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A Practitioner's Approach to Strategic Enforcement and Analysis of Business Method Patents in the Post-State Street Era

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[*267] I. INTRODUCTION

Companies in numerous industries, including financial services, software, banking, insurance, and e-commerce, need to re-evaluate the patent potential of the methods they use to perform their daily business operations in light of the Federal Circuit's recent decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* n1 Two important principles emerged from the *State Street* decision which are likely to bolster and spread the patenting of business methods and software. First, the Federal Circuit held that a patent claiming a machine which performs a mathematical algorithm, formula or calculation is patentable subject matter so long as that algorithm is "applied in a 'useful' way." n2 Second,

[*268] the Federal Circuit laid to rest the "ill-conceived" business methods exception to patentable subject matter. n3 The *State Street* decision has sparked considerable debate within the legal community regarding its practical effects on the procurement, prosecution, and enforcement of patents directed to "methods of doing business." n4 Although commentators have noted, that even prior to the *State Street* decision, the "business methods" exception to statutory subject matter was an exception "in name only." n5 The decision in *State Street* bolsters the validity of patents directed to business methods. n6 The decision also requires patent practitioners to advise clients to examine in detail their daily business operations, including the use of software applications, to uncover any potentially patentable methods.

This article presents a practitioner's approach to the procurement and enforcement of patents relating to "methods of doing business," with particular emphasis on the impact of the *State Street* decision on the software, internet, and financial services industries. In light of this decision, procurement of intellectual property rights, including prosecution of patent applications claiming novel, non-obvious methods of doing business, presents a challenge for both counsel and clients to critically examine all potential sources of intellectual property rights and vigorously pursue an expanded view of potentially valuable property. Enforcement of such rights, through licensing or litigation, also presents unique challenges stemming from the nature of method patents in general, as well as the enhanced complexity of resolving disputes involving "business method" patents. However, the potential for substantial revenue-enhancement and the injunctive relief available for patent infringement will likely spur an increase in both applications for "business method" patents as well as increased enforcement efforts.

[*269] II. BACKGROUND OF LEGAL FRAMEWORK

The first hurdle an inventor faces when trying to patent an invention is ensuring that his or her invention covers patentable subject matter as defined by 35 U.S.C. § 101. That section identifies four categories of patentable subject matter, namely a process, a machine, a manufacture or a composition of matter:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter; or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title. n7

Although both Congress and the Supreme Court have stated that "anything under the sun that is made by man" constitutes patentable subject matter, n8 the Supreme Court has identified "laws of nature," "abstract ideas," and "physical phenomena" as exceptions to patentable subject matter. n9 The Supreme Court has provided examples of these categories of unpatentable subject matter:

It is a commonplace that laws of nature, physical phenomena, and abstract ideas are not patentable subject matter. A patent could not issue, in other words, on the law of gravity, or the multiplication tables, or the phenomena of magnetism, or the fact that water at sea level boils at 100 degrees centigrade and freezes at zero--even though newly discovered. n10

Over the years, the courts have identified "mathematical algorithms" and "business methods" as exceptions to statutory subject matter because they were thought to constitute "abstract ideas" or "laws of nature." n11 The "evolution" of the mathematical algorithm exception and the business methods exception are discussed in turn below as well as *State Street's* impact upon these exceptions.

[*270] A. Mathematical Algorithm Exception

Two Supreme Court decisions from the 1970's, *Gottschalk v. Benson* n12 and *Parker v. Flook*, n13 squarely addressed the question of whether mathematical algorithms were patentable subject matter under § 101 in the context of computer software programs.

In *Benson*, the Supreme Court defined a mathematical algorithm as "a procedure for solving a given type of mathematical problem." n14 Thus, practitioners commonly advise clients that, under these cases, Albert Einstein could not have obtained a patent on his famous formula $E = mc^2$.

In *Benson*, the Supreme Court held that a patent claiming a method for converting binary-coded decimal numerals into pure binary numerals using a general purpose computer was unpatentable. n15 In holding the process unpatentable as an abstract idea, the Supreme Court stated that since the mathematical formula used to convert the numerals "has no substantial practical application except in connection with a digital computer . . . the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the formula itself." n16 The Court in *Benson* also appeared to endorse the principle that in order to be patentable, a process patent "must either be tied to a *particular machine* [versus a general purpose computer] or apparatus or must operate to change articles or materials to a 'different state or thing.'" n17

In *Flook*, the Supreme Court relied upon *Benson* to hold that a method for updating the value of an "alarm limit" during the process of catalytic conversion was unpatentable because the only "inventive" element of the patent was an unpatentable mathematical algorithm. n18 The mathematical formula in *Flook* was the second step in a three-step process where the end result was more than just the product of the formula. However, the Court asserted that the "notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance." n19

[*271] In 1981, the Supreme Court held in *Diamond v. Diehr* n20 that a computerized process for curing synthetic rubber, which contained a mathematical formula, constituted patentable subject matter. n21 The Court did not view the patent claims "as an attempt to patent a mathematical formula, but rather . . . an industrial process for the molding of rubber products." n22 In *Diehr*, the Court stated: 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. n23

In response to governing Supreme Court precedent, the Court of Customs and Patent Appeals ("CCPA"), the predecessor to the Federal Circuit, articulated a two-step test, known as the *Freeman-Walter-Abele* test, that was used to determine the patentability of patent claims incorporating a mathematical algorithm. n24 Under this test: 1) "the claim is analyzed to determine whether a mathematical algorithm is directly or indirectly recited"; and 2) "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 the algorithm is so applied, the claim passes muster under § 101. n25

Thus, the test emanating from *Diehr* and the CCPA appeared to be that in order to avoid being invalid under § 101, patent claims incorporating a mathematical algorithm in a computerized process had to recite some physical transformation or application to process steps. However, the Supreme Court's decision in *Diehr* made clear that the claim as a whole was to be examined to determine patentability, rather than focusing solely on the existence or non-existence of a mathematical algorithm. n26

In 1994, the Federal Circuit appeared to move away from the physical transformation requirement articulated in past decisions and liberalized the test for the patentability of claims incorporating a

[*272] mathematical algorithm. n27 In *In re Alappat*, n28 the Federal Circuit found that data transformed by a machine through a series of mathematical calculations, to produce a smooth waveform display on a digital oscilloscope, was a practical application of a mathematical algorithm or formula because it produced "a useful, concrete and tangible result." n29

In *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, n30 like *In re Alappat*, the mathematical algorithm exception arose again. State Street Bank ("State Street") asked whether a patent claiming a computerized process and incorporating a mathematical algorithm in its claims was rendered non-statutory under § 101. n31 The patent holder, Signature Financial Group ("Signature"), owned a U.S. patent entitled "Data Processing System for Hub and Spoke Financial Services Configuration." n32 The patent disclosed a data processing system for implementing an investment structure where at least two mutual funds ("spokes") pooled "their assets in an investment portfolio ("hub") organized as a partnership." n33 Signature used the "hub and spoke" system in its business as an administrator and accounting agent for mutual funds. n34 Signature claimed that the system's utility lay in the fact that it was able to quickly and accurately perform a valuation of the percentage share that each "spoke" maintained in the "hub," while taking into consideration daily changes both in the value of the hub's investment securities and in the concomitant amount of each spoke's assets. n35 The quick and accurate calculation of this data is imperative because a mutual fund administrator may be required to calculate the value of the shares within one and a half-hours after market closure. n36

State Street sought a declaratory judgment that the patent was invalid, unenforceable and not infringed. n37 State Street subsequently filed a

[*273] motion for summary judgment of patent invalidity, contending that the patent failed to claim statutory subject matter under 35 U.S.C. § 101. n38 The Massachusetts district court applied the two-part *Freeman-Walter-Abele* test and held that the patent was invalid under § 101 for constituting an unpatentable mathematical algorithm. n39

The Federal Circuit reversed the lower court's decision and, relying on *In re Alappat*, articulated a more expansive test for the patentability of claims incorporating a mathematical algorithm. n40 The court held that a mathematical algorithm that produces numbers as its only output would constitute patentable subject matter so long as it produces "a useful, concrete and tangible result." n41

The Federal Circuit found that the district court erred in "applying the *Freeman-Walter-Abele* test to determine whether the claimed subject matter was an unpatentable abstract idea." n42 The Federal Circuit asserted that after the Supreme Court's decisions in *Diehr* and *Chakrabarty*, the *Freeman-Walter-Abele* test has little, if any, applicability to determining the presence of statutory subject matter. n43 The panel noted that a process or machine employing an abstract idea is patentable subject matter, although an abstract idea standing alone would not be patentable. n44 So long as a claimed invention produces a "useful, concrete and tangible result," the fact that it involves inputting numbers, calculating numbers, outputting numbers and storing numbers does not render the invention non-statutory subject matter. n45

B. Business Method Exception

As an alternative ground for invalidating the patent, the district court in *State Street* found that the patent constituted a method of doing

[*274] business. n46 Under the "business methods exception" to patentable subject matter, the patent thus constituted non-statutory subject matter. n47 The Second Circuit is credited with the development of this exception in *Hotel Security Checking Co. v. Lorraine Co.* n48 where the court found that a "method and means for cash-registering and account-checking," designed to monitor the honesty of restaurant employees, was merely an abstraction rather than an art. n49 The court in *Hotel Security* stated, "[a] system of transacting business disconnected from the means of carrying out the system is not, within the most liberal interpretation an art. Advice is not patentable." n50

As noted by commentators, however, the language used as the foundation of the "business methods exception" in *Hotel Security* was arguably dicta. n51 Because the court actually found that the invention lacked novelty, the invention was not patentable. n52

If at the time of Hicks' application, there had been no system of bookkeeping of any kind in restaurants, we would be confronted with the question whether a new and useful system of cash-registering and account-checking is such an art as is patentable under the statute. This question seems never to have been decided by a controlling authority and its decision is *not necessary now* unless we find that Hicks has made a contribution to the art which is new and useful. We are decidedly of the opinion that he has not, the overwhelming weight of authority being that claims granted for such improvements as he has made are invalid for lack of patentability. n53

Nevertheless, citing *Hotel Security*, the official position of the Patent and Trademark Office ("PTO") was that business methods were unpatentable subject matter. Until 1996, the PTO's Manual of Patent Examining Procedure ("MPEP") contained a provision, stating, "Though seemingly within the category of process or method, a method of doing business can be rejected as not being within the statutory classes. *See*

[*275] *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir. 1908) and *In re Wait*, n54 24 U.S.P.Q. 88, 22 C.C.P.A. 822 (1934)." n55

Since its inception however, the business method exception has received criticism from both commentators and the judiciary. n56 In a vehement dissent in *In re Schrader*, n57 Judge Newman criticized the business method exception to patentability, stating "since it is . . . an unwarranted encumbrance to the definition of statutory subject matter in section 101, my guidance is that it be discarded as error-prone, redundant, and obsolete. It merits retirement from the glossary of section 101." n58

In addition, prior to the *State Street* decision, one commentator attempted to dispel the "assumption" held by patent practitioners that the business methods exception acted as a true bar to patentability of an otherwise novel and non-obvious invention:

For years, patent lawyers have been operating under the assumption that there is a "negative rule" of subject matter eligibility for patents: that so-called "business methods" or "business systems" are not patentable. A close look at the case law reveals no such conclusion. To date, no court majority has ever held that a step-by-step method that incorporated a novel and non-obvious physical means to accomplish that method was *per se* unpatentable simply because the method was directed to a way to conduct business rather than a way to make or manufacture. Further, the business method exception is of dubious analytic value. Nearly every case that supposedly invoked this rule simply restated the longstanding proposition that naked ideas, bereft of anything physically inventive, are not patentable. At best, these allusions

[*276] to business were unnecessary. At worst, they caused confusion. n59

In 1996, the PTO deleted § 706.03 from the MPEP and, in the 1996 Examination Guidelines for Computer Related Inventions stated, "Office personnel have had difficulty in properly treating claims directed to methods of doing business. Instead such claims should be treated like any other process claims." n60

This evolution led to the Federal Circuit's decision in *State Street* where Judge Rich, writing for the court, laid the "ill-conceived [business method] exception to rest." n61 Judge Rich noted that since the passage of the 1952 Patent Act, business methods have been subject to the same legal requirements for patentability as any other process or method. n62 Judge Rich quoted Judge Newman's dissent and said "Patentability does not turn on whether the claimed method does 'business' instead of something else, but on whether the method, viewed as a whole, meets the requirements of patentability as set forth in Sections 102, 103, and 112 of the Patent Act." n63

The Federal Circuit also noted that no invention has ever been deemed unpatentable under the business method exception by either the Federal Circuit or its predecessor, the CCPA. n64 Judge Rich stated that in cases where the business method exception was applied, including *Hotel Security*, a finding of invalidity was based on other Title 35 grounds. n65

III. THE EFFECT OF *STATE STREET* ON THE PROCUREMENT OF PATENTS

In the wake of *State Street*, patent practitioners should counsel their clients in a wide variety of fields, including financial services, software, the internet, banking, accounting, and even insurance to examine their products and services and to procure patents covering proprietary business methods. Commentators and the PTO have already

[*277] predicted that the number of patent applications covering business methods will rise dramatically in light of the *State Street* decision. n66 Both the patent bar and the PTO reported increases in software patent applications after the *In re Alappat* decision, which liberalized the test for the patentability of claims containing mathematical algorithms. n67 After *State Street*, in which the Federal Circuit reiterated the *In re Alappat* test for patentable subject matter, practitioners and the PTO should expect to see increased business method software applications in particular. While business methods and software have been patentable for years, n68 the validity and enforceability of such patents were questionable in some quarters prior to the *State Street* decision. In light of the new opportunities presented by *State Street*, patent practitioners should educate and encourage their clients to procure patents covering the novel methods they use to do business.

A. Changing Perceptions in Light of State Street

Companies in the financial services, insurance or banking industries have not historically patented their services and products, and may need encouragement and training from patent counsel to recognize

[*278] potentially patentable business methods. These companies have typically relied upon trade secret protection for their business methods, to the extent these industries focused on intellectual property at all. However, in light of *State Street*, companies in competitive service industries should change their perceptions because procuring patents on their business methods may create a potential royalty income stream. In addition, such companies could preclude other companies who independently invent such methods from using them.

This change in perception is especially important as companies devote more resources to developing proprietary software or internet services. For instance, the rise of companies like E-Trade, an on-line investment services provider which has developed stock plan management software and services; the rise of several on-line financial service providers, such as Charles Schwab; and the proliferation of numerous mortgage lenders on-line all demonstrate the congruence of the software and financial services industries and the need for increased patent protection.

Companies in high technology fields typically do not need encouragement from patent counsel to file patent applications or an education in the value of a strong patent portfolio. n69 Statistics available from the PTO show that companies in technology-related industries are well-aware of the benefits of procuring patents to protect their intellectual property and to bolster revenues through licensing. n70 For instance, IBM obtained over 2,600 patents in 1998, an increase of fifty-four percent from 1997. n71 In addition to increasing its already substantial patent portfolio in 1998, IBM received over one billion dollars in licensing revenues from 1,600 different companies that same year. n72 In recent years, smaller technology companies have also begun procuring patents in earnest to counter lawsuits brought against them by larger players in the market, to make themselves more attractive acquisition targets or venture capital investments, and to help increase their value to share holders when they make their initial public stock offerings. n73

[*279] However, even patent-savvy high technology companies may benefit from *State Street*. Thus, high technology companies may want to expand their focus from simply patenting products and processes to include the means and methods by which these companies run their businesses. For instance, a hypothetical widget factory may have a novel method of tracking inventory within a warehouse or factory. Thus, in addition to obtaining patents on the widgets and the methods for making widgets, this hypothetical company may also patent their software for tracking widgets in the factory as long as that software meets the other requirements for patentability.

In light of the substantial patenting licensing revenues attained by IBM and other high technology companies, patent counsel should have little trouble encouraging their high technology clients to broaden their thinking regarding potentially patentable methods. In addition, clients in other fields such as banking, insurance, e-commerce and financial services are likely to be receptive to patenting their business methods based on the opportunities for licensing revenues and the competitive advantage patent rights can represent.

B. The Practitioner's Role in Educating and Encouraging Clients to Procure Business Method Patents

Because of the new opportunities presented by *State Street*, patent counsel should encourage companies and inventors to perform a detailed analysis of methods they are using to decide whether or not to seek patent protection. Patent counsel should advise their clients to conduct "intellectual property audits," performed either by in-house personnel or outside patent counsel, to determine if the companies have business methods that are ripe for patenting, particularly in fields using financial software or e-commerce applications. Patent practitioners can also conduct informal "seminars" for company employees to heighten employee awareness of potentially patentable business methods.

Aside from periodic intellectual property audits or seminars, patent practitioners should counsel larger companies to establish a permanent in-house patent committee tasked with identifying potentially patentable business methods. A typical patent committee could include persons responsible for developing proprietary business methods (such as software engineers), marketing personnel who may be aware of current trends in the industry and potential areas of exploitation, members of the in-house legal department who can provide guidelines for what is and is not patentable, and company management representatives who are

[*280] responsible for determining the future direction of the company (and thus the strategic value of any intellectual property). n74

The patent committee should not only look for potentially patentable business methods, but also determine which methods are worth the time and expense associated with procuring a patent. Due to the expense of developing and patenting proprietary business methods, companies may have to choose which business methods or software applications they should pursue for patenting. Those chosen should be the most widely applicable methods so licensing revenues can be maximized. Unpatented and unpatentable methods can still be protected as trade secrets if efforts are made to protect their confidentiality.

Heightened awareness and constant evaluation of potentially patentable business methods are important so that companies do not lose potentially valuable patent rights based on a public use or on-sale bar. n75 Furthermore, if the predictions by patent practitioners and the PTO of increased business method patent filings prove true, companies using proprietary business software will have a strong incentive to strengthen or "beef up" their patent portfolios covering business methods to remain competitive in their respective fields and to counteract possible infringement claims by competitors. n76

IV. THE EFFECT OF *STATE STREET* ON PATENT PROSECUTION

In light of the opportunities provided by *State Street* for obtaining potentially valuable business method patents, companies should seek the help of experienced patent counsel in drafting business method patents. Prosecution of business method patents requires unique skills and experience. For example, researching potential prior art may prove especially difficult. Drafting claims broad enough to cover competitors' practices (but narrow enough to withstand validity challenges) also requires an experienced patent prosecutor. Furthermore, in light of the expected *State Street* proliferation of software and business method patents, companies may consider having either in-house or outside patent counsel continuously conduct proactive patent searches to discover any potential infringement. These proactive patent searches allow design or process changes to be made early to avoid later patent infringement litigation.

[*281] A. *Researching Prior Art to Bolster Validity of Business Method Patents*

Patent applicants and their patent counsel have a "duty of candor and good faith" toward the PTO during prosecution of their patent applications. n77 This includes the duty to disclose all non-cumulative, known prior art that is material to patentability. n78 This duty is imposed to protect the public's "paramount interest in seeing that patent monopolies spring from backgrounds free from fraud or other inequitable conduct." n79 Conduct before the PTO, which may render a patent unenforceable, includes 1) a failure to disclose material information n80 as well as 2) any submission of false information with an intent to mislead. n81

While a patentee's duty of candor toward the PTO requires him or her to reveal references of which he or she is aware, the patentee is not under an affirmative duty to research the prior art before filing a patent application. However, patent counsel may consider conducting a patentability search prior to filing so that potential prior art can be

[*282] submitted to the PTO for consideration. Researching prior art could help patent counsel draft claims that are not rendered obvious or anticipated by the prior art and, hence, may make it more likely that the patent could withstand validity challenges at a later time. Submitting potential prior art references will allow the PTO to consider that same prior art when examining the application, and if the application is later allowed, it may be more difficult for an infringer to assert that the same prior art invalidates the claims. n82 Whether to conduct a prior art search is highly fact-dependent and such a decision will change depending on the circumstances of any one case, client, or patent.

Applicants for business method patents may have a difficult time discovering all relevant prior art during patent prosecution. This difficulty is due to the relative lack of business method patents as compared to the traditional arts, and also the previous reliance by many companies on trade secret protection rather than patent protection for business methods. Thus, patent counsel will require creativity and diligence to discover relevant prior art (if a decision is made to search) when prosecuting business method patents.

There are, however, ways of obtaining potential "prior art" business methods. Competitive product information sheets, for example, could be prior art. Trade shows and seminars (some even sponsored by competitors) could yield prior art. Patent counsel could also conduct article searches in the relevant field to discover potential prior art business methods. These efforts, admittedly, may be difficult in the insurance, banking, and financial services fields. However, with more and more financial services and banking companies creating internet access to their products and services, it may be possible to discover proprietary business software and e-commerce applications. Because there is a relative lack of existing business method patents, the PTO may heavily rely upon these non-patent prior art materials when examining a business method application, particularly if the claims are drafted broadly.

[*283] B. *Thoughts on Business Method Patent Claims*

1. Include a variety of claims

Patent prosecutors drafting method patent claims should be careful to draft claims with as broad a scope as possible. The broader the patent's scope, the more processes and products the patent is likely to cover. n83 The scope of a business method claim, for example, may be determined after reviewing prior art to ensure the claims are drafted to overcome that prior art. Another strategy patent counsel typically use is drafting both broad and narrow claims as part of the same patent. The narrower claims cover the specific product or process produced by the patentee. These narrow claims help ensure that if a validity challenge to the broad claims was successful, the narrower claims might still survive.

In addition to both broad and narrow claims, patent prosecutors often may draft claims in means-plus-function/step-plus-function format n84 or in "pure" method or apparatus format. A possible disadvantage of drafting claims to recite means-plus-function elements (in the case of apparatus claims) or step-plus-function elements (in the case of

[*284] method claims) is that the scope of such claims is limited to the structure, material, or acts in the patent specification and their equivalents. n85 Thus, patent prosecutors typically include both "pure" method or apparatus claims and means/step-plus-function claims in order to provide a patent with a potentially desirable scope.

Another important consideration for patent prosecutors, which may broaden patent coverage, is to draft mixed apparatus/product and process/method claims for software or e-commerce applications. By drafting claims to cover a product/apparatus to carry out a process, the patentee can sue competitors who produce infringing products, rather than being limited infringers of process claims who may be consumer end-users.

2. Draft claims to support a finding of direct infringement by competitors

Patent counsel should also draft claims to cover the provider of a service, i.e., a competitor of the client, rather than the end-users who are likely to be individual consumers. Inartful drafting may limit a claim to the consumer of a service provided by a competitor and not the competitor. In this situation, the inartful drafting may prevent the patentee from claiming direct infringement by the competitor under § 271(a). n86 This inartful drafting may limit the patentee to enforcing its business method patent using only § 271(b), inducement of infringement n87 or

[*285] § 271(c), contributory infringement. n88 This inartful drafting puts the patentee at a disadvantage for several reasons: 1) the patentee may have difficulty in proving direct infringement, which is required for both doctrines; n89 2) the patentee may have difficulty in proving the competitor had the requisite intent needed for inducement; n90 or 3) the competitor may be able to assert a substantial noninfringing use, which is a defense to contributory infringement. n91

For example, in the internet context, a patent's method claim, which requires active participation by a consumer, raises difficult enforcement issues. Some patents on web-based commerce include, among other steps, the step of "transmitting, using a computer, a request to purchase." n92 In this context, who is the infringer? Because the

[*286] competitor website provider does not click on the icon, the competitor website provider cannot directly infringe. Neither is the consumer a direct infringer, because the consumer or end-user does not set up the website. Thus, identifying a direct infringer may be difficult (or even impossible). Prudent patent counsel should, if possible, critically examine all claims during prosecution to avoid these issues.

C. Proactive Patent Searching by Patent Counsel to Avoid Infringement or to Challenge Validity

Aside from broadly drafting business method patents to cover competitors' products and services, patent counsel may consider advising clients to perform proactive patent searches. Patent counsel may also advise investigating services and methods under development by competitors (to the extent possible) to avoid infringement. To reduce the cost of these proactive searches and to ensure that these proactive searches occur on a regular basis, design-around investigations may be conducted by in-house counsel working with technical personnel, if appropriate.

If a potential infringement problem is discovered, clients should consider employing experienced patent counsel to provide validity or infringement opinions of a competitor's patents to rebut allegations of willful patent infringement. n93 Willful infringement allows for trebling of damages should patent infringement be proved. n94 If the potential infringement is discovered early in the development of the client's products or process, the design around of a patented method may be

[*287] relatively simple in the software and on-line industries. Software "fixes" (from a technical standpoint) are generally less resource-intensive than hardware "fixes." In the financial services or banking industries, the design-around of a business method patent may also be relatively painless if the design-around involves merely altering one step in a process.

Moreover, searching and monitoring competitors' patents may allow a client to file reexamination requests with the PTO. n95 If the client can point to documentary prior art--patents and printed publications--that raise a substantial new question of patentability regarding an issued patent, the PTO may order a reexamination. n96 A potential benefit of initiating a reexamination of a competitor's patent is that the statute allows "any person" to anonymously initiate the process. n97 An attorney, for example, may initiate the reexamination process on behalf of an undisclosed third party. n98 This reexamination may invalidate a competitor's patent before costly litigation is necessary.

V. ENFORCEMENT OF PATENTS IN LIGHT OF *STATE STREET*

Once clients have procured business method patents, patent counsel should encourage clients to continuously evaluate their intellectual property positions in their respective fields. Continuously evaluating an intellectual property position is particularly encouraged when those clients are faced with competitors who merely copy the client's business method or when a competitor engages in an aggressive enforcement program of their own. With the predicted proliferation of business method patents in light of *State Street*, companies in the internet, banking, software, financial services, accounting, and insurance industries should not only procure patents covering their proprietary business

[*288] methods, but those companies should also develop an enforcement program for these potentially valuable company assets. Patent counsel should also educate clients that discovering potential infringers of a patented business method may present unique challenges. Many business methods, for example, may be practiced in-house at a competitor's business and not in a publicly accessible or visible manner. Therefore, any enforcement program will necessarily require creative and diligent policing of the marketplace and the competition.

Clients have two primary enforcement options to consider when faced with potential infringers. The client may 1) negotiate a license with the potential infringer; or 2) bring a patent infringement lawsuit against an infringer. Each of these options has associated costs and benefits, and a company's licensing and/or litigation attorneys should work together with the client to arrive at the most profitable and favorable solution for the patentee-company.

A. Enforcement Through Licensing

As discussed in the procurement section of this article, section III, the potential revenues for licensing business method patents may be substantial. Patentees are wise, therefore, to actively monitor the marketplace to discover potential infringers and to offer patent licenses. The effects of *State Street* have been noted with respect to potential licensing programs of e-commerce companies that have recently obtained patents explicitly detailing internet applications. n99

For instance, CyberGold, Inc. is an on-line marketing company which recently obtained an e-commerce business method patent. n100 This patent covers the practice of paying consumers to view advertisements on the internet. n101 Shortly after CyberGold's patent issued, the company's press release stated the newly issued patent gives the company "the 'sole right to pay consumers on-line incentives--including cash, points, frequent flyer miles or other forms of compensation.'" n102 As part of that same press release, CyberGold stated that it had not yet identified any potential infringers of its patent, but CyberGold also stated that it intended to license its patented product. n103

[*289] Experienced licensing counsel should encourage clients to increase patent filings on business methods to provide a counterweight to companies like CyberGold. Thus, in addition to using their business method patents as swords against infringing competitors, clients may use the leverage of their own business method patent portfolios as shields to obtain favorable cross-licensing arrangements. When confronted with infringement claims and royalty demands by aggressive competitors, a client may defend with their own patent portfolio.

Generally, the more financially prudent course of action may be to pursue enforcement by negotiating a patent license with infringing competitors. Litigation is inherently unpredictable and, despite *State Street*, litigating business method patents, such as the CyberGold's internet services patent, may be especially unpredictable. Such business method patents have been relatively untested in the courts. n104 Furthermore, the cost associated with litigating a patent infringement suit to completion can be substantially more expensive than simply negotiating a reasonable royalty rate at the inception of the dispute.

Stac Electronics v. Microsoft Corp. n105 provides a case in point regarding the advisability of resolving an infringement suit without resorting to expensive and time-consuming litigation. n106 In 1992, Microsoft approached Stac to license Stac's patented process. n107 Stac demanded royalties totaling \$ 96 million, but Microsoft refused to pay more than a total of \$ 24 million. n108 Negotiations ultimately broke down and Stac sued Microsoft, resulting in a damages award to Stac of \$ 120 million minus an offset of approximately \$ 14 million for alleged misappropriation of Microsoft trade secrets by Stac. n109 It is estimated that each party spent approximately \$ 7 million dollars on legal fees during the thirteen-month litigation. n110 Thus, when all was said and done, the damages award Stac received, minus the offset and Stac's attorneys' fees, was \$ 99 million--almost exactly the royalty amount that Stac had offered to Microsoft at the outset. However, not all cases present the same economic context or factors.

[*290] Thus, to the extent that business method patentees can obtain favorable royalties from infringers, it will probably be less expensive and burdensome to negotiate a license or cross-license rather than resort to litigation.

B. Enforcement Through Litigation

1. Litigation overview from the patentee's perspective

Aside from licensing a business method patent, a patentee has the option of pursuing a patent infringement lawsuit against an infringer. n111 The potential "costs" of litigation should be carefully considered before a patentee chooses to undertake a lawsuit. In most patent infringement lawsuits, the alleged infringer asserts a counterclaim for declaratory relief of patent invalidity and noninfringement. n112 Thus, litigation has the potential to put the validity of the patentee's business method patent at risk.

Prior to earnestly pursuing a patent infringement suit, patent counsel should advise the patentee to informally resolve the matter. An amicable resolution can avoid the expense of "full blown" patent litigation. One typical and logical first step to informally resolving a dispute is to simply send a letter to the alleged infringer. This letter should alert the alleged infringer of the existence of the patentee's patent. n113 Because such a letter could cause the alleged infringer to file a declaratory relief action, the wording of any notice letter to the alleged infringer must be carefully considered. To prevent the alleged infringer from racing to the courthouse to secure a forum convenient to the infringer--and possibly inconvenient to the patentee--counsel may wish to advise the patentee to file a patent infringement lawsuit in the patentee's chosen forum and then attempt informal resolution processes before initiating full-blown discovery. n114

[*291] Another aspect of litigation to consider is whether the patentee can successfully prove that a competitor is a direct infringer of the patent. n115 As discussed above, patentees face a heavier burden of establishing infringement by competitors where their competitors are, at most, contributory infringers or are inducing others, such as consumer end-users, to infringe. n116

Further, as discussed above, another aspect to consider is cost. Patent litigation may cost the parties millions of dollars by the time the case has progressed to trial. n117 However, litigation may be the only alternative when an alleged infringer refuses to negotiate a favorable license, or when profit margins on the patentee's products are so high that licensing the patent does not make economic sense.

2. The challenge of discovering alleged infringers

For companies like CyberGold, it may prove relatively simple to discover potential infringers. Internet companies, can simply "surf the net" to determine what other on-line service providers offer incentives, such as cash payments or other benefits, to users for visiting particular websites. n118 However, for the owner of a software patent on a particular investment management program, such as the patented method at issue in *State Street*, n119 discovering infringers may prove to be more difficult. Because many business methods are used in-house and, therefore, may not be visible and accessible to the public, it may be difficult for patentees to investigate whether potential defendants are using the patented method. Furthermore, identifying the direct infringer of a method claim may be more difficult depending on the process steps required by the claim. Obviously, the broader the claim, the easier it will be for the patentee to argue that the patent covers a competitor's business practices.

Although patentees must complete a reasonable investigation under Rule 11 before filing patent infringement lawsuits, n120 the Federal

[*292] Circuit allows patentees to plead infringement on information and belief which lessens the burden of the pre-filing inquiry to some degree. n121 In addition, some patentees may be able to allege patent infringement with a minimal pre-filing investigation, particularly these patentees have a good faith argument that the accused products can only be made using the patented method. n122 Thus, there are means of overcoming the unique challenges presented when trying to determine infringers of a method patent.

3. Defining the scope of business method patent claims

Another uncertainty when litigating a business method patent is how the court will construe the claims of the patent-in-suit. Federal Circuit and Supreme Court precedent have established that it is the responsibility of the court to determine the meaning of patent claims. n123 In construing patent claims, courts are guided by a plethora of canons of claim construction that have developed in the case law. n124 Litigation counsel should be aware of these competing claim construction rules when arguing for a particular claim construction. n125 For instance, numerous court decisions state that patent claims must be given their "ordinary," "accustomed," or dictionary meanings unless "examination of the specification, prosecution history, and other claims indicates that the inventor intended otherwise." n126 Thus, claim terms are generally construed according to their ordinary meaning, unless the patentee has defined those terms "specially" within the specification or file history. n127

[*293] A threshold issue in claim construction is whether the claims of the method patent contain "step-plus-function" elements. n128 The result of the court's determination may have a substantial effect on validity and infringement analyses. Business method claims that recite the results of the method, but not how to perform the method steps, may be construed as "step plus function" claims under § 112, P6. n129 The claim scope would thus be limited to "acts" described in the patent specification. n130 Because step-plus-function claims are given a narrowed interpretation, n131 it may be

[*294] more difficult to invalidate the claims. n132 At the same time, however, it may also be more difficult to prove infringement. n133 Thus, counsel should carefully examine the risks and benefits of arguing the application of § 112, P6 in a particular case. Section 112, P6 can not be asserted to apply for every patent, and thus this issue will not arise in every case.

Neither patentees nor alleged infringers can be certain at the outset of a patent infringement lawsuit whether the court will construe the method patent claims as reciting step-plus-function elements. This step-plus-function determination typically does not occur during patent prosecution and will likely be raised for the first time at a *Markman* hearing. n134 The timing of a *Markman* hearing varies; for example, in some jurisdictions, the court may issue jury instructions before it construes the claim language. n135

Parties may also be limited in the kind of evidence they can present to aid the court in construing the patent claims. In *Vitronics Co. v. Conceptronic, Inc.*, the Federal Circuit asserted that it is proper for a court to consider extrinsic evidence if the intrinsic evidence "unambiguously describes the scope of the patented invention." n136

[*295] Intrinsic evidence consists of: 1) the claim language; 2) the patent specification; and 3) the patent's prosecution history. n137 Under principles espoused in *Vitronics*, if intrinsic evidence clearly shows a claim is subject to § 112, P6, the inquiry should generally end, i.e., no extrinsic evidence should be allowed to contradict the unambiguous intrinsic evidence. n138

If, however, the court is unable to interpret the claim language using intrinsic evidence, parties may be able to support their proposed claim construction by presenting extrinsic evidence. n139 Extrinsic evidence can include expert and inventor testimony, treatises, dictionaries, and prior art. n140 Arguing the interpretation of a method claim may be facilitated with the proper use of visual aids to make the process appear tangible and more readily understandable to the court.

However, it may be difficult to find prior art discussing a "business method" to present as extrinsic evidence during the claim construction. As previously discussed, most patents and articles typically discuss tangible products or apparatuses, not business methods. n141

C. Litigating Against a Business Method Patent After State Street

Although alleged infringers of business method patents may no longer be able to successfully challenge the validity of such patents under 35 U.S.C. § 101, a full range of invalidity defenses may still be raised under other provisions of the patent laws. n142 For example, the patent claims must still be "novel" n143 and "non-obvious" n144 in light of the prior art. n145 Alleged infringers may also raise a panoply of arguments using the provisions of § 112, including lack of enablement, n146 failure of the

[*296] patentee to disclose the best mode for practicing the invention, n147 and indefiniteness of the patent claims. n148

For instance, competitors have raised questions as to the validity of the e-commerce patent recently obtained by CyberGold. n149 CyberGold's patent, as discussed earlier, covers the practice of paying consumers to view advertisements on the Internet. n150 Because this practice of paying consumers has been performed both directly and indirectly for decades, one competitor asserts that this practice lacks novelty. n151 A second competitor opined that, despite *State Street*, the CyberGold patent would still be invalid on subject matter grounds because CyberGold's patent "covers a 'concept, not technology' and is too broad" to warrant patent protection. n152 Thus, just because a business method patent covering an Internet application or software program is found to cover statutory subject matter, the inquiry does not end--the patent claims must still pass muster under the remaining provisions of the patent laws.

VI. CONCLUSION

The post-*State Street* era will present challenges and opportunities for counsel and clients alike. As more business method patents are prosecuted, the PTO may offer additional guidelines to practitioners and examiners on the proper examination of these patents. If and when more business method patents are litigated, the courts (especially the Federal Circuit) may shed more light on how such patents should be construed and enforced. In the long run, clients and prudent counsel will do well to alter and expand their views of patentable subject matter and prepare their companies' intellectual property strategy accordingly.

n1 *149 F.3d 1368, 47 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1998), cert. denied, 119 S. Ct. 851 (1999).*

n2 *Id. at 1373, 47 U.S.P.Q.2d at 1600.*

n3 *Id. at 1375, 47 U.S.P.Q.2d at 1602.*

n4 *See, e.g., Robert M. Kunstadt, Opening Pandora's Box, THE RECORD, Jan. 1999 (The Magazine of Law & Policy in High Technology, at 20) (opining that *State Street* will have a dramatic effect on patents relating to business methods); Thomas S. Hahn, Much Ado About Method Patents, THE RECORD, Jan. 1999 (The Magazine of Law & Policy in High Technology, at 21) (opining that *State Street* will have little impact on the current ability to patent "methods of doing business" and software applications).*

n5 *See Rinaldo Del Gallo, III, Are "Methods of Doing Business" Finally Out of Business as a Statutory Rejection?, 38 IDEA 403, 405 (1998).*

n6 *See State Street Bank, 149 F.3d at 1375, 47 U.S.P.Q.2d at 1602 (laying to rest the "ill-conceived" business method exception to patentability).*

n7 *35 U.S.C. § 101 (1994).*

n8 *Diamond v. Diehr, 450 U.S. 175, 182, 209 U.S.P.Q. (BNA) 1, 6 (1981) (citing S. REP. NO. 82-1979, at 5 (1952), and H.R. REP. NO. 18-1923, at 6 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399).*

n9 *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 206 U.S.P.Q. (BNA) 193, 197 (1980).

n10 *Parker v. Flook*, 437 U.S. 584, 598, 198 U.S.P.Q. (BNA) 193, 201 (1978) (Stewart, J., dissenting).

n11 *In re Alappat*, 33 F.3d 1526, 1543, 31 U.S.P.Q.2d (BNA) 1545, 1556 (Fed. Cir. 1994) ("certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, and thus that subject matter is not in and of itself entitled to patent protection"); *see also Hotel Security Checking Co. v. Lorraine Co.*, 167 F. 460 (2d Cir. 1908) (noting that methods of doing business constituted abstractions rather than patentable inventions).

n12 409 U.S. 63, 175 U.S.P.Q. (BNA) 673 (1972).

n13 437 U.S. 584, 198 U.S.P.Q. (BNA) 193 (1978).

n14 *Benson*, 409 U.S. at 65, 175 U.S.P.Q. at 674.

n15 *See id.* at 71-72, 175 U.S.P.Q. at 676.

n16 *Id.* at 71-72, 175 U.S.P.Q. at 676.

n17 *Id.* at 71, 175 U.S.P.Q. at 676 (emphasis added).

n18 *Flook*, 437 U.S. at 593-94, 198 U.S.P.Q. at 198-99.

n19 *Id.* at 590, 198 U.S.P.Q. at 197.

n20 450 U.S. 175, 209 U.S.P.Q. (BNA) 1 (1981).

n21 *See id.* at 183, 209 U.S.P.Q. at 7.

n22 *Id.* at 192-193, 209 U.S.P.Q. at 10.

n23 *Id.* at 192, 209 U.S.P.Q. at 10.

n24 This test was derived from three CCPA decisions: *In re Freeman*, 573 F.2d 1237, 197 U.S.P.Q. (BNA) 464 (C.C.P.A. 1978); *In re Walter*, 618 F.2d 758, 205 U.S.P.Q. (BNA) 397 (C.C.P.A. 1980); and *In re Abele*, 684 F.2d 902, 214 U.S.P.Q. (BNA) 682 (C.C.P.A. 1982).

n25 *In re Pardo*, 684 F.2d 912, 915, 214 U.S.P.Q. (BNA) 673, 676 (C.C.P.A. 1982).

n26 *Diehr*, 450 U.S. at 193 n.15, 209 U.S.P.Q. at 22 n.15.

n27 *See generally In re Alappat*, 33 F.3d 1526, 31 U.S.P.Q.2d (BNA) 1545 (Fed. Cir. 1994) (en banc).

n28 *Id.*

n29 *Id.* at 1544, 31 U.S.P.Q.2d at 1557.

n30 927 F. Supp. 502, 38 U.S.P.Q.2d (BNA) 1530 (D. Mass. 1996), reversed by 149 F.3d 1368, 47 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1998), cert. denied 119 S. Ct. 851 (1999).

n31 *See id.* at 510, 38 U.S.P.Q.2d at 1537.

n32 *See id.* at 504, 38 U.S.P.Q.2d at 1532; *see also* U.S. Patent No. 5,193,056 issued to Boes (Mar. 9, 1993).

n33 *State Street*, 927 F. Supp. at 504, 38 U.S.P.Q.2d at 1532.

n34 *Id.* at 505, 38 U.S.P.Q.2d at 1533.

n35 *Id.*

n36 *See id.*

n37 *See id.* at 506, 38 U.S.P.Q.2d at 1534.

n38 *See id.*

n39 *See id.* at 510, 517, 38 U.S.P.Q.2d at 1537, 1543.

n40 *See State Street Bank & Trust v. Signature Fin. Group Inc.*, 149 F.3d 1368, 1373-75, 47 U.S.P.Q.2d (BNA) 1596, 1601-02 (Fed. Cir. 1998), *cert. denied* 119 S. Ct. 851 (1999).

n41 *Id.* at 1373, 47 U.S.P.Q.2d at 1601.

n42 *Id.*

n43 *See id.* at 1374, 47 U.S.P.Q.2d at 1601.

n44 *See id.* at 1374, 47 U.S.P.Q.2d at 1603-04.

n45 *Id.* at 1373, 47 U.S.P.Q.2d at 1601.

n46 *State Street Bank & Trust v. Signature Fin. Group Inc.*, 927 F. Supp. 502, 516, 38 U.S.P.Q.2d (BNA) 1530, 1542 (D. Mass 1996), *reversed by* 149 F.3d 1368, 47 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1998), *cert. denied* 119 S. Ct. 851 (1999).

n47 *Id.* at 515-516, 38 U.S.P.Q.2d at 1542

n48 167 F. 460 (2d Cir. 1908).

n49 *Id.* at 470-71.

n50 *Id.* at 469.

n51 *See* Rinaldo, *supra* note 5, at 403-404.

n52 *See Hotel Security*, 160 F. at 472.

n53 *Id.* (emphasis added).

n54 Like *Hotel Security*, *In re Wait*, 73 F.2d 982, 24 U.S.P.Q. 88 (C.C.P.A. 1934), also discussed the business methods exception to patentability in dicta, but ultimately held that the invention was unpatentable for lack of novelty. In *Wait*, the court stated:

The process, when analyzed carefully, appears to comprise, in its essence, nothing more than the advertising of, or giving publicity to, offers of purchase or sale by one party, the acceptance thereof by another, and the making of a record of the transaction followed by a withdrawal of the offer. Surely these are, and always have been, essential steps in all dealings of this nature, and even conceding, without holding, that some

methods of doing business might present patentable novelty, we think such novelty is lacking here.

Id. at 983, 24 *U.S.P.Q.* at 89.

n55 PATENT & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 706.03(a) (5th ed., Aug. 1993).

n56 *See* Rinaldo, *supra* note 5, at 403-404.

n57 22 *F.3d* 290, 30 *U.S.P.Q.2d* 1455 (*Fed. Cir.* 1994).

n58 *Id.* at 298, 30 *U.S.P.Q.2d* 1461-62.

n59 *See* Rinaldo, *supra* note 5, at 403-404.

n60 Examination Guidelines for Computer Related Inventions, 61 *Fed. Reg.* 7478, 7479 (1996).

n61 *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 *F.3d* 1368, 1375, 47 *U.S.P.Q.2d* (BNA) 1596, 1602 (*Fed. Cir.* 1998), *cert. denied* 119 *S. Ct.* 851 (1999).

n62 *See id.*

n63 *Id.* at 1375 n.10, 47 *U.S.P.Q.2d* at 1602-03 n.10 (quoting *In re Schrader*, 22 *F.3d* 290, 298 (*Fed. Cir.* 1994) (Newman, J., dissenting)).

n64 *See id.*

n65 *See id.*

n66 Tony V. Pezzano, *Patenting Methods of Doing Business*, Mealey's Litig. Rep.: Intellectual Prop. (Feb. 12, 1999) (citing a speech by Acting Commissioner of Patents, Q. Todd Dickinson on December 9, 1998) ("At the annual 'PTO Day' conference . . . he acknowledged that the case has produced a 'boom' in business method-related patent applications, and the PTO plans to 'go ahead' with its examination of such claims, with an estimated 300 patents expected within the coming year."); *see also Boom in Business Method Patent Filings Has Followed State Street Ruling, PTO Says*, 57 *PAT., TRADEMARK & COPYRIGHT J.* (BNA) 110, 115, (Dec. 10, 1998). As for commentators predicting a rise in the filings for business method-related patent claims, *see* Brenda Sandburg, *Speed Over Substance*, *THE RECORDER* (Feb. 2, 1999), at 1 (saying commentators predict an increase in filings for business method patents); Brenda Sandburg, *It Doesn't Take a Genius to Try Out Old Ideas on the Net, But it Can Win You a Patent*, *THE RECORDER* (Aug. 27, 1998) at 1-2; Jodine Mayberry, *After State Street Bank: Banks Should 'Patent Early, Patent Often,'* 12 *SOFTWARE L. BULLETIN* 3, 3-8 (1999).

n67 *See* Mitch Betts, *Ruling Opens the Door to Software Patents*, *COMPUTERWORLD*, Sep. 5, 1994, at 73. According to Gregory Aharonian, who runs the Internet Patent Service in Belmont, Mass., "There is already a flood of software patents, but the Alappat decision will increase the rate even more as more people realize that it can be done." *Id.*

n68 *See, e.g.*, U.S. Patent No. 5,537,315 issued to Mitcham (July 16, 1996) (Method and Apparatus for Issuing Insurance from Kiosk); U.S. Patent No. 5,220,501 issued to Lawlor et al. (June 15, 1993) (Method and System for Remote Delivery of Retail Banking Services); U.S. Patent No. 4,114,027 issued to Slater et al. (Sept. 12, 1978) (On-line/off-line Automated Banking System).

n69 *See* IFI/Plenum Data Corp. Press release (Jan. 11, 1999) <<http://www.ifiplenum.com/pr1199901.htm>> (discussing Samsung's decision to place more emphasis on protecting technology and listing the top fifty-five companies in 1998 in terms of number of patents procured along with patent statistics); *see also* Rodney Ho, *Patents Hit Record in '98 as Tech Firms Rushed to Protect Intellectual Property*, WALL ST. J., Jan. 15, 1999, at A2.

n70 *See* IFI/Plenum Data Corp. Press release, *supra* note 69.

n71 *See* Rodney Ho, *supra* note 69, at A2.

n72 *See id.*

n73 *See id.*

n74 *See generally* Robert B. Armitage et al., *Prosecution, Litigation, Licensing Relationship*, U. Tex. Sch. L. Advanced Pat. L. Inst., at 26.

n75 *See* 35 U.S.C. § 102(b) (1994).

n76 *See* Pezzano, *supra* note 66; Sandburg, *supra* note 66; Mayberry, *supra* note 66.

n77 37 C.F.R. § 1.56(a) (1999).

n78 *See id.*

n79 *Precision Instrument Mfg. Co. v. Automotive Maintenance Mach. Co.*, 324 U.S. 806, 818, 65 U.S.P.Q. (BNA) 133, 138 (1945).

n80 *See* 37 C.F.R. § 1.56(b) (1999).

Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and (1) it establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) it refutes, or is inconsistent with, a position the applicant takes in: (i) opposing an argument of unpatentability relied on by the Office, or (ii) asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability. *Id.*

n81 *See J.P. Stevens & Co. v. Lex Tex Ltd.*, 747 F.2d 1553, 1559, 223 U.S.P.Q. (BNA) 1089, 1092 (Fed. Cir. 1984).

n82 It is "especially difficult" to overcome the presumption that a patent is valid when the prior art used to show invalidity was before the patent examiner during prosecution of the application. *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1467, 15 U.S.P.Q.2d (BNA) 1525, 1527 (Fed. Cir. 1990); see also *Celeritas Tech., Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 47 U.S.P.Q.2d (BNA) 1516 (Fed. Cir. 1998) (finding that an alleged infringer had met the "heavy burden" of proving that prior art disclosed during prosecution anticipated the patent claims); *M&R Marking Sys., Inc. v. Top Stamp, Inc.*, 926 F. Supp. 466, 472 (D.N.J. 1996) (finding although prior art was before examiner, plaintiff has not shown the defendant's validity challenge is likely to fail).

n83 See PATENT & TRADEMARK OFFICE, U.S. DEPT. OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § § 2106, 2106.01, 2106.02 (7th ed. 1998). In 1996, the PTO issued the Examination Guidelines for Computer-Related Inventions, which are now incorporated in the Manual. However, in 1998, the PTO determined that additional training materials were needed to assist patent practitioners in applying the guidelines to the areas of business, artificial intelligence and mathematical processing applications. See U.S. Patent and Trademark Office, *Training Materials Directed to Business, Artificial Intelligence, and Mathematical Processing Applications* (last modified Oct. 20, 1998) <<http://www.uspto.gov/web/offices/pac/compexam/comguide.htm>>. This document contains several example claims and illustrates how to draft such claims to overcome a § 101 rejection for failure to claim statutory subject matter. See *id.* All of the examples appear to implement the holding in *State Street* and show that the PTO will reject computer-related claims that do not contain a practical application of the mathematical algorithm recited in the claims. See *id.*

n84 See 35 U.S.C. § 112, P6 (1994). This section of the patent statute sets forth the following in order to interpret the claim scope of "means plus function" or "step plus function" claims:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.
Id.

n85 See *id.*; see also *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1042, 25 U.S.P.Q.2d (BNA) 1451, 1454 (Fed. Cir. 1993). *Valmont* states:

Section 112 thus permits means-plus-function language in a combination claim, but with a "string attached." The "attached string" limits the applicant to the structure, material, or acts in the specification and their equivalents. Indeed the section operates more like the reverse doctrine of equivalents than the doctrine of equivalents because it restricts the coverage of literal claim language.
Id.

n86 See 35 U.S.C. § 271(a) (1994 & Supp. IV 1998). This section of the patent statute covers direct infringement: "(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the

United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent." *Id.*

n87 *See* 35 U.S.C. § 271(b) (1994). This section of the patent statute covers inducing infringement: "(b) Whoever actively induces infringement of a patent shall be liable as an infringer." *Id.*

n88 *See* 35 U.S.C. § 271(c) (1994 & Supp. IV 1998). This section of the patent statute covers contributory infringement:

(c) Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer. *Id.*

n89 *See Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1374, 21 U.S.P.Q.2d (BNA) 1321, 1332 (Fed. Cir. 1991) (stating that absent direct infringement, no inducement of infringement can exist); *Met-Coil Sys. Corp. v. Korners Unlimited*, 803 F.2d 684, 687, 231 U.S.P.Q. (BNA) 475, 477 (Fed. Cir. 1986) (stating that where there is no direct infringement, consequently no contributory or inducement of infringement could exist).

n90 While § 271(b) refers to "active" inducement, courts have required that the defendant in an inducement action have knowledge of the patent as well as the nature and consequence of his or her actions. *See Water Tech. Corp. v. Calco, Ltd.*, 850 F.2d 660, 668, 7 U.S.P.Q.2d (BNA) 1097, 1103 (Fed. Cir. 1988) ("Although section 271(b) does not use the word 'knowing,' the case law and legislative history uniformly assert such a requirement."); *Hughes Aircraft Co. v. National Semiconductor Corp.*, 857 F. Supp. 691, 699 (N.D. Cal. 1994) ("In order to prevail in an action for inducement, a plaintiff must show that the defendant actually knew of the patent and intended to cause the acts which constituted the infringement."). This requirement is based, in part, on the fact that "inducement has connotations of active steps knowingly taken--knowingly at least in the sense of purposeful, intentional, as distinguished from accidental or inadvertent." *Fromberg, Inc. v. Thornhill*, 315 F.2d 407, 411, 137 U.S.P.Q. (BNA) 84, 87 (5th Cir. 1963).

n91 *See* 35 U.S.C. § 271(d) (1994); *see also Hodosh v. Block Drug Co., Inc.*, 833 F.2d 1575, 4 U.S.P.Q.2d (BNA) 1935 (Fed. Cir. 1987).

n92 U.S. Patent No. 5,897,620 issued to Walker et al. (Apr. 27, 1999) (describing method and apparatus for the sale of airline-specified flight tickets).

n93 Under Federal Circuit case law, "to willfully infringe a patent, the patent must exist and one must have knowledge of it." *State Indus. v. A.O. Smith Corp.*, 751 F.2d 1226, 1236, 224 U.S.P.Q. (BNA) 418, 425 (Fed. Cir. 1985) (emphasis added). Actual knowledge of the patent triggers an affirmative duty to exercise due care. *See Studiengesellschaft Kohle, m.b.H. v. Dart Indus.*, 862 F.2d 1564, 1579, 9 U.S.P.Q.2d (BNA) 1273, 1287 (Fed. Cir. 1988). Willfulness is determined by looking at the "totality

of the circumstances to see whether 'a reasonable person would prudently conduct himself with any confidence that a court might hold the patent invalid or not infringed.'" *In re Hayes Microcomputer Prods., Inc. Patent Litig.*, 982 F.2d 1527, 1543, 25 U.S.P.Q.2d (BNA) 1241, 1253 (Fed. Cir. 1992) (quoting *Ryco, Inc v. AgBag Corp.*, 857 F.2d 1418, 1428, 8 U.S.P.Q.2d (BNA) 1323, 1331 (Fed. Cir. 1988)).

A factor for courts to consider in making a willful infringement determination is whether the adjudged infringer relied on legal advice. *See Studiengesellschaft*, 862 F.2d at 1579, 9 U.S.P.Q.2d at 1287. Neither the existence nor absence of an opinion of counsel, though, is dispositive of the willfulness issue. *See id.*

n94 *See* 35 U.S.C. § 284 (1994) (authorizing courts to "increase the damages up to three times").

n95 *See* 35 U.S.C. § 302 (1994).

n96 *See* 35 U.S.C. §§ 301-307 (1994); *see also Laitram Corp. v. NEC Corp.*, 952 F.2d 1357, 21 U.S.P.Q.2d (BNA) 1276 (Fed. Cir. 1992). Reexamination is limited to patents and printed publications unless the patentee admits that other activities such as a use or sale are part of the prior art. *See Quad Envtl. Tech. Corp. v. Union Sanitary District*, 946 F.2d 870, 875, 20 U.S.P.Q.2d (BNA) 1392, 1395 (Fed. Cir. 1991) (quoting PATENT & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE, §§ 2216, 2217, 2258 (5th ed., rev. 12, July 1989)).

n97 *See* 35 U.S.C. § 302 (1994).

n98 *See Syntex (U.S.A.) Inc. v. United States*, 882 F.2d 1570, 11 U.S.P.Q.2d (BNA) 1866 (Fed. Cir. 1989). "As an initial matter, the patent statute specifies that 'any person' has the right to request reexamination (section 302)." *Id.* at 1573, 11 U.S.P.Q.2d at 1868. The category of third-party requesters is, thus, open-ended and includes, for example, attorneys representing a principal whose identity is not disclosed to the PTO or patentee. *See id.*

n99 *See id.*; *see also* Brenda Sandburg, *Madness in Patent and Trademark Office's E-Commerce Method*, THE RECORDER, Aug. 27, 1998, at 1.

n100 *See* U.S. Patent No. 5,794,210 issued to Goldhaber (Aug. 11, 1998).

n101 *See* Sandburg, *supra* note 99, at 1.

n102 *Id.* at 2.

n103 *See id.*

n104 *See id.*

n105 *Stac Elec. v. Microsoft Corp.*, 38 F.3d 1222 (Fed. Cir. 1994).

n106 *See id.* For a more complete discussion of this topic and additional cases, see Leonard T. Nuara, *Software Litigation & Software Licensing: Don't Draw, Draft!*, The Computer Law Association and The Santa Clara University School of Law Cyber Space Camp Conference (1997).

n107 *See Stac Elec.*, 38 F.3d at 1222.

n108 *See id.*

n109 *See id.*

n110 *See id.*

n111 *See* 35 U.S.C. § 271(a) (1994 & Supp. IV 1998).

n112 *See* 35 U.S.C. § 282 (1994 & Supp. IV 1998).

n113 *See* Bas de Blank et al., *Personal Jurisdiction in Declaratory Judgment Cases in Light of Red Wing and Meade*, 23 NEW MATTER 40 (1998).

n114 *See* FED. R. CIV. P. 4(m) (1999). This rule allows a plaintiff 120 days, after filing a complaint, in which to serve the defendant. However, in some jurisdictions, the patentee-plaintiff has only forty-five days in which to serve a defendant. *See, e.g.*, U.S. DIST. CT. R. N.D. CAL., CIV. L.R. 4-2 (1999).

n115 *See supra* notes 86-92 and accompanying text (discussing active inducement and contributory infringement).

n116 *See supra* Part IV.B.2. and accompanying notes 86-92.

n117 *See supra* Part V.A. and accompanying notes 105-10.

n118 *See supra* Part V.A. and accompanying notes 100-02 (describing CyberGold and its newly issued business method patent).

n119 *See State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 47 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1998), *cert. denied*, 119 S. Ct. 851 (1999).

n120 *See* FED. R. CIV. P. 11 (1998).

n121 *See Cambridge Prods., Ltd. v. Penn Nutrients, Inc.*, 962 F.2d 1048, 1050, 22 U.S.P.Q.2d (BNA) 1577, 1579 (Fed. Cir. 1992).

n122 *See id.*

n123 *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 34 U.S.P.Q.2d (BNA) 1321 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 38 U.S.P.Q.2d (BNA) 1461 (1996).

n124 *See* 5A DONALD A. CHISUM, CHISUM ON PATENTS § 18.03[2], at 18-79 (rel. no. 68, Dec. 1998).

n125 *See, e.g., id.* § 18.03[2][a], at 18-80 (rel. no. 68 Dec. 1998).

n126 *See, e.g., Transmatic, Inc. v. Gulton Indus.*, 53 F.3d 1270, 1277, 35 U.S.P.Q.2d (BNA) 1035, 1040 (Fed. Cir. 1995).

n127 *Hormone Research Found., Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1563, 15 U.S.P.Q.2d (BNA) 1039, 1043 (Fed. Cir. 1990) (explaining a patentee may be their own "lexicographer").

n128 *See* 35 U.S.C. § 112, P6 (1994). This section sets forth the following in order to interpret the claim scope of "means plus function" or "step plus function" claims:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in

support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Id.

n129 See generally *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 42 U.S.P.Q.2d (BNA) 1777 (Fed. Cir. 1997).

n130 See *id.* at 1583, 42 U.S.P.Q.2d at 1782 (stating § 112, P6 "is implicated only when steps *plus function* without acts are present").

This is also true for apparatus claims which are written in "means-plus-function" format. In accordance with the plain language of § 112, P6, courts have interpreted this section as placing a limitation on the coverage of literal claim language written in "means plus function" format.

Section 112 thus permits means-plus-function language in a combination claim, but with a "string attached." *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1042, 25 U.S.P.Q.2d (BNA) 1451, 1454 (Fed. Cir. 1993). The "attached string" limits the applicant to the structure, material, or acts in the specification and their equivalents. *Id.* Indeed the section operates more like the reverse doctrine of equivalents than the doctrine of equivalents because it restricts the coverage of literal claim language. See *id.*

n131 See Jeffrey E. Costakos & Walter E. Zimmerman, *Do Your Claims Mean What They Mean*, 1 MARQ. INTELL. PROP. L. REV. 109 (1997) (regarding means and step plus function claims receiving a narrowed interpretation). *Micro Chemical, Inc. v. Great Plains Chemical Co.*, 103 F.3d 1538, 1547, 41 U.S.P.Q.2d (BNA) 1238, 1245 (Fed. Cir. 1997), stands as a solid reinforcement of *Valmont*. Means claims are generally given a narrow construction, and functional and structural limitations in means claims will be strictly construed. *Micro Chem.*, 103 F.3d at 1547, 41 U.S.P.Q.2d at 1245. Identity of function is required, as is structural correspondence; equivalents, for purposes of 35 U.S.C. § 112, P6, are also very narrow in scope. See *id.* More to the point, while writing a claim with elements recited in means-plus-function format may save the mental energy of the patent practitioner, it may also result in a narrow claim. Means claims must be carefully and cautiously constructed and prosecuted.

n132 Under 35 U.S.C. § 112, P6, and the Federal Circuit's interpretation of the statute, a patentee who drafts claims using means plus function or step plus function format has the claim scope limited to the means or steps specified in the written description and equivalents thereof. See *Hybritech Inc. v. Abbott Labs.*, 849 F.2d 1446, 1454, 7 U.S.P.Q.2d (BNA) 1191, 1198 (Fed. Cir. 1988) (barring a patentee, who sought and obtained a broad construction of his claim in an action against one accused infringer, from arguing a narrow construction to avoid anticipation in a subsequent action against a different accused infringer). Therefore, the more narrowly the claims are construed, the less prior art can be used to cover those claims. Conversely, if claims are given a broad interpretation, more prior art is likely to cover those claims and potentially invalidate the patent.

n133 If a claim is construed narrowly as in the case of means plus function and step plus function claims (because they are limited to the structures or steps disclosed in the patent specification and their equivalents), it may be more difficult to apply the claims to

a process that does not literally infringe (because means or step plus function claims have a more limited range of equivalents).

n134 *See generally, Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 34 U.S.P.Q.2d (BNA) 1321 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 38 U.S.P.Q.2d (BNA) 1461 (1996).

n135 *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1579-80, 39 U.S.P.Q.2d (BNA) 1573, 1573-40 (Fed. Cir. 1996) (construing claims after the close of testimony after one party's request to construe claim language in the context of a jury instruction).

Courts may also hold a *Markman* claim construction hearing early during discovery, before expert discovery, after the close of all discovery, or right before trial as part of the pre-trial motions and jury instruction procedures. *See B. Mitchell, Procedural Application of the Markman Decision*, 1 INTELL. PROP. L. BULL., Fall 1996, at 14.

n136 *Vitronics*, 90 F.3d at 1583, 39 U.S.P.Q.2d at 1577.

n137 *See id.*

n138 *See generally id.*

n139 *See id.*

n140 *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 34 U.S.P.Q.2d (BNA) 1321 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 38 U.S.P.Q.2d (BNA) 1461 (1996).

n141 *See supra* Part IV.A. and accompanying notes 77-82.

n142 *See, e.g.*, 35 U.S.C. § 102, 103, & 112 (1994).

n143 *See* 35 U.S.C. § 102 (1994).

n144 *See* 35 U.S.C. § 103 (1994).

n145 *See Sandburg, supra* note 99, at 2.

n146 *See* 35 U.S.C. § 112, P1 (1994). *See also Phillips Petroleum Co. v. U.S. Steel Corp.*, 673 F. Supp. 1278, 1291-92, 6 U.S.P.Q.2d (BNA) 1065, 1073-74 (D. Del. 1987), *aff'd*, 865 F.2d 1247, 9 U.S.P.Q.2d (BNA) 1461 (Fed. Cir. 1989). "Although not explicitly stated in § 112, to be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *In re Wright*, 999 F.2d 1557, 1561, 27 U.S.P.Q.2d (BNA) 1510, 1513 (Fed. Cir. 1993).

n147 *See* 35 U.S.C. § 112, P1 (1994); *see also Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209, 18 U.S.P.Q.2d (BNA) 1016, 1023 (Fed. Cir. 1991).

n148 *See* 35 U.S.C. § 112, P2 (1994) ("The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.").

n149 *See* U.S. Patent No. 5,794,210 issued to Goldhaber et al. (Aug. 11, 1998).

n150 *See id.*

n151 *See Sandburg, supra* note 99, at 2.

n152 *Id.*