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State Street Bank v. Signature Financial Group

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The ruling in State Street Bank v. Signature Financial Group to uphold the patentability of business methods is a rebuttal of judicial misinterpretations bringing the consideration of business methods in line with judicial precedent and federal law.

Few patent lawsuits have astonished the business community as much as State Street Bank v. Signature Financial Group. This landmark case affirmed the patentability of business methods after such methods were commonly considered unpatentable for nearly a century. To many observers, the ruling was an unexpected shift destined to revolutionize the American marketplace. Although State Street Bank v. Signature Financial Group was a catalyst that increased the demand for business-method patents, the U.S. Appeals Court ruling was not a departure from prevailing precedent but a rebuttal of judicial misinterpretations.

Before the State Street decision in 1998, judges and patent examiners struggled to evaluate inventions describing methods of doing business. Compared to conventional mechanical, chemical, and electrical inventions, business-method inventions seemed excessively abstract. However, none of the laws governing the patent system suggested that business methods were intrinsically unpatentable. Out of a web of conflicting views and rulings, judges gradually adopted misconceptions that excluded business methods from patentability. One principle, known as the “mathematical algorithm exception,” denied many patents because the inventions employed mathematical algorithms. Since the courts considered mathematical steps to be

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unpatentable, it was extremely difficult to patent any method that performed financial calculations. Many judges and patent examiners also believed that business-related subject matter was "inherently unpatentable" because it consisted of nothing more than ideas. This view was widely accepted and termed the "business-method exception." Because these exceptions were widely accepted by judges, examiners, and inventors, few applications for business-method patents were filed and few business-method patents were issued.

*State Street* provided the opportunity to reassess business-related patents according to the patentability requirements defined in federal law. Additionally, many cases prior to *State Street* established the basis for the eventual acceptance of business-method patents. Contrary to popular opinion at the time, the *State Street* decision was consistent with judicial precedent, building on clarifications of patentable subject matter from previous cases. The decision to repeal the artificial exceptions denying any business-method patents is not a departure from prevailing precedent, but a natural development that counters judicial misinterpretations of federal law.

**State Street Bank v. Signature Financial Group**

*State Street Bank v. Signature Financial Group* questions the validity of a patent owned by Signature Financial Group for an investment management

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7. *Id.* at 515.
system. Unlike other investment systems, Signature’s invention arranged a single investor’s assets as a partnership to maximize tax benefits. The system could also pool together many investments in a portfolio to minimize transaction costs. Since the composition of the partnership and the value of the investments changed daily, only a computer could precisely calculate gains, losses, taxes, and total portfolio value. The system was implemented as a software program executed on a general-purpose computer. State Street Bank considered licensing Signature’s patent, but instead marketed a competing system after licensing negotiations broke down. To avoid patent infringement liability, State Street filed a suit in the District Court for the District of Massachusetts to declare Signature’s patent invalid.\(^8\)

The District Court ruled Signature’s patent invalid, citing the business-method exception and mathematical algorithm exception. The Court declared that “business methods are unpatentable abstract ideas”\(^9\) and found that financial data processing steps constituted nothing more than an unpatentable mathematical algorithm.\(^10\) These objections, however, did not reflect statutory law or current precedent at the time. Many judges, including Judge Saris, who decided the case, viewed business methods and software programs as legal gray areas.\(^11\) Many previous rulings propagated misinterpretations of previous court decisions and misconceptions about patentable subject matter. Over time, the mathematical algorithm exception and the business-method exception evolved to bridge a perceived gap in federal statutes.\(^12\) However, these judicially created exceptions depended solely on shallow support in case law.


\(^9\) Id. at 515.

\(^10\) Id. at 515.

\(^11\) See State Street, 927 F. Supp. at 506, referring to the issue of software patentability as a “jurisprudential quagmire.” Id. at 515–516 acknowledges conflicting views about business method patentability. See also In re Joseph D. Howard and William M. Brobeck, 394 F.2d 869, 872 (1968) and In re Wait, 22 C.C.P.A. 822, 823 (1934) as examples of the courts avoiding the issue of business method subject matter patentability.

\(^12\) Swanson at 163–164.
Basis for Denying Business Method Patents

The controversy regarding business method patents stems from differing interpretations of the requirements for patentability. All inventions must be novel, nonobvious, and directed to appropriate subject matter to be patented. An invention is considered novel if it has not previously been known, used, or disclosed. To qualify as nonobvious, the invention must demonstrate innovation that would not have been obvious "to a person having ordinary skill" in the technology. For business-method inventions, determining novelty and nonobviousness has been relatively straightforward. However, at the time of the *State Street* case it was still unclear if business methods fell within the scope of patentable subject matter.

According to 35 United States Code §101, "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" is patentable. The subject matter of an invention is allowable or "statutory" if it pertains to one of these categories. Although business methods are processes, and processes are patentable, many patent examiners and judges argued that legislators never intended the definition of a "process" to encompass such abstract methods. The mathematical algorithm exception and the business-method exception both limit the scope of patentable subject matter and suggest that business methods should not be evaluated like other process claims. These exclusions to patentable subject matter were only guidelines, secondary to the actual law. By the time the *State Street* case reached court, clarifications of §101 requirements rendered the exceptions irrelevant.

Mathematical Algorithm Exception. The mathematical algorithm exception emerges from the proceedings of *Gottschalk v. Benson* in 1972. In this case, the Supreme Court invalidated a patent for converting a number in binary coded decimal format into a pure binary representation. The Court
found the method so general and abstract that the patent would preclude the use of the mathematical steps altogether and effectively patent an idea." Although the Court explicitly warned that its decision did not apply to all inventions involving mathematical algorithms, lower courts still used the case as evidence that inventions could be rejected simply for using algorithms. Based on the ruling in Benson, most software programs and business methods seemed nonstatutory simply for their reliance on mathematical methods and equations. Additionally, the Supreme Court held in Benson that a patentable process must cause physical "transformation and reduction of an article 'to a different state or thing.'" Lower courts interpreted the ruling to require all processes to produce a physical change, imposing a "physicality requirement." The mathematical algorithm exception incorporated both the requirement of physical change and the prohibition of mathematical algorithms. However, this exception exceeded the scope of the original ruling in Benson and read unnecessary limitations into 35 U.S.C. §101.

Following the Benson decision, several cases clarified the appropriate role of algorithms in patentable inventions and eroded the strength of the mathematical algorithm exception. In Diamond v. Diehr (1981), the Supreme Court held that an invention "does not become nonstatutory simply because it uses a mathematical formula, computer program, or digital computer." Clearly the application of an algorithm no longer constituted sufficient grounds for invalidating a patent. In this significant step the Court clarified that although an algorithm should not be patented outright, a patent may preempt the use of an algorithm in conjunction with a specific process. Although Diehr was an important step toward a correct interpretation of

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27 Benson 409 U.S. at 71.
28 Benson 409 U.S. at 70.
30 State Street Bank v. Signature Financial, 149 F.3d at 1373. "[I]t is improper to read limitations into §101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations."
32 Diehr at 187.
§101 requirements, it did not relax the physicality requirement. Eventually, subsequent Appeals Court decisions clarified that §101 does not require inventions to cause physical or mechanical changes and deferred to the law as written. One groundbreaking case in 1992, *Arrhythmia v. Comzonix*, upheld a patent for a system that measured heart activity. The only result generated by the system was a number, but the usefulness of the measurement was sufficient to satisfy §101 requirements. Another case in 1994, *In re Alappat*, allowed a patent to be granted for a system that smoothed the data displayed on an oscilloscope. The data displayed on the screen was considered to be a concrete result even though the system did not produce any physical transformation. These rulings virtually eliminated the physicality requirement, so it is somewhat surprising that the Massachusetts District Court applied it in the 1996 *State Street* case. Likewise, the ruling from *Diehr* more than ten years earlier left no reason to reject a data processing system simply for the use of an algorithm. Judicial precedent shows that the mathematical algorithm exception was no longer a valid reason to exclude business methods or any other invention from patentability.

**Business-Method Exception.** The business-method exception, like the mathematical algorithm exception, placed unnecessary limitations on the scope of patentable subject matter. *Hotel Security Checking Co v. Lorraine Co* was the first case that implied that business methods were unpatentable. In this case from 1908, the Circuit Court of Appeals for the Second Circuit ruled a "method of and means for cash-registering and account-checking" invalid primarily for lacking novelty. However, the court opinion also states that

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25 *Id. at 182* (quoting Benson 409 U.S. at 70). See also *Id. at 192* and Ogden at 502.

26 *Arrhythmia Research Technology, Inc. v. Comzonix Corporation*, 958 F.2d 1053, 1060, "The final output of the claimed apparatus (and process) is simply a number, . . . However, the number obtained is not a mathematical abstraction; it is a measure in microvolts of a specified heart activity. . . . That the product is numerical is not a criterion of whether the claim is directed to statutory subject matter."

27 *In re Kurianathan P. Alappat, Edward E. Averill and James G. Larsen*, 33 F.3d 1526, 1544, "A machine [producing] pixel illumination intensity data to be displayed . . . is not a disembodied mathematical concept which may be characterized as an 'abstract idea,' but rather a specific machine to produce a useful, concrete, and tangible result."

“a system of transacting business disconnected from the means for carrying out the system is not ... an art.” This vague statement was widely misinterpreted to imply that business-related subject matter was inherently unpatentable. In subsequent decades, additional rulings denied patents for business methods and systems from being issued or invalidated business patents that had already been granted. These inventions, like the system discussed in Hotel Security Checking, were rejected mostly because they lacked novelty or were considered obvious. However, with only a cursory review, the simple act of denying patents involving business subject matter seemed to support the idea that business methods were unpatentable. Business-method cases were so rare that the issue was never clarified and the misconceptions spread. The United States Patent and Trademark Office (USPTO) even instructed patent examiners that “a method of doing business [could] be rejected as not being within the statutory classes.” The business-method exception, like the mathematical algorithm exception, obscured the actual patentability laws by imposing an additional subject matter restriction.

Significant factors leading up to the State Street case demonstrated that the business-method exception was neither a valid nor necessary interpretation of patentability requirements. Surprisingly, patents were issued for business methods from the beginnings of the U.S. patent system. One notable patent even withstood challenge in court. In 1983, Merrill Lynch successfully defended its patent for a new type of cash management account in the

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12 Id. at 469.
13 Bagby at 429. See also: In re Wait, 73 F.2d 982 (C.C.P.A 1934). While the Court did not hold that all business methods were unpatentable, the examiner’s reasoning exemplifies the common view of business methods. The examiner asserts that “a process of doing business ... cannot form the subject matter of process claims.”
14 Bagby at 430–431.
15 State Street v. Signature Financial Group, 149 F.3d 1368, 1377 (quoting MPEP §706.03(a) (1994)).
Even though the account system described a method implemented "on a computer to effectuate a business activity," the court held that the subject matter was valid.\textsuperscript{37} Since no appeals court ever ruled on the case, the decision did not have a profound effect on the prevailing views of business-method patents. Even so, the software implemented cash management account is strikingly similar to that of the \textit{State Street} case. The Merrill Lynch case, though not extremely influential, was an important demonstration that patents could overcome the business-method exception. By 1994, perceptions of business-method subject matter had evolved significantly. As evidence of changing perceptions, Judge Newman characterized the business-method exception as "error-prone, redundant, and obsolete" in the dissenting opinion of \textit{In re Schneider}.\textsuperscript{38} He also noted that every case cited in support of the exception could have been decided on the clearer basis of novelty or obviousness.\textsuperscript{39} Additionally, the USPTO deleted the section directing patent examiners to reject business methods outright in 1995, recommending instead that examiners treat business methods "like any other process claim."\textsuperscript{40} These developments were very recent at the time that \textit{State Street} reached the District Court, and a certain level of ambiguity regarding business methods still existed. However, business-method inventions clearly could not be denied unconditionally.

**Business Method-Subject Matter Declared Statutory**

The mathematical algorithm exception and business-method exception were both questionable at the time the Massachusetts District Court applied them in the \textit{State Street} case. On appeal, the Court of Appeals for the Federal Circuit shifted emphasis from flawed judicial exceptions to the actual requirements of federal law.\textsuperscript{41} The Court of Appeals ruled that Signature's data

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\textsuperscript{38} Id. at 1368.
\textsuperscript{39} \textit{In re Rex D. Schneider and Eugene D. Klingaman}, 22 F.3d 290, at 298.
\textsuperscript{40} Id. at 298.
\textsuperscript{42} Swanson at 192.
processing system qualified as statutory subject matter, reversing the District Court's ruling. Regarding the mathematical algorithm exception, the Court ruled that "the transformation of data, representing discrete dollar amounts ... constitute[d] a practical application" for the mathematical algorithms involved and produced "a useful, concrete and tangible result." Usefulness, an important component of 35 U.S.C. §101, took precedence over any notion of "physicality" read into the law. The Court also forcefully rejected the business-method exception, stating that it "represented the application of some general, but no longer applicable legal principle." Since the 1952 Patent Act," the opinion continues, "business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method." The requirements of §101 did not establish separate standards for various technology areas. Those artificial distinctions were simply inaccurate. The Court held the requirements of novelty, usefulness, and nonobviousness as the true measures of patentability for any process or apparatus. With the dismissal of each subject-matter challenge, Signature's patent was upheld for meeting all statutory requirements.

*State Street* was significant even though it was not a fundamental change in the analysis of business-method patents. No laws had prohibited business method patents, and many business patents had been issued long before *State Street*. To justify the patenting of business methods, the Court of Appeals did not need present any new arguments. Nevertheless, *State Street* was the first case to unmistakably establish the validity of business-method patents. The Court broke through the artificial barriers to patentability and finally considered the issues objectively. The case is a significant evolutionary step in the definition of patentability requirements, but not a dramatic shift.

The Supreme Court, seeing no need to intervene, cast an implicit vote of approval by declining a writ of certiorari, ensuring that the decision to allow business-method patents would stand. Many scholars and observers...
had expected the Supreme Court to intervene, thinking that the Federal Circuit had erred. By declining to hear the case, the Supreme Court signaled its confidence in the decision reached by the Court of Appeals for the Federal Circuit. Business methods were patentable.

Effects of State Street on the Patenting of Business Methods

The State Street decision has had significant effects on the patenting of business methods, although its effects are not as dramatic as initially speculated. One of the best indicators of business-method patent activity is U.S. patent class 705, the class to which Signature’s system belongs. This class includes data processing inventions for financial calculations, business practices, management, or cost/price determination. It does not represent all business methods, but does provide a relevant measurement of recent activity.

The most pronounced effect attributed to the State Street decision is the dramatic increase in the number of business method patent applications filed after 1998. Table 1 tracks the number of class 705 patents filed and issued during fiscal years 1995 through 2004. The increase during 1999 corresponds directly with the Supreme Court’s denial of certiorari in January of 1999. It is very likely that inventors were encouraged to file when they saw that the courts considered business method patents valid and enforceable. In 2000, the number of class 705 applications reached more than double the

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* Financial year 2004 data for applications filed is a USPTO estimate.

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* Riondan Sec. D, page 2, col. 6; also Updike at 111.

* Swanson at 190.


* Bagby at 441.


number of the previous year, no doubt reflecting influence from the State Street decision.

State Street was not the only factor contributing to the increased filing of business-method patents, however. Rapid advances in Internet technology allowed new business methods that had never been considered. The booming economy of the dotcom bubble gave companies increased resources and incentives to patent more aggressively. Some effects sparked by State Street, such as high-profile litigation of business-method patents, fed the rush by increasing the perceived value of business patents. Media coverage was also essential to the impact of the State Street case. Previous rulings, such as the 1983 Merrill Lynch decision, failed to make a major impact due to limited interest and media coverage. With State Street, immediate and continued media coverage captured the attention of executives and attorneys and instilled a sense of urgency to respond to the perceived change in the patent landscape. These factors all combined to form the unique business and legal climate capable of accelerating the pace of business-method patent filing so dramatically.

State Street magnified existing trends rather than acting as the sole impetus increasing the filing of business-patent applications. In 1995, well before the State Street appeal, the USPTO instructed examiners not to categorically deny business-method patents, a first step toward the acceptance of business-method patentability. Additionally, the number of class 705 applications was steadily rising prior to the State Street decision. In fact, the number of business-method patent applications increased in 1997 and 1998 despite the fact that the Massachusetts District Court had ruled Signature's patent invalid in 1996. The increases before 1998 pale in comparison with those made afterward, but indicate nonetheless the growing importance of business-

"The decrease in number of class 705 applications filed, beginning in 2002, corresponds with the economic downturn following the burst of the Dotcom bubble. This decrease suggests a strong influence of market conditions on patent filing behavior.


"State Street v. Signature Financial Group, 149 F.3d 1368, 1377 (quoting MPEP § 706.03(a) (1994)).
method patents. Taking this into account, *State Street*'s role is that of a catalyst, a facilitating influence amplifying the existing trend of growth.

Despite the increase in volume of class 705 applications, the number of 705 patents issued has remained relatively low. This discrepancy is mostly due to new Patent Office procedures that have considerably increased the waiting time between filing and consideration by patent examiners. Beginning in March 2000, patents in class 705 were required to be reviewed by at least two examiners. This additional examination has apparently reached its goal to improve the overall quality of business patents issued at the cost of lengthy delays. By 2003, some e-commerce applications waited thirty months or more before coming under review. Given the tremendous volume of applications filed each year, the delay is bound to increase until the Patent Office adds capacity to the groups examining these applications. Ironically, while many people believed that *State Street* would immediately flood the country with business-method patents, the number of issued patents is only a trickle compared to the overwhelming number of applications.

**Conclusion**

The *State Street* decision effectively clarifies patentable subject matter to include business methods, overturning decades of misinterpretations about the issue. Although the decision came as a shock to some, the patentability of business methods is consistent with judicial precedent and federal law. Federal statutes requiring novelty, usefulness, and nonobviousness now decide questions of patentability instead of the judicially created mathematical algorithm exception and business-method exception. Once business patents were validated in court, eager inventors rushed to this new arena, but the marketplace has yet to face a major influx of new business-method patents due to processing delays. The *State Street* decision is a significant evolutionary step in the clarification of patentability requirements that definitively aligns the evaluation of business-method patents with judicial precedent and federal statutes.

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55 Id. at 77.