

On Shaky Ground: The (Near) Future of Patents After *Bilski*

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Bernard Bilski did not intend to be a poster child for business method inventions. He filed his patent application more than a year before the Federal Circuit decided *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), the decision that inspired a blizzard of business method patent applications. Bilski claimed a method of hedging commodity transactions by performing “transactions” between commodity providers, commodity consumers, and market participants who have counter-risk positions to the consumers. Bilski’s patent claims are directed to one class of “business methods,” those pertaining to trading methods. The United States Patent and Trademark Office (USPTO) rejected Bilski’s claims, as part of a larger overall policy shift to limit the scope of patentable subject matter. It was therefore no surprise that Bilski appealed to the Federal Circuit.

In re Bilski, ___ F.3d ___ (Fed. Cir. 2008), offered the Federal Circuit an opportunity to answer important questions about the scope of patentable subject matter. Superficially, the court did just that, setting forth a so-called “machine-or-transformation” rule as the “definitive test” for deciding whether a “process” claim is patentable subject matter under 35 U.S.C. § 101. The court held that a process claim is patent-eligible if either: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.

Applying this test, the court held that Bilski’s claim was not patentable subject matter because it did not transform “any article to a different state or thing.” The court found that the claim “encompasses the exchange of only options, which are simply legal rights to purchase some commodity,” and that “transactions involving the exchange of these legal rights do not involve the transformation of any physical object or substance, or an electronic signal representative of any physical object or substance.” Because Bilski conceded that the claims were not tied to any particular machine, they failed the court’s “machine-or-transformation” test.

The court’s decision leaves many significant questions unanswered, creates considerable uncertainty as to the validity of many existing patents, and may undermine the ability of inventors and businesses to protect advances in fields as diverse as database design, computer languages, cryptography, compression, financial engineering, and signal processing. In this article we will explain some of the key problems in *Bilski* and then discuss the potential impacts of the decision and strategies to deal with these impacts.

Unanswered Questions and Unintended Consequences

To arrive at its “machine-or-transformation” test, the court engaged in very selective hermeneutics of the Supreme Court’s decisions in *Gottshalk v. Benson*, 409 U.S. 63 (1972), *Diamond v. Diehr*, 450 U.S. 175, (1981), and *Parker v. Flook*, 437 U.S. 584 (1978). In *Gottschalk*, the Court summarized several earlier holdings by stating that “[t]ransformation and reduction of an article “to a different state or thing” is the clue to the patentability of a process claim that does not include particular machines.” The Court then expressly cautioned that “[w]e do not so hold” that a process claim “must operate to change articles or materials to a “different state or thing.”” Nonetheless, the Federal Circuit latched onto the use of “the” and turned “the clue” to patent eligibility into a “definitive test” for it. But having sanctified “machine-or-transformation” test as the sole inquiry, the court then left unanswered under what conditions would computer-implemented processes meet the “machine” prong of that test: “We leave to future cases the elaboration of the precise contours of machine implementation, as well as the answers to particular questions, such as whether or when recitation of a computer suffices to tie a process claim to a particular machine.” Specifically, the court touched on but did not resolve whether the recitation of a “general purpose computer” would meet the “machine” prong of the test.

The court similarly provided little guidance for the “transformation” branch of the test, on which its holding turned. The court stated that a transformation must be “central to the purpose of the claimed process” and that the “transformation must not constitute mere post-solution activity.” But the court did not provide any test to determine whether a transformation was “central” or a “mere” post-solution activity, instead offering only inconsistent examples. On the one hand, the court suggested that “that the electronic transformation of the data itself into a visual depiction” was sufficient. On the other hand, the court stated that storing data in a computer memory is not sufficient: “relying on *Flook*, we held that this step [recording bids] constituted insignificant extra-solution activity.” To computer scientists, this is a distinction without a difference. The vast majority of innovative computer processes produce a result that may be displayed or stored for later use. An arbitrary distinction between these two alternative “post-solution activities” is not a technologically sound basis to define patentable subject matter.

Impacts

The court’s failure to address critical issues in the scope and application of the “machine-or-transformation” test, and its inconsistent treatment of equivalent situations, can only serve to disrupt settled expectations among patent holders, inventors, and the business community as a whole.

Ostensibly, the court declined to exclude business methods *per se* from patentability. But, in a sweeping statement pregnant with unintended consequences, the court potentially crippled any attempts to protect business innovations by stating: “Purported transformations or manipulations simply of public or private legal obligations or relationships, business risks, or other such abstractions cannot meet the test because they are not physical objects or substances, and they are not representative of physical objects or substances.” The USPTO will likely treat this statement as a *per se* exclusion of business method claims.

The Federal Circuit’s statement that business risks cannot be met by the transformation test may wipe out thousands of patents and applications pertaining to accounting, banking, credit management, and securities trading. Risk management is at the core of a wide range of patents dealing with credit card and telecommunications fraud,

bankruptcy risk, currency exchange risk, loan default, and so forth. Many innovations in business can be understood as ways of identifying, quantifying, and mitigating business risks. Eliminating protection for such innovations only further dampens efforts to better manage risk.

In addition, the court’s “or other such abstractions” language is ambiguous enough for the USPTO—or anyone seeking to invalidate a “software patent”—to characterize many software implemented inventions as unpatentable. The court held that *Bilski*’s claim did not “involve the transformation of any physical object or substance, or an **electronic signal representative of any physical object or substance.**” Coupled together, these statements exclude entire fields of computer science that focus on the design of algorithms independent of their application to specific data, such as cryptography, computer languages, compression, database design, just to name a few.

Finally, the exclusion of “public and private legal obligations” was particularly short-sighted. All financial transactions and their constituent elements—price, asset value, bid, offer, exercise price, etc.—rest upon a framework that makes the transactions enforceable legal obligations. The court’s statement here unnecessarily jeopardizes protection of legitimate innovation in fields such as e-commerce, financial engineering, and computational finance.

Existing Patents: Licensees and Litigants

Patent licensors will likely be among the first casualties of *Bilski*. Many software patents, particularly those issued after *Alappat* and *State Street*, were written without paying homage to the court’s talismanic “machine-or-transformation” test. Presumably, the claims of these patents were crafted from the viewpoint of “one of ordinary skill in the art,” who knows that software inventions are inherently executed by computers, that computer data is represented by electrical signals, and that the “transformation” of signals requires physical changes. Further, these inventors also know that any algorithm in software can be equivalently implemented in a “particular computer,” and that when such form is used it is an engineering decision, not a philosophical one.

Licensees may now take advantage of *Bilski* to renegotiate their licenses. Such a strategy was made possible by the Supreme Court's decision in *MedImmune v. Genentech*, 549 U.S. 118 (2007), which allows a licensee to file a declaratory judgment action to challenge the validity of a licensed patent without breaching the license agreement. A less expensive option is reexamination. While invalidity under § 101 is not a grounds for requesting reexamination, a licensee can request a reexamination on prior art grounds and then, if the reexamination is granted, the issued claims will almost certainly be reevaluated under the machine-or-transformation test. Either way, a licensee now has new leverage to obtain better terms from a licensor.

Patent litigation defendants also benefit from *Bilski*. The majority of litigated software patents are not challenged under § 101 because historically the requirement was easily satisfied. Now that patents are subject to a rigid, formalistic test, invalidity under § 101 becomes a more powerful defense. With so little guidance from the court as to what constitutes a "particular computer," a district court judge could easily—and incorrectly—invalidate a patent claim for not reciting a "particular" type of computer by name, brand, or model number.

Pending Applications: Expect Rough Sailing

Patent applicants will undoubtedly experience difficulty as well. First, the USPTO is likely to use this test to reduce its backlog of pending applications. The USPTO currently rejects "computer program product" claims that do not include the magic words of "storage" or "tangible" to describe a computer readable medium. Likewise, recent statements by the USPTO indicate that it will reject any computer implemented process claim if the claim steps are not specifically recited as being performed by a computer.

The easy solution for patent practitioners is simply to draft computer implemented method claims with language limiting the operation of the method steps to a computer system. A more radical solution is to no longer use method claims for software inventions. A "Beauregard" claim for a "computer program product" completely avoids the "machine-or-transformation" test. Any activity that would infringe a software-implemented method claim would necessarily infringe a properly drafted computer program claim. In their first decision applying *Bilski*, the Board of

Patent Appeals and Interferences (BPAI), stated in *Ex parte Bo Li*, (Appeal No. 2008-1213), that the Beauregard claims are "considered statutory at the USPTO". However, a downside to this strategy is the potential reduction in damages, which would be based on a reasonable royalty or lost profits from the sale of a computer program, rather than on the potentially more valuable methods implemented by the program.

For business methods or other less clearly computer-based inventions, other strategies come into play. New claims that characterize the invention as a computer-based process will be necessary. *Bilski*'s claims could have easily been drafted in this manner. Although this approach promotes form over substance, it has become necessary under *Bilski*. The primary stumbling block will be whether the patent specification describes the invention in this form, or only in terms of the more general business operations. If the latter is the case, then the claims must recite steps that transform some specific physical object, rather than a mere "legal obligation" or "business risk." Alternatively, where possible the claims can be limited to operate on "signals" representative of "physical objects or substances." However, these strategies may still not be possible where the innovations concern financial transactions or affect legal obligations that do not have physical real world manifestations.

Future Patenting: Pay Now or Pay Later

In the near term, *Bilski* may discourage some innovators in business operations and software from filing for patent protection, if only because the increased uncertainty as to whether they will obtain any protection makes the investment less attractive. Others with longer term horizons and deeper pockets should continue to file for patent protection as they have been.

While *Bilski* raises serious concerns for software and business innovators, patentees and applicants should not overreact. The case law may develop to interpret the "machine-or-transformation test" quite narrowly as simply a bar against pure mental steps process claims. As long as a process claim is tied to a machine or transforms an article, it cannot be performed entirely in someone's head. This is a fair reading of *Bilski*, as the court itself stated that a process where all the claimed steps "may be performed entirely

in the human mind is obviously not tied to any machine and does not transform any article into a different state or thing.” If that is all the court means, then *Bilski* is a lengthy, but trivial decision.

Moreover, the Supreme Court may ultimately overturn *Bilski*. Though the Court recently deemed it “improvident” to address the § 101 question in *LabCorp v. Metabolite Laboratories Inc.*, 548 U.S. 124 (2006), the issue is certainly ripe given the Federal Circuit’s en banc opinion, with one concurring and three dissenting opinions. Indeed, the court itself seemed uncertain of its holding, suggesting that because of “future developments in technology and the sciences” the Supreme Court “may ultimately decide to alter or perhaps even set aside” the machine-or-transformation test. One can imagine the Supreme Court chastising the Federal Circuit for committing in *Bilski* the same sin with § 101 as it did with § 103 in *KSR International Co. v. Teleflex Inc.*, 550 U.S. ____ (2007). Just as the Federal Circuit improperly applied a rigid test to determine obviousness in *KSR*, it now seeks to impose an inflexible machine-or-transformation test to determine whether a claim preempts the use of a fundamental principle.

Nevertheless, in the short run patent applications for computer-based inventions may be more expensive. Patent counsel may spend more time describing and claiming the invention as a “particular computer,” characterizing the underlying data entities as “physical objects and substances,” and focusing on the “transformation” of “signals” representing those entities.

Patent applications for business innovations will also become more expensive. In addition to describing the invention using language familiar to those in the financial services industry, it will be necessary to provide a detailed description of a computer or other physical system with which the invention can be practiced. A proper description might require a description of appropriate algorithms, data structures and databases, programming interfaces, and other software engineering artifacts. A mere boilerplate recitation of a generic computer will likely not be sufficient.

Either *Bilski* has dramatically changed the contours of patentable subject matter or it is a trivial decision that can be easily bypassed by invoking token language. It is fair to assume the former, given the earnest attempt by the court to conform its precedent to the Supreme Court’s. In that case, it may take years for the unintended consequences of *Bilski* to be fully identified, and longer to be corrected.

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