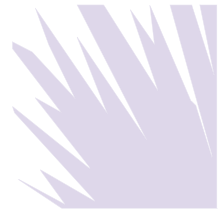


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BUSINESS METHOD PATENTS: FAR FROM A SETTLED ISSUE

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The importance of the question presented in this certiorari petition makes it appropriate to reiterate the fact that the denial of the petition does not constitute a ruling on the merits.

Excel Communications, Inc. v. AT&T Corp., 120 S. Ct. 368 (Oct. 12, 1999) (Stevens, J., respecting the denial of the petition for certiorari).

It was entirely unnecessary for Justice Stevens to issue this warning for it is hornbook law that the denial of certiorari by the United States Supreme Court does not mean that the Court passed judgment on the merits of the dispute. This unusual warning perhaps signals that the United States Court of Appeals for the Federal Circuit's dramatic expansion of the scope of patentable subject matter under 35 U.S.C. § 101—which began in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), *cert. denied*, 119 S. Ct. 851 (1999)—to include apparatuses for manipulating data according to mathematical formulas or algorithms so long as they have practical utility—and continued in *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir.), *cert. denied*, 120 S. Ct. 368 (1999)—to include pure *processes* of manipulating data according to mathematical formulas or algorithms so long as they have practical utility—is far from settled precedent in the fabric of the patent law. Indeed, Justice Stevens's unusual warning strongly suggests that the Supreme Court may well revisit this issue in a future dispute, for it is clear that the complete overhaul of the law regarding the patentability of software and business methods completed in *Excel* departs from decades of settled law from the Federal Circuit and CCPA and is irreconcilable with Supreme Court precedent. And, perhaps more importantly, the Federal Circuit's new expanded patentable subject matter standard has dramatically impacted both the United States Patent and Trademark Office ("PTO") and the business community.

***State Street Bank* and *Excel* Conflict With Supreme Court Precedent and Prior Decisions of the Federal Circuit and CCPA**

The Federal Circuit's rulings in *State Street Bank* and *Excel* dramatically expanded the scope of statutory subject matter under section 101 for claims involving mathematical operations. The new standard, demanding only practical utility of the mathematical method or apparatus, unquestionably breaks sharply with Supreme Court precedent and earlier cases from the Federal Circuit and CCPA, which had placed more stringent requirements on whether such claims constituted patentable subject matter.

***State Street Bank* and *Excel* Held Mathematical Operation Inventions Patentable Subject Matter So Long as They Claim Something Practically Useful**

¹ ©2000, 2001, Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P. Mr. Dunner was appellate counsel for Excel Communications, Inc. in *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir.), *cert. denied*, 120 S. Ct. 368 (1999).

Until 1998, the Federal Circuit and the CCPA followed the analytical path marked out by the Supreme Court prior to 1981 to assess whether claims involving mathematical operations constituted patentable subject matter. For patentability of a claim involving mathematical operations, they demanded that the claimed apparatus/process involve “physical elements or process steps.” The standard approach, known as the *Freeman-Walter-Abele* test (see *In re Freeman*, 573 F.2d 1237 (CCPA 1978), *In re Walter*, 618 F.2d 758 (CCPA 1980), *In re Abele*, 684 F.2d 902 (CCPA 1982)), incorporated two steps:

First, the claim is analyzed to determine whether a mathematical algorithm is directly or indirectly recited. Next, if a mathematical algorithm is found, the claim as a whole is further analyzed to determine whether the algorithm is “applied in any manner to physical elements or process steps,” and, if it is, it “passes muster under § 101.”

In re Pardo, 684 F.2d 912, 915 (CCPA 1982) (quoting *Walter*, 618 F.2d at 767); see *In re Meyer*, 688 F.2d 789, 796 (CCPA 1982).

In 1998, after a period of almost five years of quiet on the subject, the Federal Circuit “reassessed” the patentability of mathematical algorithms in *State Street Bank*. The only claims actually at issue were “directed to a machine,” in accordance with 35 U.S.C. § 112, ¶ 6, namely, “a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific structures disclosed in the written description and corresponding to the means-plus-function elements . . . recited in the claim.” *State Street Bank*, 149 F.3d at 1371, 1372. The patentee had, in fact, canceled its initially proposed process claims during prosecution of the patent application, after the PTO questioned their patentability under Section 101. The Federal Circuit, noting that “[a] ‘machine’ is proper statutory subject matter under § 101,” *id.* at 1372, held that the claimed machine did not fall within any of the unpatentable categories of laws of nature, natural phenomena, or abstract ideas, including mathematical operations, because it was a new and useful machine capable of producing a concrete and tangible result to solve a practical problem. *Id.* at 1373.

Although only a machine was at issue in *State Street Bank* (as was also the case in the 1994 *Alappat* decision (*In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994) (*en banc*)), the *State Street Bank* court did not confine its discussion to machines. Rather, it announced a new test for the patentability of all claims that use a mathematical algorithm, including pure process claims, requiring only that the algorithm be “applied in a ‘useful’ way.” *State Street Bank*, 149 F.3d at 1373. Acknowledging that the “*Freeman-Walter-Abele* test was designed by the CCPA, and subsequently adopted by the Supreme Court, to extract and identify unpatentable mathematical algorithms in the aftermath of [*Gottschalk v. Benson*], 409 U.S. 63 (1972)] and [*Parker v. Flook*], 437 U.S.584 (1978)],” the Federal Circuit nevertheless stated that, today, this “test has little, if any, applicability to determining the presence of statutory subject matter.” *State Street Bank*, 149 F.3d at 1373-74.

When certiorari was sought to review *State Street Bank* and its dramatic alteration of the legal standards under Section 101, the patentee, in opposing certiorari, relied centrally and repeatedly on the fact that the case actually involved a machine, not a process, and therefore any language in *State Street Bank* applicable to process claims was mere *dicta*.² As

² According to the patentee (respondent), “the question posed by *State Street* is solely an academic question and granting the writ would bring before this Court a hypothetical issue that the Federal Circuit did not decide.” 98-657 Br. in Opp. 7; see also *id.* at 1 (rewriting question presented to stress “machine”); 5 (“The Question Presented by *State Street* Is Hypothetical and Was Not Determinative of the Federal Circuit’s Decision”; “*State Street*’s entire argument for certiorari is based upon a flawed reading of the Federal Circuit’s decision.”), 6-7 (stressing that Federal Circuit’s decision was limited to “a new ‘machine’ and not a ‘process’”; “*State Street* distorts selected dicta to create an issue that was not before the Federal Circuit.”).

will be explained below, all of the key Supreme Court precedents involved process claims. Thus, the patentee urged this distinction to diminish the importance (and incompatibility with the Supreme Court's precedents) of the language in *State Street Bank* suggesting new patentability standards for processes. Whether this argument had any impact on the Supreme Court is unclear, but the Supreme Court nevertheless denied the petition in *State Street Bank*.

After certiorari was denied in *State Street Bank*, the Federal Circuit in *Excel* took the decisive step of crossing the machine-process line and elevating the dicta about processes in *State Street Bank* into a holding. The Federal Circuit applied the *State Street Bank* practical utility test to uphold the patentability of the method claims at issue in that case. In rationalizing its abandonment of the conventional physical limitations test, the court echoed its reasoning from *State Street Bank* that, “[w]hatever may be left of the earlier test, if anything, this type of physical limitations analysis seems of little value” any longer. *Excel*, 172 F.3d at 1359. The Federal Circuit's decision in *Excel* thus established the court's expanded section 101 principles as the governing law for pure software and other process claims.

The New Practical Utility Standard of *Excel* is a Sharp Break from Pre-Existing Law

It is clear that the new practical utility standard for patentability of pure processes that are nothing but mathematical operations as announced by the Federal Circuit in *Excel* is a sharp break from the pre-existing law. Indeed, the Federal Circuit itself acknowledged in *Excel* that it had “reassessed” the standards for patentable subject matter. *Id.* at 1356.

Most recently, in *In re Schrader*, 22 F.3d 290, 295 (Fed. Cir. 1994), which invalidated a patent on the ground that it was not directed to statutory subject matter, the Federal Circuit embraced “[t]he requirement that in a process claim compliance with § 101 requires some kind of transformation or reduction of subject matter.” The court explained:

When Congress approved the addition of the term “process” to the categories of patentable subject matter in 1952, it incorporated the definition of “process” that had evolved in the courts. As of 1952, *that term included a requirement that there be a transformation or reduction of subject matter.*

Id. (emphasis added). “This basic requirement preceded and remains a part of the requirements incorporated in the 1952 Act.” *Id.*

This requirement of a physical transformation or reduction had been stated in *Abele*, the third of the *Freeman-Walter-Abele trilogy*, after the Supreme Court's last pronouncement on the subject in the 1981 *Diehr* decision. See *Abele*, 684 F.2d at 906. Following that principle, moreover, the Federal Circuit and the CCPA, in discussing pure process claims, had repeatedly stated that mere usefulness of a mathematical algorithm, mere recording of the result of such an algorithm, mere use of a generically referenced computer, and mere restriction of the field of use of an algorithm were insufficient to take a mathematical process outside the public domain. See *In re Sarkar*, 588 F.2d 1330, 1335 (CCPA 1978); *Walter*, 618 F.2d at 769-70; *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053, 1057 (Fed. Cir. 1992); *Schrader*, 22 F.3d at 294; *In re Warmerdam*, 33 F.3d 1354, 1360-61 (Fed. Cir. 1994); *In re Grams*, 888 F.2d 835, 839 (Fed. Cir. 1989). The Federal Circuit's new standard renders those limitations a dead letter.

The Federal Circuit all but explicitly acknowledged in *Excel* that its new practical utility test cannot be reconciled with prior governing standards, reflected in at least three decisions invalidating pure process claims after *Diehr*, namely, *Grams*, *Schrader*, and *Warmerdam*. It made no attempt to explain how the holdings of those cases could be squared with its new test. As to the first two, the court merely declared them “unhelpful” because they did not apply the mere “useful result” standard as a sufficient test for patentability. *Excel*, 172 F.3d at 1359-60. That dismissal, being entirely circular, is another form of words stating that the standards of *Grams* and *Schrader* are incompatible with the new standard. As to *Warmerdam*, the court simply threw up its hands, making no effort to identify a principle that would accommodate the earlier invalidity holding; the court refused even to ask what features were missing from the claims there that would distinguish them from unpatentable mathematical operations or whether the same features were missing here. *Id.* at 1360.

In fact, what was missing in all three cases was sufficient physical activity or transformation (as had been required under the “old” test), and all three of the cases would have been decided differently under the new practical utility standard. In *Grams*, whereas the diagnosing method at issue was held unpatentable because it recited no physical steps except for merely gathering data for the mathematical algorithm, the algorithm clearly produced a useful, concrete, and tangible result, i.e., an indication whether a system’s condition is normal or abnormal, and, if it is abnormal, the cause of the abnormality. 888 F.2d at 836. Similarly, in *Schrader*, whereas the claimed method for competitive bidding on multiple auction items was held unpatentable because it failed to recite sufficient physical activity or transformation of data, the mathematical algorithm underlying the bidding method was manifestly applied in a useful way, i.e., in conducting auctions. 22 F.3d at 291, 293-94. Finally, in *Warmerdam*, whereas the claimed method was held unpatentable because it was “mathematical in nature” and did not recite a sufficient level of physical activity to impart patentability, 33 F.3d at 1360, the method was indisputably and directly useful in controlling the motion of robotic machines to avoid collisions with other moving or fixed objects. *Id.* at 1355. There can be little question, therefore, that the Federal Circuit’s new practical utility standard dramatically changed the pre-existing legal standards to permit patenting of what previously belonged in the public domain.

The Holding in *Excel* Constitutes a Clear Repudiation of Supreme Court Precedent

It is also clear that the Federal Circuit’s holding in *Excel*—applying its new practical utility standard to test whether a method claim is directed to patentable subject matter—is not only inconsistent with prior Federal Circuit and CCPA cases but also a repudiation of Supreme Court precedent. The Supreme Court has made clear that patentability of an otherwise nonstatutory method claim is not saved by reciting a practical application of the method. At the same time, the Court has stressed that, to distinguish an unpatentable mathematical process from a patentable technological one, the touchstone is that the claims describe a process for physically transforming a physical article or reducing it to a different state or thing. The Federal Circuit in *Excel* tossed these principles aside and adopted a standard that is inconsistent with both the results and rationales of several of the Court’s decisions. And, contrary to the Federal Circuit’s core assumption (belied by 20 years of Federal Circuit case law), neither the principles nor the holdings of those decisions were abrogated by the Supreme Court in *Diehr*.

In its 1978 decision in *Flook*, the Supreme Court held in no uncertain terms: “if a claim is directed essentially to a method of calculating, using a mathematical formula, *even*

if the solution is for a specific purpose, the claimed method is nonstatutory.” 437 U.S. at 595 (emphasis added) (citing *In re Richman*, 563 F.2d 1026, 1030 (CCPA 1977)). The Court repeated *Flook’s* unmistakably clear rejection of a usefulness standard in the course of its general discussion of patentability in *Diamond v. Chakrabarty*, 447 U.S. 303 (1980), confirming that *Flook* “applied [the Court’s] prior precedents to determine that a ‘claim for an improved method of calculation, even when tied to a specific end use, is unpatentable subject matter under § 101.’” 447 U.S. at 315 (emphasis added). The Federal Circuit’s new practical utility standard is directly to the contrary. Indeed, a more striking conflict can scarcely be divined.

The Federal Circuit’s new practical utility standard also discards the longstanding requirement of a physical transformation for patentability of a “process” (a term expressly used in Section 101 since 1952, having previously been covered by the prior statutory term “art,” see *Diehr*, 450 U.S. at 182). The Supreme Court and the leading treatise articulated that requirement for processes even before 1900. See *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1877) (“A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing”); 1 William C. Robinson, *THE LAW OF PATENTS FOR USEFUL INVENTIONS* § 159 (1890) (stating that a patentable process “is an act or a series of acts performed by some physical agent upon some physical object, and producing in such object some change either of character or of condition”). In the 1972 decision in *Benson*, the Supreme Court confirmed this settled principle, holding that the “[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.” *Benson*, 409 U.S. at 70 (emphasis added).

The Federal Circuit’s practical utility standard not only flouts the Supreme Court’s articulated standards but contradicts the holdings of *Benson* and *Flook*, which would have come out differently under the new Federal Circuit standard.³ In *Benson*, the algorithm used to convert binary-coded decimal numerals into pure binary numerals produced obviously useful results: numerals that could be used in the electronic on-off circuits on which digital computers are based. 409 U.S. at 64, 71; see also *Diehr*, 450 U.S. at 185 (the “sole practical application of the algorithm [in *Benson*] was in connection with the programming of a general purpose digital computer”); *Flook*, 437 U.S. at 590 n.11 (in “*Benson* there was a specific end use contemplated for the algorithm—utilization of the algorithm in computer programming”). The usefulness of the algorithm in computer applications would be enough under the Federal Circuit’s new standard. The Supreme Court held, however, that the claimed method was merely an abstract idea and so was not protectable under the patent laws.

In *Flook*, the algorithm for computing numerical “alarm limits” produced a useful result: indeed, these numbers generated by the algorithm were specifically intended to have a practical application in chemical processes involving catalytic conversion. 437 U.S. at 586. That utility too would be enough under the Federal Circuit’s standard. The Supreme Court held, however, that the method claims were unpatentable because they claimed nothing more than abstract ideas. *Id.* at 594-95.

Indeed, the Federal Circuit did not seriously contest the inconsistency of its new standard with *Benson* and *Flook*. Instead, the court presumed that, subsequent to those decisions, “[i]n *Diehr*, the Court expressly limited its two earlier decisions in *Flook* and

³ Counsel for State Street Bank & Trust Co. (the patentee in *State Street Bank*) has admitted as much in recent public statements to the patent bar. According to State Street’s counsel, “[w]e believe that *Benson* was wrongly decided. Under *State Street Bank*, it is hard to imagine a more useful ‘real world’ application of an algorithm than the *Benson* invention which is now a critical widespread part of computer technology.” Steven L. Friedman et al., *State Street Bank and Trust Company v. Signature Financial Group, Inc.: At the Intersection of Technology, Commerce and the Law*, AMERICAN BAR ASSOCIATION SECTION OF INTELLECTUAL PROPERTY LAW NEWSLETTER (Spring 1999) 16 n.1. Similarly, “[l]ike *Benson*, . . . we believe *Parker* would come out in reverse under [the Federal Circuit’s] analysis in *State Street*.” *Id.* at 16 n.4.

Benson.” *Excel*, 172 F.3d at 1356. This revisionist reading of *Diehr*, after 20 years, contradicts the Federal Circuit’s own recognition that “*Benson* remains the law. Indeed, *Benson* is cited in both *Diehr* and *Chakrabarty*, with no apparent attempt in either opinion to overrule or disapprove of it.” *Grams*, 888 F.2d at 838; see also *Warmerdam*, 33 F.3d at 1358 (citing *Diehr* with approval as support for the continuing viability of *Benson* and *Flook*). And the Federal Circuit’s new view of *Diehr* is simply wrong: nothing in *Diehr* even purports to overrule *Benson* and *Flook* or disavow their results. To the contrary, *Diehr* strongly confirms the principles *Benson* and *Flook* articulate in each respect critical to the issue of whether or not pure process claims, as were at issue in *Excel*, constitute patentable subject matter.

At the most general level, *Diehr* treats *Benson* and *Flook* as proper applications of the basic exclusion of laws of nature and abstract ideas, including mathematical algorithms, from the protection of the patent laws. Thus, *Diehr* reaffirms the principle that “laws of nature, natural phenomena, and abstract ideas” are “free to all men and reserved exclusively to none” and that included within those unpatentable categories are mathematical algorithms, formulas, and/or equations. 450 U.S. at 185-86. And far from declaring *Benson* and *Flook* to be wrong, *Diehr* explains their results as applications of “these long-established principles.” 450 U.S. at 185; see *id.* at 185-87.

More specifically, *Diehr*, far from disavowing the physical-transformation test, specifically relies on that test to uphold patentability. *Diehr* quotes with approval the statements of the 1877 *Cochrane* decision and the 1972 *Benson* decision that a patentable “process” is one “performed upon the subject-matter to be transformed and reduced to a different state or thing,” *Cochrane*, 94 U.S. at 787-88, and 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,” *Benson*, 409 U.S. at 70. *Diehr*, 450 U.S. at 183-84. The decision then affirms the patentability of the respondents’ process claims by “[a]nalyzing respondents’ claims according to the above statements from our cases” and concluding that the claimed “physical and chemical process for molding precision synthetic rubber products” is patentable precisely because the claimed process “involve[s] the transformation of an article, in this case raw, uncured synthetic rubber, into a different state or thing.” *Id.* at 184. *Diehr* thus expressly relies on physical transformation—and articulates no other basis for patentability anywhere else in the opinion—as the ground for upholding the patent against the Section 101 objection. *Diehr* can only be read as reaffirming, rather than abandoning, the physical- transformation test of *Benson* and *Cochrane*.⁴

Just as *Diehr* left in place and reinforced the physical-transformation standard, it also left in place and reinforced *Flook*’s recognition that patentability cannot be created for a mathematical operation simply by designating a practical use. Indeed, *Diehr* expressly reaffirmed, with a citation to *Flook*, that the principle precluding patenting of mathematical formulas “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” 450 U.S. at 191. Elaborating, *Diehr* then declared: “A mathematical formula does not suddenly become patentable subject matter simply by having the applicant acquiesce to limiting the reach of the patent for the formula to a particular technological use.” *Id.* at 192 n.14. *Diehr* added: “A mathematical formula in the

⁴ The Supreme Court concluded its opinion by stating: “when a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.” 450 U.S. at 192. The Federal Circuit in *Excel* seized on the “e.g.” in the parentheses and interpreted it as a repudiation of the physical transformation test as the touchstone of patentability for a process. *Excel*, 172 F.3d at 1358-59. That interpretation is untenable, given *Diehr*’s express reliance on that test as the basis for its decision, the absence of any other articulated test in *Diehr*, and the lack of any justification for concluding—as the Federal Circuit’s interpretation does—that the prior decisions in *Cochrane* and *Benson* were being overruled.

abstract is nonstatutory subject matter regardless of whether the patent is intended to cover all uses of the formula or only limited uses.” *Id.* These declarations, set out specifically to explain *Diehr’s* consistency with *Flook*, can only be read as reaffirming rather than overturning the critical principle of *Flook* that the new Federal Circuit standard disowns.

It is clear, therefore, that the Federal Circuit’s adoption in *Excel* of a practical utility standard in place of a physical transformation standard for evaluating whether or not a process claim constitutes patentable subject matter is flatly contrary to several Supreme Court decisions, treating them as effectively defunct. In addition to the fact that those decisions respect historic limits on what the patent laws allow to be removed from the public domain, the Supreme Court has in no way overruled them, but instead has reaffirmed them in critical respects. The Federal Circuit could not properly disregard those precedents, notwithstanding its evident (but hardly explained) conclusion that the time had come for a change in the law. The Supreme Court often has made clear that a lower court, while free to criticize, is obligated to follow its precedents until the Court overrules them. See, e.g., *State Oil Co. v. Khan*, 118 S. Ct. 275, 284 (1997) (“The Court of Appeals was correct in applying that principle despite disagreement with [earlier Supreme Court precedent], for it is this Court’s prerogative alone to overrule one of its precedents.”); *Rivers v. Roadway Express, Inc.*, 511 U.S. 298, 312 (1994) (“It is this Court’s responsibility to say what a statute means, and once the Court has spoken, it is the duty of other courts to respect that understanding of the governing rule of law.”); *Rodriguez de Quijas v. Shearson/American Express, Inc.*, 490 U.S. 477, 484 (1989) (“If a precedent of this Court has direct application in a case, yet appears to rest on reasons rejected in some other line of decisions, the Court of Appeals should follow the case which directly controls, leaving to this Court the prerogative of overruling its own decisions.”).

State Street Bank Is Similarly Inconsistent with Supreme Court Precedent

We began our analysis with *Excel*, which dealt with pure process claims, because it is clear that the holding of that case is in direct conflict with Supreme Court cases, which also involved pure process claims. By contrast, *State Street Bank* dealt with apparatus claims (claims to a “machine”). As reflected in the Federal Circuit’s opinion in *State Street Bank* and in several other cases⁵, the court and the CCPA have had little trouble fitting such “machine” claims within section 101.

It is not entirely clear, however, that the Supreme Court would have such an easy time finding apparatus claims involving mathematical algorithms patentable subject matter under section 101. While it is certainly true that the key Supreme Court cases all dealt with pure process claims, the logic and reasoning of those decisions in addressing whether or not the claims at issue constituted patentable subject matter would appear to apply with equal force to apparatus claims as well.

In fact, in *Benson*, the Supreme Court’s logic and reasoning was based in part on its holding in *Funk Bros. Seed Co. v. Kalo Co.*, 333 U.S. 127, 130 (1948), which involved a product claim (though not one involving a mathematical algorithm). 409 U.S. at 67. The Court acknowledged that in *Funk*, it “dealt with a ‘product’ claim, while the present case deals with a ‘process’ claim.” *Id.* “But,” the Court explained, “we think the same principle applies.” *Id.* at 67-68.

⁵ It appears that challenges have failed in every reported instance in which the patentability of a true apparatus claim under Section 101 was at issue. E.g., *State Street Bank*, 149 F.3d at 1372 (personal computer for managing financial services configuration); *Alappat*, 33 F.3d at 1541 (“a machine, namely, a rasterizer”); *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053 (Fed. Cir. 1992) (machine for analyzing electrocardiographic signals); *In re Iwabashi*, 888 F.2d 1370 (Fed. Cir. 1989) (machine: an auto-correlation unit); *In re Bradley*, 600 F.2d 807 (CCPA 1979) (computer), *aff’d*, 450 U.S. 381 (1981); *In re Johnston*, 502 F.2d 765, 771 (CCPA 1974) (record keeping machine consisting of a programmed digital computer), *rev’d on other grounds*, *Dann v. Johnston*, 425 U.S. 219 (1976).

Similarly in *Flook*, the Court explained that to accept the respondent's argument that a process claim is directed to patentable subject matter so long as it "implements a principle in some specific fashion":

It would make the determination of patentable subject matter depend simply on the draftsman's art and would ill serve the principles underlying the prohibition against patents for "ideas" or phenomena of nature. The rule that the discovery of a law of nature cannot be patented rests, not on the notion that natural phenomena are not processes, but rather on the more fundamental understanding that they are not the kind of "discoveries" that the statute was enacted to protect. The obligation to determine what type of discovery is sought to be patented must precede the determination of whether that discovery is, in fact, new or obvious.

437 U.S. at 593.

These same sentiments surfaced again in *Diehr*. The Court summarized that a "mathematical formula as such is not" patentable subject matter and it would not permit manipulation of the claims to avoid this principle. 450 U.S. at 191. "To hold otherwise," the Court explained, "would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection." *Id.* at 193.

Benson, *Flook*, and *Diehr* thus make it abundantly clear that in the eyes of the Supreme Court, the form of the claim not important. Rather, the Court will look at the substance of the claim and decide whether or not it claims patentable subject matter under section 101 regardless of whether the claim is to a process or an apparatus.

As explained above, however, the *State Street Bank* court did not apply the Supreme Court's standard for assessing whether or not the apparatus claim at issue was directed to patentable subject matter. Rather, the court applied its new practical utility standard and found that the claim was, in fact, directed to statutory subject matter under section 101. Since the logic and reasoning of the Supreme Court cases do not turn on whether or not the claim is directed to a product or process, this holding too stands in conflict with these precedents.

The Federal Circuit's Expanded Patentable Subject Matter Standard Has Dramatically Impacted the PTO and the Business World

Beyond conflict with prior precedent, however, what makes likely future involvement by the Supreme Court in the expanded scope of patentable subject matter is the dramatic impact the Federal Circuit's new standard has had on the PTO and the business community. The new standard has opened the floodgates for business method and software patents. After all, not many mathematical algorithms or formulas (excluding the purest of pure mathematics) would fail to be patentable subject matter under the Federal Circuit's new standard.

In the wake of the Federal Circuit's decisions in *State Street Bank* and *Excel*, the PTO has seen a dramatic increase in software patent filings. Commentators have reported that "[a]s the aftershock of *State Street* subsides, the avalanche of new software patent issuances and litigation begins." Raymond Van Dyke, *Software Patents Offer Opportunities and Obstacles*, THE NATIONAL LAW JOURNAL at C19 (May 24, 1999). The *State Street*

decision “appears to have set off a stampede to the patent office, which reports a 45 percent increase in the number of data processing and computer-related patents issued during its 1998 fiscal year, which ended on Sept. 30.” John T. Aquino, *Patently Permissive*, ABA JOURNAL at 30 (May 1999); see also Brenda Sandburg, *Speed over Substance?* INTELLECTUAL PROPERTY MAGAZINE (March 1999) (“The number of issued software patents in general has skyrocketed. Software patents are included in the PTO’s data processing and computers and communications group. This entire group had the largest increase in issued patents last year, up 40 percent to 22,930 issued patents.”). And, the “number of patent applications related to computer-implemented business methods . . . grew from 1,300 to 2,600 between FY 1998 and FY 1999.” 1236 O.G. 71, 71 (July 18, 2000). PTO figures indicate a leap in business-method patent application filings from 2,826 in 1999 to 7800 in 2000, with projections for 2001 ranging from 12,000-15,000 applications. Doug Brown, *The Patent Tsunami*, INTERACTIVE WEEK (June 20, 2001).

At the same time, there is a significant concern that the PTO will have difficulty identifying and locating prior art applicable to business method and software claims (which patent applicants are under no duty themselves to uncover if not already known), resulting in a restricted body of information for determining whether a patent claim satisfies the statutory requirements of novelty and nonobviousness (35 U.S.C. §§ 102, 103). This problem particularly affects pure process claims for computer software. “Because software inventions were denied patent protection for so long and so few patents have issued thus far, patent examiners often cannot review previous archived patents in the software arts to assess whether an invention satisfies the requirements of a patent” under Sections 102 and 103 of the patent statute. *Van Dyke, supra*, at C20. The problem is not just unavailability of earlier patents as prior art, but prior-art literature more generally. See David Bender, *Recent Developments in Software Patents* in COMPUTER SOFTWARE PROTECTION (PLI 1997) at 139, 159-60.⁶ “One negative ramification of this disinclination to publish and patent is the difficulty of assessing the state of the software art. Thus, patent examiners examining a software-related application are unable to make an accurate assessment of novelty and non-obviousness. If the representation of the prior art to which the patent examiner has access is incomplete, the process results in more patents than it should.” *Id.* at 160. See also *id.* at 160-61 (noting recognition of problem in recent formation of organization to try to compile software databases). Another author noted, “the PTO’s collection of software art still resembles the tip of the computer science knowledge iceberg.” Seth Shulman, *Software Patents Tangle the Web*, Technology Review, March/April 2000. There are significant grounds to fear, therefore, that patents will issue and, indeed, have issued because invalidating prior art that exists cannot be found.⁷ These issued patents then enjoy the presumption of validity in infringement litigation (35 U.S.C. § 282).

In an attempt to improve its prior art searching capability, the PTO published a notice in the Federal Register. 66 Fed. Reg. 30167 (June 5, 2001). This notice requested comments concerning the databases that examiners should be required to search when examining a business method or software patent application. While efforts to improve searching within the PTO are necessary, the effect of this particular effort may be minimal due to the lack of prior art literature in general. See *Bender, supra*, at 159-60.

⁶ “In most technical areas descriptions of developments quickly become the subject of patent applications, technical journals and eventually textbooks. However, this phenomenon is much less evident in the software arts. Software advances are typically maintained as secrets in-house, or embodied in software packages made available widely, but only in object form. Until the past few years, such developments have not typically been the subject of patents or publications. And even where the public has been permitted to use the development, the public has often been kept ignorant of its content and, consequently, is unable to build upon it.”

⁷ Marketplace solutions like the website BountyQuest.com have attempted to capitalize on this dearth of well-catalogued prior art, providing a forum through which individuals can submit patent-defeating prior art in exchange for a cash “bounty.” Drew Clark, *Internet Patent Wars*, NATIONAL JOURNAL (July 28, 2001). While this may help tech sector companies to draw out pertinent prior art for defensive purposes, even a large scale version of this effort would not fill the void created by allowing patents to issue based on the limited art available to PTO examiners.

The PTO has also instituted an additional layer of examination of patents claiming electronic commerce-based business methods, which is part of the so-called “business method patent initiative.” See 59 P.C.T.J., at 730 (March 31, 2000). The PTO raised early questions, however, as to whether “the initiative adequately address[es] concerns raised about the examination of computer-implemented business method patent applications.” 1236 O.G. 71-72 (July 18, 2000). The PTO’s obvious concern is understandable—if the prior art necessary to properly examine these applications cannot be identified or located by the PTO, even a second layer of examination will prove of limited value. But the new examination standards may be having some effect: the PTO granted only 36% of the business method patents it examined in the last quarter of 2000, down from 56% in the first quarter. PTO, *IP Representatives See No Need For Legislative Curbs on Internet Patents*, 61 PAT. TRADEMARK & COPYRIGHT J. (BNA) (April 13, 2001).

Another response has come directly from Congress. In 1999, through its enactment of the American Inventors Protection Act, Congress added a prior inventor defense to business method patent infringement. The statute, codified as 35 U.S.C. Section 273, requires an accused infringer to show (1) actual reduction to practice of the invention in the asserted patent at least one year prior to the effective filing date of the patent, and (2) commercial use of the invention in the U.S. prior to the effective filing date of the patent. 35 U.S.C. Section 273(b)(1) (Supp. V 1999). When these requirements are met, the statute provides a complete defense to infringement, but does not invalidate the patent. One of the reasons for enacting the bill was because “[i]t would be administratively and economically impossible to expect any inventor to apply for a patent on all methods and processes now deemed patentable.” H.R. CONF. REP. NO. 106-464, at 122 (1999). The Breadth of this statute is debatable, and no court has addressed the scope of this defense.

Some members of Congress believe that more legislation is required to promote the policies behind the patent laws. “Here is a case,” said Howard L. Berman, D-California, ranking member of the House Judiciary subcommittee on Courts, the Internet and Intellectual Property, “where the patent works against the innovation that patents were designed to encourage.” Clark, *supra*. To that end, Berman and Richard Boucher, D-Virginia, have introduced a pair of bills known as the Business Method Improvement Act of 2001 that would create a rebuttable presumption that a business method invention consisting of a non-novel computer implementation of a pre-existing invention is obvious. H.R. 1332, 107th Cong. (2001). The package would further carve out a set of exceptions to the re-examination process solely for business method patents. H.R. 1333, 107th Cong. (2001). The initiative appears to lack strong support, with AIPLA and the Intellectual Property Owners Association testifying to their faith in the PTO and the courts to strike the correct balance. PTO, *IP Representatives See No Need For Legislative Curbs on Internet Patents*, 61 PAT. TRADEMARK & COPYRIGHT J. (BNA) (April 13, 2001).

More generally, even aside from problems in identifying prior art, the Federal Circuit’s decision in *Excel*, which swung the door open to pure process claims for software, will, by design, introduce new areas of private exclusivity over software and business methods in many industries, raising serious questions about the consequences for competition and innovation.⁸ What protection for pure software is needed beyond what is

⁸ Consider the example of U.S. Patent No. 5,930,769, which is being asserted against several companies, including Macy’s. Claim 1 of that patent reads:
 1. A method of fashion shopping by a customer comprising the steps of:
 receiving personal information from the customer;
 selecting a body type and fashion category based on the personal information;
 selecting fashions from a plurality of clothes items based on the body type and fashion category;
 outputting a plurality of fashion data based on the selected fashions;
 receiving selection information from the customer; and
 processing order information to place an order for the selected fashions.

available from, say, copyright and trade-secret laws? Should patents be issued that merely claim Internet applications of mathematical algorithms? *See, e.g.*, U.S. Patent No. 5,794,207 (patent directed to reverse seller's auction on the Internet); *compare Schrader*, *supra* (rejection of patent application for novel way of conducting auctions). How will the deliberately lowered standard for patentability affect an industry, like telecommunications, that is highly dependent on software and where Congress has aggressively acted to promote the entry and expansion of new competition? Not surprisingly, "there is widespread angst among companies that use (not just those that produce) cutting-edge software and communication technologies. They are worried that the government is granting exclusive rights in territory that should be open to all, and that expensive, debilitating litigation may decimate their industries." James Pooley, *Defending Internet, Software Patent Claims*, NEW YORK LAW JOURNAL, INTELLECTUAL PROPERTY SECTION at S6 (March 15, 1999).

There is today, as there has been for many decades, a vigorous, continuing debate about the proper standards for legal protection of software, whether through the patent statute or other laws.⁹ *See* Lawrence Lessig, *The Problem With Patents*, THE INDUSTRY STANDARD (May 3, 1999) (criticizing expansion of patent protection related to electronic commerce; "In a transforming market, it's nearly impossible for anyone—let alone an underpaid worker in the [PTO] who spends an average of eight hours evaluating the prior art in a patent and gets paid based on how many he processes—to identify what's 'novel.' . . . To West Coast coders, it seems bizarre that East Coast coders—the Patent Office—consider [various patented] ideas nonobvious. . . . Washington is obsessed with intellectual-property rights [O]ur tradition teaches balance and the dangers inherent in overly strong intellectual-property regimes. But balance in IP seems over for now."); National Research Council, INTELLECTUAL PROPERTY ISSUES IN SOFTWARE at 64 (1991) ("Software innovator Bricklin, creator of the original spreadsheet program, VisiCalc, believes that [software patents] could be 'very bad for the industry.' . . . Had patents been available when he and his collaborator developed VisiCalc, Bricklin speculated, their company, Software Arts, would have sought the protection. The consequences of such a decision, he further speculated, would have been to prevent other innovators from exploring different expressions of the spreadsheet idea and to handicap the competition."). This debate raises serious, delicate policy issues: "[f]ederal interests are threatened, not only by inadequate protection for patentees, but also when overprotection may have an adverse impact on a competitive economy. *See Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 162-163 (1989)." *Florida Prepaid Post-Secondary Education Expense Bd. v. College Savings Bank*, 67 U.S.L.W. 4580, 4586 (U.S. 1999) (Stevens, J., dissenting, joined by Souter, Ginsburg, and Breyer, JJ.). One can certainly argue that to the extent that long-settled limitations on patentability are to be overturned, it should be done in the legislative arena where the consequences can be explored and risks and benefits balanced. At a minimum, such a dramatic change raises precisely the type of issue that should interest the Supreme Court.

Thus, wholly aside from the fact that *State Street Bank* and *Excel* are inconsistent with Supreme Court and earlier Federal Circuit and CCPA cases, there is a significant policy reason for the Supreme Court to revisit this issue.

⁹ *See, e.g.*, REPORT OF THE PRESIDENT'S COMMISSION ON THE PATENT SYSTEM, "TO PROMOTE THE PROGRESS OF . . . USEFUL ARTS" IN AN AGE OF EXPLODING TECHNOLOGY (1966) (recommending against patent protection for computer programs); NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT (1979) (recommending copyright as the form of intellectual property protection for computer programs); OFFICE OF TECHNOLOGY ASSESSMENT, UNITED STATES CONGRESS, FINDING A BALANCE: COMPUTER SOFTWARE, INTELLECTUAL PROPERTY AND THE CHALLENGE OF TECHNOLOGICAL CHANGE (1992) (recommending sui generis approach to software protection); Pamela Samuelson et al., *Symposium: Toward a Third Intellectual Property Paradigm: Article: A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994) (arguing for a sui generis form of legal protection of computer programs).

CONCLUSION

The Federal Circuit's decisions in *State Street Bank* and *Excel* have opened the doors wide to all manner of patents on software and business methods which have had a dramatic impact on the PTO and business community. At the same time, these decisions—but in particular the *Excel* decision—run contrary to long-standing law announced by the Federal Circuit and the CCPA and are in direct conflict with Supreme Court precedent. While the desirability of the outcome of these cases may reasonably be debated (indeed, the authors feel strongly that *Benson* and *Flook* were undesirable holdings from a pure policy analysis), these issues, coupled with Justice Stevens's unusual warning regarding the denial of certiorari in *Excel*, strongly suggest that the Supreme Court in the future will accept certiorari and itself reassess this very significant issue.