

LexisNexis® Emerging Issues Analysis

**John A. Squires and Duane R. Valz on
Awaiting and Anticipating *Bilski***

2010 Emerging Issues 4910

[Click here for more Emerging Issues Analyses related to this Area of Law.](#)

Never before have both the old economy and knowledge economy anticipated a patent law decision as intently as *Bilski v. Kappos*, the forthcoming decision from the U.S. Supreme Court. Implicated in *Bilski* are technologies ranging from bioinformatics, anti-terrorist financing, signal transmission and software—virtually everything touched in our modern lives. Critically, also at stake is the fundamental role of U.S. patent law to incentivize development of these and technologies yet unforeseen.

Specifically, *Bilski*¹ was heard by the Supreme Court to address the question of the scope of patent eligible subject matter under [35 U.S.C. § 101](#), last addressed in 1981 when the invention at issue was a computer-implemented process for determining the cure time of an industrial rubber mold.² Today, the purported invention at issue concerns a so-called "pure business method" and puts into question what kinds of inventions may be too abstract or diffuse to qualify for patent protection under U.S. law (irrespective of whether other statutory criteria such as novelty and non-obviousness are met.)

Because this decision has implications for a broad variety of industries, in both the 'old' and 'new' economy, much has been written and speculated about *Bilski*, particularly since the case was first taken up by an en banc panel at the U.S. Court of Appeals for the Federal Circuit in early 2008.³ This article attempts to surface the key issues in anticipation of the Supreme Court's imminent decision on *Bilski*.

-
1. Each of the authors has been involved in the *Bilski* proceedings by the filing of amicus briefs in the case. John Squires and Chadbourne & Parke LLP filed an amicus curiae brief with the Supreme Court on behalf of Regulatory Data Corp., American Express, Palm, Rockwell Automation and SAP. Duane Valz, prior to joining Chadbourne & Parke, filed an amicus curiae brief with the Supreme Court on behalf of Yahoo! Inc.
 2. The Supreme Court has made oblique reference to issues concerning business methods and patent eligibility (see, e.g., *Laboratory Corp. of Am. Holdings v. Metabolite Labs., Inc.*, [548 U.S. 124, 127](#) (2006) (Breyer, J., dissenting from dismissal of a writ of certiorari), but *Bilski* is the first case since *Diamond v. Diehr*, [470 U.S. 175](#) (1981), to squarely explore the contours of §101.
 3. The Federal Circuit decision was handed down in October of that year. See *In re Bilski*, [545 F.3d 943](#) (Fed. Cir. 2008)

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)

LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating *Bilski*

Subtle, plentiful and complex, the issues presented in *Bilski* go to the heart of the very purpose of the country's Patent Act, both as originally authorized under the U.S. Constitution and as amended by Congress from time to time over the years. The *Bilski* patent application centers on a purportedly inventive method of hedging weather-related risk relative to the pricing of energy commodities. The patentability claimed is for a "pure business method," insofar as that the hedging technique described is not recited to be nor required to be computer implemented. While there is no per se bar to patent eligibility for business methods under prevailing law, the Supreme Court has long held that laws of nature, natural phenomena and abstract ideas stand as exceptions to eligibility under § 101. Accordingly, the issue raised by claiming patent protection for business methods (and all other inventions claimed as processes, such as software, medical diagnostic methods, etc.) is whether the patent office will examine these applications or properly refuse to do so because they fit within one of these classical exceptions, which we collectively refer to here as "abstract concepts."

Dating back to the 19th century, the Supreme Court has generally allowed that inventions incorporating or applying abstract concepts, such as mathematical formulas, may be patent eligible as long as the invention, as claimed, has a sufficiently practical, ascertainable impact in the real world. Thus, while the basic formula for centripetal force would lie beyond the reach of U.S. patent law as a law of nature or abstract idea, inventions for a new roller coaster system applying that formula, for example, would qualify for patent protection, at least as a threshold matter under § 101. The principle at work is that pure ideas, including abstract concepts, may certainly yield useful inventions when implemented in a specific application. But any such application must be practical and distinct enough so that the idea itself is not foreclosed from use by others for pure research or additional, unique applications.

In its most recent cases involving § 101, going back to the 1970s and early 1980s, the Supreme Court developed a 'judicial gloss' as a shorthand test to determine patent eligibility: a process is patent eligible if it (1) is implemented using a machine, or (2) transforms a substance or an article into a different state or thing (the "machine-or-transformation" or "MOT" test). Understanding how a machine helped to implement the steps of a claimed process or how the process effectuated a physical transformation of a substance or article yielded some measure of certainty that any abstract concepts involved were indeed being applied practically. This gloss also permitted scrutiny over whether the claimed application was distinct enough so as not to foreclose other unique applications of the abstract concept. In the 19th century, these criteria mapped rather well to the industrial technology of that time. The processes implemented by the

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating Bilski

mechanical devices of that era, and those used to create new chemicals or articles of commerce, typically involved a limited number of steps. As such, it was relatively more straightforward to claim a new process invention by detailing how each of its steps was carried out by the working components of a machine or else how they acted upon a substance or article.

In the 20th century, the emergence of mass communication technologies, electronic computational systems and, more recently, the Internet and gene-based therapies, have yielded process inventions that challenge the fundamental bases of the machine-or-transformation test. The Supreme Court applied its test to software inventions on just three occasions in the 1970s and early 1980s, finding patent eligibility only in one instance where it was clear that an industrial process and machine were involved. In *Diamand v. Diehr*, [470 U.S. 175](#) (1981), the Court determined that use of a known mathematical formula, the Arrhenius equation, to analyze temperature data obtained from an industrial rubber mold, ultimately to determine optimal cure times, met the MOT test. For many years afterward, the Federal Circuit (and its predecessor court) continued to struggle with the application of *Diehr* and the MOT test to the new, more sophisticated inventions arising since the early 1980s. At bottom, software became an analytical stumbling block.

Software, or more specifically software 'code,' is implemented in hardware by directing electrons through thousands (increasingly now millions) of tiny transistor switches located on microprocessors and integrated circuit chips. As a practical matter, it would be extremely burdensome, not to mention of little utility to programmers, for a patent to describe each of the discrete steps occurring literally at the physical machine level when software is being run in a computer. Claims directed to software, therefore, focus on the higher level functionality that the program enables, and thus, of necessity, are "abstracted" from the underlying physical activity staging the functionality itself. This type of "abstraction" does not mean, however, that the resulting functionality is merely an insufficiently applied abstract concept. It simply means that the crux of inventiveness in software programs is often what they have been created to accomplish, rather the specific physical elements they use or transform while being executed. Adding to this complexity is the fact that much of the functionality enabled by software programs is designed using algorithms (i.e., step-by-step procedures) which can be expressed as mathematical formulas. The language of programming involves abstract concepts and the resulting functionality—what is actually worth claiming—is itself abstracted from the physical processes in hardware giving rise to that functionality. This reality of electronic computing technology simply does not lend itself well to principled scrutiny under the

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating Bilski

machine-or-transformation test. Going back to our roller coaster example, the inquiry becomes whether a software application using an algorithm embodying the centripetal force formula to aid in the design of roller coasters is patent eligible.

Given these and other challenges, the Federal Circuit tried a number of alternatives, landing in 1998 on the concrete, useful, tangible (“CUT”) test in the landmark case of *State Street Bank*. Under this relatively straightforward test, a process is patent eligible if it leads to a concrete, useful and tangible result. As long as we can determine that something helpful with impact in the real world resulted from a process invention, then what kind of process it is or the precise means of its implementation should not matter. This logic, however, was subsequently extended by the USPTO beyond software-related inventions to all types of processes, many stretching the bounds of what is commonly conceived of as “technology.” Within the past 10 years, the Federal Circuit and USPTO each faced criticism that the CUT test was too lax, allowing patents for processes such as athletic maneuvers, meditation techniques, tax strategies and myriad business methods, both pure and computer-implemented. Perhaps concerned about straying too far from Supreme Court precedent, the Federal Circuit in its 2008 *Bilski* decision effectively overruled its own CUT test and declared the MOT test as the “exclusive” test for subject matter eligibility.

Bilski thus brings us back full circle to the nagging questions left over after the *Diehr* decision. In the post-Internet, post-Genome era of the early 21st century, is the MOT test still sufficient to separate the patent worthy from the patent ineligible? If not, how do we derive a principled test to more accurately determine patent eligibility? At present, even this shorthand test comes with its own corollaries. For instance, if a machine is only trivially tied to the implementation of a claimed process, such that it is used only in a preliminary step or to conduct post-solution activity, then the invention will not meet eligibility requirements. The MOT test and its corollaries have proven exceedingly difficult to apply reasonably and consistently, as illustrated by the opinions handed down from District Courts and the USPTO's Board of Patent Appeals and Interferences since the 2008 Federal Circuit decision.

The conundrum now facing the U.S. Supreme Court is how to balance principle with simplicity. Finding an approach to eligibility under § 101 that is intellectually coherent may still not yield a test (or set of criteria) that is easy to apply fairly, consistently or universally. This is, in part, a function of the mechanics of claim drafting, the differences between technologies in different fields of science, engineering and business, and the nature of rapid technical advancements, even within a given field or discipline. This

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating Bilski

challenge is also a function of the underlying realities of electronic computer technology and the complex interactions between hardware and software, the entirety of which for any given invention are impossible to capture in a patent claim in all but superficial ways. Perhaps the most interesting issue to watch in the pending proceedings is how, if at all, the High Court will seek to resolve these tensions.

Another key issue to watch—closely related to the test or set of principles to be embraced by the High Court—is how restrictively or broadly the term "process" will be interpreted as it is used in the language of § 101. In relevant part, § 101 defines as patent eligible the invention or discovery of "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." Is the term "process," particularly as it has been set forth in § 101 since 1952, broadly meant to include *any* method or process? Or is it meant to denote only certain processes and methods that are clearly "technical" in nature, such as those implemented using a machine or else transforming an article or substance into a different state or thing? While the current MOT test muddles the analysis for software inventions, it veritably eliminates § 101 eligibility for "pure business methods" and other processes such as meditation techniques, administrative methods, athletic maneuvers and the like. As such, particularly for those seeking to broaden subject matter eligibility, a key question is whether the MOT test should command eligibility outcomes possibly not intended by Congress or required under the plain language of the statute. The MOT test, after all, is really a judicially made test for *exceptions* to eligibility for inventions involving abstract concepts. But that does not mean it should function to prevent eligibility for entire classes of inventions that Congress never intended to foreclose from patenting.

How the Supreme Court interprets "process" could itself be outcome determinative of whether a "pure" business method, such as the dual pricing hedging technique claimed in *Bilski*, can ever be considered patent eligible. Not surprisingly, both of the primary parties on appeal as well as many of the dozens of companies and organizations filing amicus briefs focus much attention on this issue. In the U.S. Government's view, not only is "process" meant to encompass only technological and industrial processes, but the MOT test is a perfect filter for these criteria. This should define the extent of the inquiry. Pure business methods should be considered patent ineligible because they are not implemented by a machine, but software and any business methods that are squarely computer implemented ought to be considered patent eligible. Given its own prior jurisprudence, and the approach taken by the Federal Circuit in its decision below, the Supreme Court is unlikely to limit its consideration of the issue to that approach.

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating Bilski

Even assuming a process or method is implemented using a machine (e.g., software programs must run on computer hardware at some level in order to be functional), even more subtle considerations are presented, such as what kind of machine is involved in implementing a process or method and the degree to which the critical steps of the process or method actually make recourse to the machine. In respect of software and business methods, the concern here is that merely using a so-called "general purpose computer," or otherwise using a computer trivially to implement just one or few basic steps of a claimed process, may place form over substance and allow patents over otherwise ineligible inventions. Those, like the *Bilski* applicants, who favor a broad view of eligibility and interpretation of the term "process" point out such vexing distinctions are tough to make consistently from case to case. The need for such distinctions arise only with the general presumption that use of a machine or some transformation of matter is required for a process to be patent eligible. Doing away with that dated rubric may be helpful, and may foster a return to a broader view of the term "process" as well as a case-by-case determination approach as to whether any invention is overly abstract. On the other side of the spectrum, those who favor a restrictive view of eligibility also question the adequacy of machine-or-transformation as a test because not enough inventions unworthy for patenting will be filtered out of the system. Under this view, certain logical processes that embody abstract human thinking and mental or behavioral processes are not patent eligible, even if implemented in part by a computer or used, e.g., to determine the proper drug dosage for a patient. Finally, alternative tests have been proposed which suggest that a "process" should have boundaries more closely related to modern understandings of technology. Under this view, the MOT test is a poor surrogate that is ill-suited to determining eligibility for 21st century technologies.

Thus, heading toward the Supreme Court's forthcoming decision, at least five unique approaches to determining the patent eligibility question exist:⁴

- **Technology Restrictive Approach.** "Process" under the Patent Act does not include most software and certainly not pure business methods. Machine-or-transformation is an inexact and possibly inadequate test. Patents should be reserved for technologies that act upon or subsist in the physical world. Pure ideas that are the equivalent of logical statements should not be patentable, even if these ideas can be made functional once interpreted by a machine. Business methods, software and other pure logic processes ought not be patent eligible, regardless of whether they

4. All Merits and Amici Briefs for the Supreme Court proceeding referenced herein are available at <http://www.neweconomytrends.org/>

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating Bilski

are implemented using a computer or assist with disease diagnosis and treatment. (See, e.g., S. Ct. Amici Briefs of Computer & Communications Industry Association; Profs. Peter Menell and Michael Meurer)

- **Federal Circuit Approach (current status quo).** Meeting the machine-or-transformation test is a necessary, but not sufficient, requirement for subject matter eligibility. Processes, including software, relying on general purpose computers, on computers to perform mere extra solution activity, or on the transformation of data abstracted from real world objects, also may not be patent eligible. Pure business methods and inventions involving solely mental or behavioral activity are patent ineligible under § 101. (See *In re Bilski*, [545 F.3d 943](#) (Fed. Cir. 2008))
- **Federal Government (USPTO) Approach.** Meeting the machine-or-transformation test is necessary, but basic uses of machines and electronic transformation of data are sufficient. We can presume software of all kinds is patent eligible by virtue of the fact that software programs must operate in hardware at some level. It is only purely abstract concepts, entirely mental steps and entirely behavioral activity—unconnected to any machine or not effectuating a physical transformation of some kind—that are patent ineligible. (See S. Ct. Merits Brief of Respondent USPTO; S. Ct. Amicus Brief of Microsoft, Philips & Symantec; S. Ct. Amicus Brief of IBM)
- **New Test Approach.** Given the difficulties presented by applying machine-or-transformation consistently to less tangible inventions, a new, more principled test is needed, one that more closely reflects the realities of how technical processes work, even at less visible or tangible scales. For instance, Yahoo! proposes an approach that, in one form, builds on the CUT test: a process is patent eligible if it leads to a concrete, useful and tangible result and the steps of the process as claimed are sufficiently stable, predictable and reproducible. (See, e.g., S. Ct. Amicus Brief of Yahoo! Inc.; S. Ct. Amicus Brief of Robert Sachs & Daniel Brownstone)
- **Broad Interpretation Approach.** The core issue around eligibility is whether a process or method is overly abstract, is a natural phenomenon or a principle of nature. The machine-or-transformation test is a poor and overly limiting surrogate for such an invention-specific determination, and indeed, is eschewed by the plain meaning and contextualist understanding of the

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

John A. Squires and Duane R. Valz on
Awaiting and Anticipating *Bilski*

Patent Act. Congress commanded eligibility for new inventions be extremely broad and the classical exceptions to patent eligibility can be determined more directly and would apply in very rare, obvious cases. The other requirements for patentability such as novelty and non-obviousness are more appropriate screens for inventions of questionable quality. (See, e.g., S. Ct. Amicus Brief of Regulatory Data Corp., American Express, Palm, Rockwell Automation & SAP; S. Ct. Amicus Brief of Accenture & Pitney Bowes)

At a high level, *Bilski* challenges our conception of technology, its relationship to pure science, business and other useful endeavors, and the proper boundaries we must draw between patent eligible and ineligible ideas. At stake in how the Court ends up drawing these boundaries is potentially billions of dollars in real economic value, and whether patent protection will be available for thousands of new inventions in fields as diverse as semiconductor design, nanotechnology and gene therapy. We think that we are unlikely to see a majority opinion from the Court that adopts either a technology restrictive approach or one that would afford an interpretation of "process" that is broad enough to support § 101 eligibility for the claim at issue in *Bilski*. That said, we also strongly doubt that the High Court will uphold the Federal Circuit's recasting of the MOT test, particularly its pronouncement that MOT is *the* exclusive test for eligibility. Thus, the area of play is how broadly or narrowly the Court will interpret "process" under §101 and how it will fashion a test (or set of principles) for deciding exceptions to eligibility that is consistent with that interpretation but not determinative of it.

We anticipate that the Court will be loathe to take a strong position on the term "process" and whether it really excludes certain areas of endeavor categorically. However, we also think the Court will reaffirm that its classical exceptions to subject matter eligibility still obtain, and that some test or set of principles must be applied to understand whether or not a claimed invention leveraging laws of nature, natural phenomena or abstract ideas is doing so in a sufficiently distinct and practical manner. This is likely to be a relaxed version of the MOT test, where many of its corollaries are clarified or eliminated to allow for easier, more consistent application by lower courts and the USPTO. Possible, but less likely, is that the MOT test will be superseded or reframed as a looser set of principles to be applied in making eligibility determinations. Whatever the particulars, we do anticipate that "pure business methods" and processes comprised entirely of human conduct or mental steps will not survive the Court's decision. Until then, we wait.

[Click here for more Emerging Issues Analyses related to this Area of Law.](#)

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis® Emerging Issues Analysis

**John A. Squires and Duane R. Valz on
Awaiting and Anticipating Bilski**

About the Authors. John Squires and Duane Valz are both of Chadbourne & Parke LLP, where Mr. Squires is IP practice co-chair and Mr. Valz is Counsel with the firm's IP Practice. Mr. Squires was previously the Chief IP Counsel for Goldman Sachs & Company and Mr. Valz was previously Chief Patent Counsel for Yahoo! Inc. They are reachable at jsquires@chadbourne.com and dvalz@chadbourne.com or 212-408-8072 and 213-892-2059.

Emerging Issues Analysis is the title of this LexisNexis® publication. All information provided in this publication is provided for educational purposes. For legal advice applicable to the facts of your particular situation, you should obtain the services of a qualified attorney licensed to practice law in your state.

Reproduced with the permission of Matthew Bender & Company, Inc., a member of the LexisNexis Group of companies.

TOTAL SOLUTIONS

[Legal](#) [Academic](#) [Risk & Information Analytics](#) [Corporate & Professional](#) [Government](#)



LexisNexis, Lexis and the Knowledge Burst logo are registered trademarks of Reed Elsevier Properties Inc., used under license. Matthew Bender is a registered trademark of Matthew Bender Properties Inc.