTO

One year after the *Lundgren* decision, the Board of Patent Appeals and Interferences reversed course. A different panel of the Board held that method claims that did not recite any computer elements were not patentable under § 101. *Ex parte Bilski*, 2006 WL 4080055, at *2 (B.P.A.I. 2006).

The *Bilski* case involved a claim for a method for managing consumption risk costs of a commodity that, by the applicant’s admission, required no computer apparatus. In that case, the Board declined to apply the useful, concrete and tangible result test. “[W]e interpret the *State Street* and *AT&T* test to be a test for when transformation of data by a machine is statutory subject matter.” *Id.*, at *10 (emphasis added). The Board upheld the examiner’s rejections, finding that the claims “do not recite how the steps are implemented and are broad enough to read on performing the steps without any machine or apparatus....” *Id.*, at *2. The *Bilski* case has been appealed to the Federal Circuit, where oral arguments were held on September 27, 2007.

D. *In re Comiskey* at the USPTO

The USPTO reiterated its *Bilski* position on non-computer implemented methods in the context of another recent case, *In re Comiskey*. This case involved claims to a method for mandatory arbitration resolution regarding unilateral documents, which like the *Bilski* case recite no computer or other apparatus. *In re Comiskey*, 499 F.3d 1365, 1369 (Fed. Cir. 2007).

Although the USPTO did not reject the claims as being unpatentable under section 101, the Federal Circuit raised the issue during oral arguments.

In supplemental briefing to the Federal Circuit on the section 101 issue, the USPTO set forth its current position on statutory subject matter under section 101. “[T]he PTO’s understanding of the precedents at present is: Any computer program claimed as a machine implementing the program (*Alappat*, *State Street*) or as a method of a machine implementing the program (*AT&T*), is patentable if it transforms data and achieves a useful, concrete and tangible result (*State Street*, *AT&T*). Exceptions occur when the invention in actuality preempts an abstract idea, as in a mathematical algorithm (*Benson*, 409 U.S. at 71-72).” Supplemental Letter Brief of USPTO at 10, *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007). Thus, the USPTO would limit the useful, concrete and tangible test to machine-implemented methods.

III. Pronouncements from the Supreme Court

On several recent occasions, the United States Supreme Court has taken the opportunity to comment, either expressly or impliedly, on the scope of patentable subject matter under section 101. Moreover, many observers speculate that one or more of the statutory subject matter cases now pending before the Federal Circuit will eventually reach the Supreme Court.

A. The *LabCorp* case: What was made by man here?

In June of 2006, the Supreme Court considered the patentability of a method claim for detecting a vitamin B deficiency in warm-blooded animals. *Laboratory Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2927, cert. dismissed (2006). The District Court had found Metabolite's patent indirectly infringed by LabCorp, which challenged the validity of the patent based on indefiniteness, lack of enablement, anticipation, and obviousness. The Federal Circuit affirmed the finding of indirect infringement and also found the claims not invalid. *Metabolite Labs., Inc. v. Laboratory Corp. of Am. Holdings*, 370 F.3d 1354, 1371 (Fed. Cir. 2004). Notably, LabCorp did not mount a validity challenge based on section 101 before either the District Court or the Federal Circuit.

When considering whether to accept the appeal, the Supreme Court seemed to raise the question of whether the claims recited patentable subject matter in its invitation to the U.S. Solicitor General: "The Acting Solicitor General is invited to file a brief in this case expressing the views of the United States limited to the following question:...Is the patent invalid because one cannot patent 'laws of nature, natural phenomena, and abstract ideas'?" *Laboratory Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 543 U.S. 1185 (2005). At oral argument, several justices inquired about section 101. For example, Justice Scalia questioned "what was made by man here?" *Laboratory Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 2006 WL 711253, at *40. Justice Alito expressed a concern that an invalidity finding would "call into question thousands of patents." *Id.*, at *15. Several of the justices seemed to agree with Justice Kennedy, who opined that a section 101 discussion would be "imprudent" because it was not discussed at the courts below. *Id.* After oral argument, but before issuing a decision, the Supreme Court

dismissed the case, stating that the petition to take it had been “improvidently granted.”

Laboratory Corp. of Am. Holdings v. Metabolite Labs., Inc., 126 S. Ct. 2927, cert. dismissed (2006).

Three justices dissented from the Court’s dismissal of the case. The dissenters found that “[a]t most, respondents have simply described the natural law at issue in the abstract patent language of a ‘process.’” *Id.*, at 2928. “In my view, [the claimed] correlation is an unpatentable ‘natural phenomenon’ and I can find nothing in claim 13 that has anything more of significance.” *Id.* Thus, it appears that at least Justices Breyer, Stevens, and Souter would have found the Metabolite claims unpatentable under § 101.

Of particular note for those interested in business methods was a comment by the dissenters that *State Street Bank* “does say that a process is patentable if it produces a ‘useful, concrete and tangible result.’ But this Court has never made such a statement and, if taken literally, the statement would cover instances where this Court has held the contrary.” *Id.* (citation omitted). This statement has raised uncertainty about the test set forth in the *State Street Bank* case, as noted by the USPTO in its supplemental briefing to the Federal Circuit in *In re Comiskey*.

B. *eBay v. MercExchange*: The “suspect validity” of business method patents.

A short comment in a concurring opinion in another recent Supreme Court case also caught the attention of the business method patenting community. In the *eBay* decision, the Supreme Court held that injunctive relief in patent cases should be subject to the same four-part test applied in non-patent cases. *eBay, Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1841

(2006). In his concurring opinion, Justice Kennedy, joined by Justices Stevens, Souter, and Breyer, opined that “injunctive relief may have different consequences for the burgeoning number of patents over business methods, which were not of much economic and legal significance in earlier times. The potential vagueness and suspect validity of some of these patents may affect the calculus” in determining whether to issue an injunction. *Id.*, at 1842 (emphasis added).

Indeed, the U.S. District Court that heard the case on remand from the Supreme Court denied MercExchange’s request for an injunction, citing as one of its reasons the fact that the patent was for a business method. *MercExchange, L.L.C. v. eBay, Inc.*, 500 F. Supp. 2d 556, 586 (E.D.Va, July 27, 2007).

C. *Microsoft v. AT&T*: A possible line in the sand?

Although it dealt with the definition of a patented invention under section 271(f) of the patent laws, the *Microsoft v. AT&T* case could provide guidance as to how the Supreme Court may treat software under section 101 in the future. Section 271(f) makes it an act of infringement to supply from the United States “all or a substantial portion of the components of a patented invention...in such a manner as to actively induce the combination of such components outside of the United States....” 35 U.S.C. § 271(f) (2000). Finding that computer software *per se* cannot be a component of a patented invention under § 271(f), the Supreme Court stated that whether “an intangible method or process, for instance, qualifies as a ‘patented invention’ under § 271(f) [is] a question as to which we express no opinion....” *Microsoft Corp. v. AT&T Corp.*, 127 S. Ct. 1746, 1756 n.13 (2007). Furthermore, the Supreme Court stated that “[a]bstract software code is an idea without physical embodiment, and as such, it does not match § 271(f)’s

categorization: ‘components’ amendable to ‘combination’.” *Id.*, at 1755 (2007). Finally, the Supreme Court stated that “[a]bstracted from a usable copy, [software] code is intangible, uncombinable information....” *Id.*, at 1756 n.12. The distinction drawn by the Court between “abstract” and “tangible” subject matter under section 271(f) may provide clues as to where the Court would draw the line on patentable subject matter under section 101.

D. *KSR v. Teleflex*: The “tangible” nature of patentable subject matter.

Even in the *KSR v. Teleflex* opinion, a case about the obviousness requirement of section 103 of the U.S. patent statute, the Supreme Court characterized inventions in this way: “We build and create by bringing to the tangible and palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1746 (2007). By chance or by design, the Supreme Court again referred to inventions as “tangible” even “palpable,” perhaps hinting at where it thinks the section 101 debate should end.

IV. *In re Comiskey*: The Beginning of the End for Business Method Patents?

In September, a panel of the Federal Circuit restricted the scope of patent protection under 35 U.S.C. § 101, ruling that claims reciting business methods can be patented only if they involve another class of statutory subject matter, such as a computer. *In re Comiskey*, 499 F.3d 1365, 1376 (Fed. Cir. 2007). In this case, the Federal Circuit considered an appeal of a decision by the Board of Patent Appeals and Interferences affirming the rejection of claims to a mandatory arbitration process in U.S. Patent Application No. 09/461,742 by Stephen W. Comiskey.

Comiskey's application claimed methods and systems for performing mandatory arbitration resolution regarding one or more unilateral documents. Like many typical business method applications, Comiskey's application included method claims that did not recite any computer or other apparatus. Although the USPTO had rejected the claims as being an obvious combination of old elements, the Federal Circuit focused on whether the claims recited patentable subject matter in the first place. *Id.* at 1371.

Finding that Comiskey's application falls within the general category of business method patents, the court noted that "business methods are 'subject to the same legal requirements for patentability as applied to any process or method'" including section 101. *Id.* at 1374 (citing *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F. 3d 1368 (Fed. Cir. 1998)). Those requirements, according to the court, have long meant that "when an abstract concept has no claimed practical application, it is not patentable." *Id.* at 1376.

Rejecting Comiskey's argument that an abstract idea or algorithm is patentable as long as it produces a "useful, concrete, and tangible" result, the court decided that "a claim reciting an algorithm or abstract idea can state statutory subject matter only if, as employed in the process, it is embodied in, operates on, transforms, or otherwise involves another class of statutory subject matter, i.e., a machine, manufacture, or composition of matter." *Id.* at 1376 (emphasis added).

Regarding its earlier holdings in *State Street Bank*, *Alappat*, and *Arrhythmia Research*, the court stressed that the mathematical algorithms in those cases were found to be patentable because they claimed practical applications and were tied to specific machines. *Id.* at 1377. Summing up its thinking, the court stated, "The present statute does not allow patents to be issued on particular business systems—such as a particular type of arbitration—that depend entirely on the use of mental processes." *Id.* at 1378.

Finally, regarding Comiskey's system claims that did recite computer components, the court warned that although claims that recite a computer are statutory under section 101, "[t]he routine addition of modern electronics to an otherwise unpatentable invention typically creates a prima facie case of obviousness," citing this year's Supreme Court decision in *KSR Int'l Co. v/ Teleflex Inc. Id.*, at 24. This statement has touched off a great deal of debate in the business method patents community. Comiskey's petition for rehearing sets forth the arguments against this joining of sections 101 and 103. Appellant's Combined Petition for Panel Rehearing or Rehearing En Banc in *In re Comiskey*, 2007 WL 3156115.

V. Conclusion

The U.S. Patent and Trademark Office and the Court of Appeals for the Federal Circuit have recently taken steps to restrict the patent protection available to software and business methods. With the Supreme Court's recent interest in patents and several business method cases working their through the patent gauntlet, it is likely that the issue of patentable subject matter under 35 U.S.C. § 101 will continue to evolve over the coming months and years.