

BUSINESS METHODS, TECHNOLOGY, AND DISCRIMINATION

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ABSTRACT

The United States is obligated under the Trade-Related Aspects of Intellectual Property Rights (TRIPS) treaty to make patent rights available and enjoyable without discrimination as to the “field of technology” of the invention. No specific areas of technology may be singled out for unjustified special treatment. Yet the United States is doing just that with respect to computer-implemented business methods. Doctrinally, such methods are subject to an especially high bar for patentability. Statutorily, patents on such methods may be challenged in invalidity proceedings that are exclusively available for so-called “covered business method patents.” The law seems to reflect skepticism that computer-implemented business methods should be broadly eligible for patenting, as well as distaste for how many owners of such patents have enforced their rights. While these may be real problems and serious policy challenges, blatant discrimination by technological field is not a proper solution.

The United States’ handling of computer-implemented business methods goes far beyond the kind of justifiable differential treatment that TRIPS tolerates. In the pharmaceutical context, for example, the inventions are subject to unique regulations and market restrictions. A country’s patent laws may properly extend the term of a drug patent to offset a lengthy regulatory review period or may properly allow generic drug makers to begin seeking their own regulatory approval during the patent term. For computer-implemented business methods, the legal differences in treatment correspond to no specific aspects of the subject matter, but arguably reflect broader problems in the

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United States patent system concerning patent examination quality and litigation abuse.

None of this discrimination is in violation of the treaty, however, unless computer-implemented business methods are a “field of technology” under TRIPS. Congress and the USPTO have ostensibly assumed not, focusing on the fact that such methods use existing computer technology but do not create new computer technology per se. But that goes to how inventive the method is, not whether it is technological. The text of the treaty, the pre- and post-ratification conduct of the member countries, and the historical and normative context all suggest that computer-implemented business methods are indeed technological. While the computerization of such processes is not usually inventive enough to ultimately be patented, employing computers for practical business purposes nonetheless brings such methods within the scope of the treaty and deserves nondiscriminatory treatment. As the United States considers more changes to the availability and enjoyment of patent rights, it should discontinue this discrimination.

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INTRODUCTION

A multi-national treaty, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), provides that all member countries, including the United States, shall make patent protection available and enjoyable for inventions in all technological fields.¹ Specifically, pursuant to TRIPS Article 27(1), member countries must grant patents for:

*any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. . . . [P]atents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.*²

Nothing in TRIPS purports to categorically exclude, or permit the exclusion of, computer-implemented business methods from patent-eligibility.³ But U.S. patent law has done exactly that. The Supreme Court, Congress, and the U.S. Patent & Trademark Office have all sharply curtailed patent availability and enjoyment in that area over the past decade.

In the courts, the case law has evolved rapidly concerning patent eligibility and 35 U.S.C. § 101 (2012). Section 101 broadly defines patent-eligible subject matter as “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”⁴ But judicially created exceptions to § 101 have long excluded laws of nature, natural phenomena, and abstract ideas from patent protection.⁵ Since 2010, the Supreme Court has issued no fewer than four landmark decisions concerning the exceptions to § 101. The decisions—*Bilski*, *Mayo*, *Myriad*, and *Alice*—collectively bolster those judicial exceptions and considerably

1. TRIPS: Agreement on Trade-Related Aspects of International Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299 [hereinafter TRIPS].

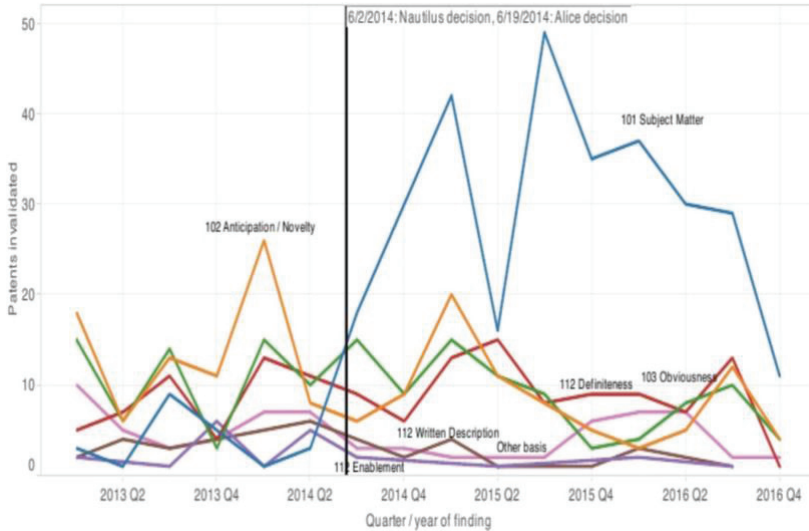
2. *Id.* art. 27(1) (emphasis added).

3. *Id.* art. 27.

4. 35 U.S.C. § 101 (2012).

5. *See* *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

reduce the scope of patent-eligible subject matter.⁶ Data from Lex Machina shows that the number of patents invalidated on § 101 grounds after *Alice* has been suddenly dwarfing all other grounds of invalidity in court decisions:⁷



Software and business method patents have been hit particularly hard by this doctrinal shift.⁸ Many such patents do not improve

6. See *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) (finding computerized intermediated settlement method ineligible for patent protection); *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013) (finding isolated DNA sequences indicating breast cancer mutation to be a patent-ineligible natural phenomenon); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012) (finding medical diagnostic method directed to patent-ineligible law of nature); *Bilski v. Kappos*, 561 U.S. 593 (2010) (finding method of hedging risk unpatentably abstract).

7. BRIAN C. HOWARD & JASON MAPLES, LEX MACHINA PATENT LITIGATION YEAR IN REVIEW 2016, 27 fig. 43 (2017).

8. In the first two years after *Alice*, software patents and business method patents accounted for 45.8% and 22.4% of patents challenged in federal courts under § 101, respectively, with 45% and 26.3% of those challenged patents being invalidated, respectively. Robert R. Sachs, *Two Years After Alice: A Survey of the Impact of a "Minor Case"*, BILSKI BLOG (June 16, 2016), <http://www.bilskiblog.com/blog/2016/06/two-years-after-alice-a-survey-of-the-impact-of-a-minor-case.html/> [https://perma.cc/7KG8-4DBS]; see also Steven Seidenberg, *Business-Method and Software Patents May Go Through the Looking Glass After Alice Decision*, ABA J. (Feb. 2015), <http://www.abajournal.com/>

computer technology, but use it in conventional ways to facilitate some new means of performing economic or other electronic activities. This, under the new law, is generally not patent-eligible and is considered an attempt to patent an abstract idea by merely computerizing it.⁹ As one commentator concluded, “[T]echnically, software and business methods *are* patent eligible in the U.S., but in practice, the level of protection that they now enjoy is much lower than it used to be and possibly lower than what is provided to inventions in other fields.”¹⁰ Indeed, about two-thirds of *Alice*-based challenges to claims have been successful in district court.¹¹ On

magazine/article/business_method_and_software_patents_may_go_through_the_looking_glass_after/ [https://perma.cc/8ADB-KM8W] (“In almost every case since *Alice* in which a party asserted that such patents consisted of ineligible subject matter, the courts have concurred and struck down the patent. In just four months, the district courts and the U.S. Court of Appeals for the Federal Circuit have thrown out 14 such patents. That is equal to the total number of all patents struck down in 2013 for ineligible subject matter.”).

9. See *Alice*, 134 S. Ct. at 2359 (deeming computerized method of facilitating intermediated settlement patent-ineligible because “each step does no more than require a generic computer to perform generic computer functions”); *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016) (deeming claim patent-eligible because “the plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity”).

10. Stefania Fusco, *TRIPS Non-Discrimination Principle: Are Alice and Bilski Really the End of NPEs?*, 24 TEX. INTELL. PROP. L.J. 131, 133 (2016) (citing John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987 (2003)).

11. Sixty-seven percent of all § 101 motions filed from the day that *Alice* was decided (June 19, 2014) through the end of 2015 were granted in whole or in part. See 2015 YEAR IN REVIEW, DOCKET NAVIGATOR ANALYTICS 27 (2016). Plus, those software and business method claims are being invalidated earlier in litigation proceedings, increasingly often at the pleadings stage, and without the benefit of claim construction or discovery. See *id.* at 29 (showing that fifty-seven § 101 motions were filed in the “early stage” versus 136 in the “mature stage” of the litigation from *Alice* through 2015, though the success rates were comparable overall); Seidenberg, *supra* note 8 (“[I]n the wake of *Alice*, courts are ruling on patent eligibility earlier in the litigation process. Instead of waiting until summary judgment to strike down patents for ineligible subject matter, a number of courts have issued such rulings on motions to dismiss.”); Michael Wilburn, *Pretrial Dismissals and Judgments in Post-Alice Courts*, LAW360 (Apr. 23, 2015, 10:22 AM), <http://www.law360.com/articles/642593/pretrial-dismissals-and-judgments-in-post-alice-courts> [https://perma.cc/LZS4-KHUK] (“In the wake of *Alice* . . . many courts are willing to grant pretrial dismissal of patent infringement cases based on patent-ineligible subject matter. Courts have cited to Circuit Judge Haldane Robert Mayer’s concurrence to address the Section 101 issue ‘at the very outset’ of a case. Since *Alice*, there have been more than 60 cases that address pretrial dispositive motions based on

appeal, over 90% of § 101 cases have gone against the patent owner.¹² This is well above historical averages for invalidity challenge success rates.¹³

Congress, for its part, targeted those same patents in a different way. As an alternative to district court litigation, and alongside two other subject-matter-neutral proceedings, Congress created a special proceeding that allows any person to challenge a “covered business method” (CBM) patent at the U.S. Patent and Trademark Office.¹⁴ Challenges to CBM patents may be made on any ground of patentability, including § 101.¹⁵ Although the CBM program supposedly was not intended to redefine the boundaries of patentable subject matter,¹⁶ the scope of patents within the reach of this program is largely coextensive with the business methods that the courts now deem ineligible.¹⁷ And patent claims that reach a final judgment in the CBM program are being invalidated at extremely high rates—more

patent-ineligible subject matter. In over 70 percent of those cases, the court granted or affirmed dismissal. Remarkably, courts granted 11 of the 15 motions to dismiss under Rule 12(b)(6), thus affirming invalidity at the earliest stage of litigation.”); *Statistics on District Court 12(b)(6) Motions Under 35 USC 101*, DOCKETREPORT (Feb. 27, 2017), <http://docketreport.blogspot.com/2017/02/statistics-on-district-court-12b6.html> [<https://perma.cc/VY8D-73YB>] (showing a 12(b)(6) dismissal on § 101 grounds happening three times in 2013 and increasing to forty times in 2016).

12. See Paul R. Gugliuzza & Mark A. Lemley, *Can a Court Change the Law By Saying Nothing?*, 71 VAND. L. REV. 765, 787 (2018) (“[T]he Federal Circuit has allowed patents to survive in only eight of 104 total decisions on patentable subject matter since *Alice*, an invalidity rate of 92.3%.”).

13. See John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 187, 205 (1998) (noting the 46% invalidity rate in final district court or Federal Circuit decisions from 1989 to 1996); Kimberly A. Moore, *Judges, Juries, and Patent Cases - An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 380, 390 (2000) (noting the 33% invalidity rate found in patent cases that went to trial from 1983 to 1999).

14. See Leahy-Smith America Invents Act, Pub L. No. 112-29, § 18, 125 Stat. 284, 329-31 (2011) [hereinafter AIA § 18].

15. See *id.* § 18(a)(1)(A) (incorporating standard of § 321(b) pertaining to post-grant review proceedings).

16. See *id.* § 18(e).

17. See *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1327 (Fed. Cir. 2015) (“As the PTAB correctly noted, even if the invention required the use of a computer, the claim did not constitute a technological invention. As we are now instructed, the presence of a general purpose computer to facilitate operations through uninventive steps does not change the fundamental character of an invention.”) (citing *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014)).

than 80%.¹⁸ Through the end of 2015, of the CBM proceedings that reached final written decisions where § 101 was decided, forty decisions held the claims ineligible and only one decision held the claims eligible.¹⁹ Patent owners defending against CBM proceedings are also subject to special substantive and procedural disadvantages relating to parallel litigation.²⁰

The creation of the CBM program was ostensibly motivated by two related factors: (1) skepticism concerning the quality and strength of many business method patents; and (2) the observation that patent assertion entities (PAEs), also known as “patent trolls,” have wielded weak business method patents to obtain many settlement payments in mass litigation campaigns.²¹ Computer-implemented business

18. See *Patent Trial and Appeal Board Statistics*, USPTO 11 (Feb. 28, 2017), https://www.uspto.gov/sites/default/files/documents/aia_statistics_february2017.pdf [<https://perma.cc/6GK2-G76E>] (showing that 81% of all final written decisions result in all challenged claims being invalidated (representing 29% of total petitions), with another 15% of final written decisions resulting in some challenged claims being invalidated (representing 5% of total petitions)); see also Elliot C. Cook, Daniel F. Klodowski & David C. Seastrunk, *AIA Blog: Claim and Case Disposition*, FINNEGAN, <http://www.aiablog.com/claim-and-case-disposition/> [<https://perma.cc/H55D-BE6X>] (last visited Mar. 19, 2018); Philip Swain, *The Remarkable Effectiveness of Alice v CLS Bank Challenges at the PTAB*, PTAB BLOG (Oct. 23, 2015), <http://www.ptab-blog.com/2015/10/23/the-remarkable-effectiveness-of-alice-v-cls-bank-challenges-at-the-ptab/> [<https://perma.cc/9G85-QNRZ>].

19. See BRIAN C. HOWARD, LEX MACHINA PATENT TRIAL AND APPEAL BOARD (PTAB) 2015 REPORT 5 (Jan. 2016), <http://pages.lexmachina.com/rs/098-SHZ-498/images/Lex%20Machina%20PTAB%202015%20Report.pdf> [<https://perma.cc/MNJ3-DEQE>].

20. See *infra* Part I.B (describing CBM requirements related to parallel litigation).

21. See H.R. REP. NO. 112-98, at 54 (2011) (“A number of patent observers believe the issuance of poor [quality] business-method patents during the late 1990’s through the early 2000’s led to the patent ‘troll’ lawsuits that compelled the Committee to launch the patent reform project 6 years ago.”); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364 (Fed. Cir. 2015) (Mayer, J., concurring) (explaining that employing § 101 against patents early in litigation “works to stem the tide of vexatious suits brought by the owners of vague and overbroad business method patents”). Patent assertion entities’ (PAEs) monetization efforts are highly controversial, with opinions that range from deeming such PAEs extortionate bottom-feeders to opinions that their enforcement activities bolster the patent marketplace and allow small businesses to secure critical financing and competitive footing. See, e.g., Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2128 (2013) (“The logic of the criticism is straightforward: These patent trolls do not themselves invent anything but buy patents from others, and, because they do not even care whether the patents they buy are any good, they impose substantial costs on innovative companies without contributing anything to

practices are the clear favorite type of patent asserted by PAEs.²² Those kinds of methods—involving, e.g., online shopping, digital marketing, and payment processing—tend to be widely used by many successful businesses, allowing a single patent to be enforced against many such businesses to collect license or settlement fees from each.²³

the world. Hence, some critics say, the problem with the patent system is trolls asserting too many patents and, in particular, too many weak patents.”); Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 1024 (2005) (“[T]rolls are serving a function as intermediaries that specialize in litigation to exploit the value of patents that cannot be exploited effectively by those that have originally obtained them.”); Elizabeth Pesses, *Patent and Contribution: Bringing the Quid Pro Quo into eBay v. MercExchange*, 11 YALE J.L. & TECH. 309, 328 (2009) (“Nonetheless, patent trolls may actually play an important role in the patent system. For example, many small inventors do not have the financial resources to enforce their patents, and these patents are constantly infringed by larger companies.”); Mike Masnick, *President Obama Admits that Patent Trolls Just Try to ‘Extort’ Money; Reform Needed*, TECHDIRT (Feb. 14, 2013), <https://www.techdir.com/articles/20130214/14351821988/president-obama-admits-that-patent-trolls-just-try-to-extort-money-reform-needed.shtml> [<https://perma.cc/H34D-ZPQU>] (quoting President Obama as saying that “[PAEs] don’t actually produce anything themselves . . . [t]hey’re just trying to essentially leverage and hijack somebody else’s idea and see if they can extort some money out of them”).

22. See John R. Allison, Mark A. Lemley & Joshua Walker, *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. PA. L. REV. 1, 3 (2009) (“The most-litigated patents are far more likely to be software and telecommunications patents, not mechanical or other types of patents. They are significantly different from once-litigated patents in ways that signal their value up front. And they are disproportionately owned by nonpracticing entities (i.e., ‘trolls’.”); see also 2015 Report NPE Litigation, Patent Marketplace, and NPE Cost, RPX RATIONAL PATENT 30 (2015), <https://www.rpxcorp.com/wp-content/uploads/sites/2/2016/07/RPX-2015-Report-072616.FinalZ.pdf> [<https://perma.cc/J2FY-NG4D>] (showing that “e-commerce and software” were by far the most common types of patents asserted by non-practicing entities in 2015, making up 36% of targeted defendants).

23. See Ed Black, *Patent Trolls: The Innovation Hijackers*, FORBES (Feb. 28, 2013), <http://www.forbes.com/sites/edblack/2013/02/28/153/#13780ec8677a> [<https://perma.cc/7LTE-JSYL>] (“Individuals or companies claim to own patents to ubiquitous features of the Internet-enabled economy — such as using a virtual shopping cart online, updating smartphone apps, scrolling through pages, or serving ads in an online video.”).

Making such methods largely ineligible for patent protection greatly diminishes the “*in terrorem* power”²⁴ of PAEs, albeit indirectly.²⁵

To be clear, Congress had plenty of opportunities in recent years to more directly deter the offending conduct of the PAEs, involving some combination of increasing pleading requirements, limiting discovery, and enhancing fee shifting against PAEs.²⁶ Instead, Congress targeted the subject matter of the PAEs’ patents of choice.

Altogether, U.S. patent law affords remarkably special treatment to computerized business methods. The singling out of a specific class of subject matter raises the question of whether the law complies with TRIPS’ proscription not to deny patent protection or patent enjoyment in discriminatory ways.²⁷ Answering that question involves three central inquiries: (1) whether the special treatment is the kind of discrimination that TRIPS prohibits; (2) whether computerized business methods are “fields of technology” subject to the anti-discrimination requirement; and (3) if so, whether such discrimination may be justified by other TRIPS provisions.²⁸ This Article addresses these questions in depth.

Importantly, this Article does not address related questions such as whether computerized business methods *should* be patentable in the U.S., whether such already-issued patents are of good or bad quality, whether PAEs help or hinder the economy, or whether the CBM program is beneficial for the patent system. There is already ample commentary about such topics.²⁹

24. See *Commil U.S.A., L.L.C. v. Cisco Sys.*, 135 S. Ct. 1920, 1932 (2015) (Scalia, J., dissenting) (arguing that a good-faith belief in the invalidity of a patent should negate an intent to actively induce infringement, and commenting “if the desirability of the rule we adopt were a proper consideration, it is by no means clear that the Court’s holding, which increases the *in terrorem* power of patent trolls, is preferable”).

25. See, e.g., H.R. REP. NO. 112-98, at 54 (2011); *OIP Techs.*, 788 F.3d at 1364 (Mayer, J., concurring).

26. See generally H.R. REP. NO. 114-235 (2015); Innovation Act, H.R. 3309, 113th Cong. (2013); Patent Abuse Reduction Act, S. 1013, 113th Cong. § 285A (2013); SHIELD Act, H.R. 6245, 112th Cong. § 229A (2012).

27. Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154, 469 (enacting the Trade-Related Aspects of Intellectual Property Rights, or TRIPS). Patent rights are to be “enjoyable without discrimination as to the place of invention, the field of technology, and whether products are imported or locally produced.” *Id.*

28. *Id.*

29. See, e.g., John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 990 (2003) (“We find that Internet business method patents actually fare quite well statistically, contrary to the

This Article focuses on whether the law violates TRIPS because that alone is a timely and important question. Stakeholders are heavily lobbying to amend § 101 in ways that would change the law in favor of computerized business methods, effectively undoing the recent

conventional wisdom that Internet business method patents issued during the early years of their recognition were much worse than others—that they were somehow exceptional.”); Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1632 (2003) (“Some suggest that software patents are inappropriate altogether, while others contend that only Internet business method patents are.”); Colleen V. Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 474 (2014) (“In addition to financial impacts, PAE demands can also harm the survival and operation of a small company. Although PAE suits are often called ‘nuisance’ suits, one of the most significant findings of this study is that, among small company respondents to the survey, many reported one or more significant operational impacts. Receiving a demand was described as potentially representing a ‘death knell’ for a prefunded company: no one wants to invest in a company where founder time and investor money is going to be ‘bled to patent trolls,’ as one interviewee put it.”); Alan L. Durham, “*Useful Arts*” in the *Information Age*, 1999 BYU L. REV. 1419, 1527-28 (arguing that business methods involving computers should not be patented unless they “lead to significant progress in the ‘useful art’ of computer programming . . . [h]owever, the patent claim should reflect the art of programming; it should reflect the substantive details that belong to the programming art and that enable the *technological implementation* of the non-technological plan”); Lemley & Melamed, *supra* note 21, at 2180 (“Patent trolls are taking the rap for problems with the patent system. That is not to say trolls are not a problem; they are a large and growing one. But they are not *the* problem. Rather, they are a symptom of systemic issues the patent system faces in the IT industry.”); David Orozco, *Administrative Patent Levers*, 117 PENN ST. L. REV. 1, 17 (2012) (“The social costs of overly broad business method patents are amplified when they fall into the hands of the so-called patent trolls.”); Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457, 459 (2012) (“NPEs are not, however, without their defenders. According to their proponents, NPEs create patent markets, and those markets enhance investment in start-up companies by providing additional liquidity options. NPEs help businesses crushed by larger competitors—competitors who infringe valid patents with impunity. NPEs allow individual inventors to monetize their inventions. These functions, the proponents argue, justify the existence of NPEs.”); John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1163-70 (1999) (arguing that business methods are not in the realm of technology and should not be patented).

slew of Supreme Court cases.³⁰ And Congress has been considering³¹ whether to extend or expand the CBM program beyond its current scope and expiration date in 2020.³²

30. The Intellectual Property Owners Association, the American Intellectual Property Lawyers Association, and the American Bar Association's Intellectual Property Law Section have proposed amendments to § 101 that would greatly expand the scope of patentable subject matter. See Letter from Donna P. Suchy, Section Chair, American Bar Association, to Michelle K. Lee, Dir., USPTO (Mar. 28, 2017), http://www.americanbar.org/content/dam/aba/administrative/intellectual_property_law/advocacy/advocacy-20170328-comments.authcheckdam.pdf [https://perma.cc/SHX2-8LMR] (adding, *inter alia*, a provision that says: "A claim for a useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, may be denied eligibility under this section 101 on the ground that the scope of the exclusive rights under such a claim would preempt the use by others of all practical applications of a law of nature, natural phenomenon, or abstract idea. Patent eligibility under this section shall not be negated when a practical application of a law of nature, natural phenomenon, or abstract idea is the subject matter of the claims upon consideration of those claims as a whole, whereby each and every limitation of the claims shall be fully considered and none ignored"); *Proposed Amendments to Patent Eligible Subject Matter Under 35 U.S.C. § 101*, INTELL. PROP. OWNERS ASS'N (Feb. 7, 2017), http://www.ipo.org/wp-content/uploads/2017/02/20170207_IPO-101-TF-Proposed-Amendments-and-Report.pdf [https://perma.cc/T3X4-Q8E9] (adding, *inter alia*, a provision that says "[a] claimed invention is ineligible . . . if and only if the claimed invention as a whole, as understood by a person having ordinary skill in the art to which the claimed invention pertains, exists in nature independently of and prior to any human activity, or exists solely in the human mind"); *AIPLA Legislative Proposal and Report on Patent Eligible Subject Matter*, AIPLA 4 (May 12, 2017), <https://www.aipla.org/resources2/reports/2017AIPLADirect/Documents/AIPLA%20Report%20on%20101%20Reform-5-19-17-Errata.pdf> [https://perma.cc/CBE5-JCKM] (adding, *inter alia*, a provision stating that "[a] claimed invention is ineligible . . . only if the claimed invention as a whole exists in nature independent of and prior to any human activity, or can be performed solely in the human mind").

31. See Patent Quality Improvement Act of 2013, S. 866, 113th Cong. § 2 (2013); see also Dennis Crouch, *AIA Trials and the Sunset of Covered-Business-Method Review*, PatentlyO.com (March 21, 2018), <https://patentlyo.com/patent/2018/03/sunsetting-covered-business.html> ("Rep. Issa is heading-up hearings and a review of the program to consider whether the CBM program should be made permanent and potentially expanded beyond its current narrow scope. Issa has stated he sees the program as a more efficient mechanism for eliminating low quality patents."). At least one informal survey suggests that stakeholders have strong and disparate opinions about whether the CBM program should be maintained, extended, or expanded. See *No Real Consensus Yet on CBM Sunsetting*, PATENTLY-O (May 15, 2017), <https://patentlyo.com/patent/2017/05/real-consensus-sunsetting.html> [https://perma.cc/HCB8-S83Y] (showing that 44% of the 240 surveyed readers would allow the CBM program to sunset as scheduled, but all others would extend the program, with 27% of the surveyed readers contending that the scope of patents eligible for the program should be expanded to other types of patents). While some respondents lauded the program for effectively eliminating low quality patents, others believed

Congress failed to directly evaluate TRIPS Article 27(1) compliance when establishing the CBM program as part of the AIA. The final committee report for the AIA fails to mention TRIPS at all.³³ But regarding a predecessor bill, the 2007 Patent Reform Act, the committee determined that a law prohibiting the patenting of tax strategies³⁴ would not run afoul of TRIPS Article 27(1) because it concluded that “business methods were not included as a ‘field of technology’” based on other TRIPS signatories’ laws and negotiating positions.³⁵ The Committee Report cited to evidence that, before TRIPS was ratified in 1994, countries did not patent business methods (though some, like the U.S., later did), suggesting that TRIPS does not prescribe that such methods be patentable.³⁶ Alternatively, the Committee Report suggested that the ban on tax strategy patents would be justified under TRIPS Article 27(3), which “allows members to exclude from patentability inventions that are necessary to protect *ordre public* or morality,” because such patents would be contrary to tax policy and would incentivize exploitation of tax loopholes.³⁷

Notably, the 2007 committee left open the possibility that *computerized* business methods may be considered a field of technology.³⁸ And when discussing a provision that allows third parties to submit prior art, the committee noted that patent examiners have a hard time locating relevant prior art in “such *areas of technology* [as] computer software and systems, processes implemented by or involving computers, and processes that do not necessarily involve what is commonly thought of as technology, such as *methods of doing business*.”³⁹

that the worst of those patents had now been invalidated and there was no need to extend the program. *Id.*

32. The CBM program was created as “transitional,” with a provision causing the CBM program to end eight years after the USPTO regulations implementing the program took effect. Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 18(a)(3), 125 Stat. 284 (2011).

33. *See generally* H.R. REP. NO. 112-98 (2011).

34. A similar provision was later included in the AIA. *See* Leahy-Smith America Invents Act § 14(a) (“For purposes of evaluating an invention under section 102 or 103 of title 35, United States Code, any strategy for reducing, avoiding, or deferring tax liability, whether known or unknown at the time of the invention or application for patent, shall be deemed insufficient to differentiate a claimed invention from the prior art.”).

35. H.R. REP. NO. 110-314, at 38-39 (2007).

36. *See id.*

37. *See id.*

38. *See id.* at 37.

39. *See id.* (emphasis added).

There were also earlier actions by Congress in response to public outcry against business method patents:⁴⁰ (1) the enacted (but later repealed via the AIA) 1999 First Inventor Defense Act,⁴¹ which provided a special defense to infringement for prior users of business methods; and (2) the very similar, but never-enacted, Business Method Improvement Acts of 2000 and 2001,⁴² which made patenting business methods more difficult by raising the nonobviousness threshold and calling for post-grant proceedings for business methods. In neither instance does it appear that Congress was mindful of TRIPS Article 27, as none of the remarks or reports mention this provision or allude to international patent non-discrimination obligations.⁴³

It is against this backdrop, where Congress conducted only a cursory and oblique review of TRIPS discrimination against computerized business methods before creating the CBM program, that a more robust analysis of TRIPS compliance should be conducted before any decisions are made to end, extend, or expand the program, or to modify § 101.

Part I of this Article details how U.S. law treats computer-implemented business methods for purposes of patent eligibility and enforceability, showing that the special treatment appears to constitute unlawful discrimination. Part II explores whether computer-implemented business methods are a “field of technology” implicating the non-discrimination requirement. Part III examines whether the

40. See Allison & Tiller, *supra* note 29, at 993-94 (“Although patents in other areas of technology have brought forth complaints from various quarters, the magnitude of adverse commentary and reportage on business method patents has been unprecedented.”).

41. See 35 U.S.C. § 273 (2000).

42. See Business Method Patent Improvement Act of 2000, H.R. 5364, 106th Cong. § 4 (2000); Business Method Patent Improvement Act of 2001, H.R. 1332, 107th Cong. § 4 (2001) (“A business method invention shall be presumed obvious under this section if the only significant difference between the combined teachings of the prior art and the claimed invention is that the claimed invention is appropriate for use with a computer technology, unless—(A) the application of the computer technology is novel; or (B) the computer technology is novel and not the subject of another patent or patent application.”).

43. See generally H.R. REP. NO. 106-287 (1999); H.R. REP. NO. 106-464 (1999) (Conf. Rep.); 146 CONG. REC. E1651 (daily ed. Oct. 3, 2000) (statement of Rep. Boucher); 146 CONG. REC. E1659 (daily ed. Oct. 4, 2000) (statement of Rep. Berman); Business Method Patent Improvement Act of 2001, H.R. 1332, 107th Cong. (2001); Patent Improvement Act of 2001, H.R. 1333, 107th Cong. (2001); H.R. RES. 110, 107th Cong. (2001); 147 CONG. REC. E518 (daily ed. Apr. 3, 2001) (statement of Rep. Berman).

discrimination as to computer-implemented business methods may be justified by other TRIPS provisions.

I. DISCRIMINATION AGAINST COMPUTER-IMPLEMENTED BUSINESS METHODS

This Part details the recent judicial and legislative developments surrounding patent eligibility. Even if the doctrine could be viewed as facially field neutral, precedent may be selectively applied to disproportionately invalidate computerized business method patents.⁴⁴ The CBM program created by Congress, however, is more deliberately targeted to discriminate against computer-implemented business methods.⁴⁵

There are essentially two ways that patent laws might improperly discriminate against subject matter—*de jure* and *de facto*. As explained by the WTO Dispute Settlement Body, “Discrimination may arise from explicitly different treatment, sometimes called ‘*de jure* discrimination,’ but it may also arise from ostensibly identical treatment which, due to differences in circumstances, produces differentially disadvantageous effects, sometimes called ‘*de facto* discrimination.’”⁴⁶ *De facto* discrimination may be shown not only by discriminatory effects, but also by discriminatory purpose—i.e.,

44. See generally *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014) (holding that abstract idea of intermediated settlement not patentable and that method claims requiring generic computer implementation failed to transform abstract idea of intermediated settlement into patentable invention); *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013) (holding synthetically created DNA not naturally occurring, and patent eligibility was therefore not precluded); *Mayo Collaborative Servs. v. Prometheus Labs. Inc.*, 566 U.S. 66 (2012) (holding that patents effectively claimed underlying laws of nature themselves and were thus invalid); *Bilski v. Kappos*, 561 U.S. 593 (2010) (holding that business method was unpatentable abstract idea).

45. See Orozco, *supra* note 29, at 49 (discussing administrative discrimination by the USPTO against business methods and explaining that the USPTO implemented a number of business-method-specific procedures in response to the essentially same “fire alarms” that prompted the CBM program discussed *infra*). These special USPTO procedures involve designating expert examiners, mandating certain searching databases, “second pair of eyes” review, and improved searching capabilities, but do not directly bear on the patentability or enjoyment of patent rights in business methods and, as such, are beyond the scope of this Article. *Id.* at 32-36.

46. Panel Report, *Canada – Patent Protection of Pharmaceutical Products*, WTO Doc. WT/DS114/R, 171 (adopted Mar. 17, 2000) [hereinafter *Canadian Pharmaceuticals*], https://www.wto.org/english/tratop_e/dispu_e/7428d.pdf [<https://perma.cc/2X8Q-F8MT>].

whether a discriminatory motivation may be inferred from the objective characteristics of the law.⁴⁷

Part I.A shows that judicial discrimination against computer-implemented business methods appears to be at least de facto, while Part I.B shows that the CBM program is almost certainly de jure discrimination. Part I.C then confirms that this discrimination goes beyond the kind of differential treatment that would be justified if based on unique characteristics of the subject matter.

A. Judicial Discrimination

Recent post-*Alice* precedent has essentially precluded patent protection for methods where the invention is not improving computer technology but involves the use of computer technology to accomplish some non-technological objective. But this case law is in tension with *Alice* and other Supreme Court precedent that would allow a somewhat broader scope of computerized business methods to be patented. Courts are not only embracing the more restrictive precedent, but are doing so to invalidate computerized business method patents at surprisingly high rates and at surprisingly early stages of litigation. Whether there are discriminatory motives in place is unclear, however.

1. *Alice and Its Aftermath in the Federal Circuit*

Any in-depth discussion of *Alice* deserves at least a brief discussion of *Bilski*, which cleared the path for *Alice*. Although *Bilski* held that the risk-hedging method there (which was not claimed as computerized) was too abstract to be patented,⁴⁸ the majority determined that at least some methods of doing business must be

47. See *id.* at 173 (“Two main issues figure in the application of [de facto discrimination] in most legal systems. One is the question of de facto discriminatory effect - whether the actual effect of the measure is to impose differentially disadvantageous consequences on certain parties. The other, related to the justification for the disadvantageous effects, is the issue of purpose - not an inquiry into the subjective purposes of the officials responsible for the measure, but an inquiry into the objective characteristics of the measure from which one can infer the existence or non-existence of discriminatory objectives.”).

48. *Bilski*, 561 U.S. at 612 (“These claims attempt to patent the use of the abstract idea of hedging risk in the energy market and then instruct the use of well-known random analysis techniques to help establish some of the inputs into the equation.”).

patent-eligible “processes” within the meaning of § 101.⁴⁹ The majority also emphasized the importance of § 101’s flexibility to accommodate new inventions.⁵⁰ Though *Bilski* was not a software case, the majority went out of its way to recognize that the ubiquity of computers in this Information Age democratizes a lot of innovation (e.g., software) that might well be patent eligible.⁵¹ The concurring minority would have ruled, based largely on historical practices, that all methods of doing business were outside the scope of § 101.⁵² Ultimately, aside from pointing to past precedent and rejecting the Federal Circuit’s exclusive “machine-or-transformation” test as only an “important clue” to patent eligibility, the Court declined to provide any particular test.⁵³

In *Alice*, the Court crystallized a patent-eligibility analytical framework and applied it specifically in the context of a computer-implemented business method.⁵⁴ The claims in *Alice* involved methods for facilitating intermediated settlement—essentially creating computerized debit and credit records in an escrow situation to mitigate the risk that only one party will perform the exchange.⁵⁵ The Court announced a two-step test for determining whether the claims were eligible:

First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, “[w]hat else is there in the claims before us?” To answer that question, we consider the elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. We have described step two of this analysis as a search for an “‘inventive concept’”—*i.e.*, an element or combination of

49. See, e.g., *id.* at 607 (explaining that 35 U.S.C. § 100(b)’s definition of “process” includes any “method” and that 35 U.S.C. § 273 (2006) explicitly refers to “method[s] of doing or conducting business”).

50. *Id.* at 604-05.

51. *Id.* at 606 (“[T]he Court today is not commenting on the patentability of any particular invention, let alone holding that any of the above-mentioned technologies from the Information Age should or should not receive patent protection. This Age puts the possibility of innovation in the hands of more people and raises new difficulties for the patent law.”).

52. *Id.* at 643-44 (“Although it may be difficult to define with precision what is a patentable ‘process’ under § 101, the historical clues converge on one conclusion: A business method is not a ‘process.’”).

53. See *id.* at 604-05.

54. See generally *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014).

55. See *id.* at 2352-53.

elements that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.”⁵⁶

Under this test, the intermediated settlement methods failed.⁵⁷

For step one, the Court found the claims closely analogous to those in *Bilski* and deemed intermediated settlement to be an abstract idea because, like hedging risk, it is a “fundamental economic practice long prevalent in our system of commerce.”⁵⁸ For step two, the Court emphasized that although a number of computers and computer activities were recited in the claims for purposes of creating and manipulating “shadow accounts” before completing an exchange transaction, “if a patent’s recitation of a computer amounts to a mere instruction to ‘implemen[t]’ an abstract idea ‘on . . . a computer,’ that addition cannot impart patent eligibility.”⁵⁹ The steps in these claims did not go far enough and were each viewed as “purely conventional”:⁶⁰

Using a computer to create and maintain “shadow” accounts amounts to electronic recordkeeping—one of the most basic functions of a computer. . . . The same is true with respect to the use of a computer to obtain data, adjust account balances, and issue automated instructions; all of these computer functions are “well-understood, routine, conventional activit[ies]” previously known to the industry. In short, each step does no more than require a generic computer to perform generic computer functions. Considered “as an ordered combination,” the computer components of petitioner’s method “ad[d] nothing . . . that is not already present when the steps are considered separately.” Viewed as a whole, petitioner’s method claims simply recite the concept of intermediated settlement as performed by a generic computer.⁶¹

Alice thus suggested that if one is only using a computer to perform functions that computers have conventionally done (e.g., storing data, processing data, transmitting data, etc.), claiming those functions will not recite a patent-eligible inventive concept.⁶²

56. *Id.* at 2355 (citations omitted).

57. *See id.* at 2357.

58. *Id.* at 2356.

59. *Id.* at 2358 (citations omitted).

60. *Id.*

61. *Id.* at 2359.

62. Although the claims in *Alice* were characterized as business methods and not software, and the word “software” appears nowhere in the Court’s opinion, commentators immediately recognized that software patents were now going to be strictly scrutinized under § 101 per *Alice*. See, e.g., Gene Quinn, *The Ramifications of Alice: A Conversation with Mark Lemley*, IPWATCHDOG (Sept. 4, 2014), <http://www.ipwatchdog.com/2014/09/04/the-ramifications-of-alice-a-conversation-with-mark-lemley/id=51023/> [https://perma.cc/BC5P-FWHT]. Mark Lemley noted:

Indeed, after *Alice*, two things became clear: (1) almost every computerized business method claim challenged under § 101 can easily be distilled down to an abstract-idea “gist” under *Alice* step one;⁶³ and (2) most computer activities recited in such claims are fairly characterized as “conventional” under *Alice* step two.⁶⁴ Since *Alice* came down in June 2014, there have been very few opinions from the Federal Circuit that have upheld a computer-implemented method as patent-eligible. As of August 2017, after *Alice* there have been only eight out of 104 Federal Circuit § 101 decisions that have found the claims patent-eligible.⁶⁵ Those decisions have generally reinforced the notion that one must improve computing technology to recite a patent-eligible computerized method.⁶⁶

I’ve heard a lot of folks talk about how *Alice* doesn’t really use the word “software” so it doesn’t really change anything, but I honestly think that’s wishful thinking. . . . [A] majority of the software patents being litigated right now, I think, are invalid under *Alice*. . . . The Court seems to think if I’ve actually got improvements in the operation of the computer itself, if I have a claim that is to an improved computer program or way of programming, maybe that’s patentable.

Id.

63. See, e.g., *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015) (noting it as “offer-based price optimization”); *Versata Dev. Group, Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1312 (Fed. Cir. 2015) (labeling this as “determining a price”); *BuySafe, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (referencing this as “creating a contractual relationship”).

64. See, e.g., *OIP Techs.*, 788 F.3d at 1363 (“[C]laim 1 recites ‘sending a first set of electronic messages over a network to devices,’ the devices being ‘programmed to communicate,’ storing test results in a ‘machine-readable medium,’ and ‘using a computerized system . . . to automatically determine’ an estimated outcome and setting a price. Just as in *Alice*, ‘all of these computer functions are well-understood, routine, conventional activit[ies] previously known to the industry.’”); *Versata*, 793 F.3d at 1334 (“[T]he limitations of claim 17 involve arranging a hierarchy of organizational and product groups, storing pricing information, retrieving applicable pricing information, sorting pricing information, eliminating less restrictive pricing information, and determining the price. All of these limitations are well-understood, routine, conventional activities previously known to the industry.”); *BuySafe*, 65 F.3d at 1355 (“The computer functionality is generic—indeed, quite limited: a computer receives a request for a guarantee and transmits an offer of guarantee in return. There is no further detail. That a computer receives and sends the information over a network—with no further specification—is not even arguably inventive.”).

65. Gugliuzza & Lemley, *supra* note 12; accord Robert R. Sachs, *AliceStorm Update February 2017*, BILSKIBLOG (Mar. 16, 2017), <http://www.bilskiblog.com/blog/2017/03/alicestorm-update-february-2017.html> [<https://perma.cc/UUE6-RVD3>] (providing similar statistics).

66. See Gugliuzza & Lemley, *supra* note 12, at 13 (“Notably, to satisfy the patentable subject matter requirement, the patent must be directed to the specific technological improvements themselves.”).

In *DDR Holdings, LLC v. Hotels.com, L.P.*, for example, the claimed method involved dynamically generating externally linked webpages to mimic the look and feel of a host webpage.⁶⁷ This process would allow a visitor to a host site to believe that a third-party vendor's external webpage is associated with the host site, which would help retain the visitor's attention on the linked page.⁶⁸ The Federal Circuit deemed this invention patent-eligible because it "solve[d] a problem faced by websites on the Internet"; accordingly, "the claims recite an invention that is not merely the routine or conventional use of the Internet."⁶⁹ The Federal Circuit emphasized that "the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks."⁷⁰ In *Enfish, LLC v. Microsoft Corp.*, the patented method involved a logical model for a computer database.⁷¹ The patented data model was described as "self-referential" in that it utilized a single table of data, which provided for faster searching, more effective data storage, and more configuration flexibility compared to conventional "relational" data models involving multiple related tables.⁷² The Federal Circuit held this invention patent-eligible, finding that the claims were not directed to an abstract idea because "the plain focus of the claims [was] on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity."⁷³ Put another way, the claims were deemed patent-eligible because they were "directed to a specific improvement to the way computers operate."⁷⁴

One's invention need not improve a computer per se, however. Subsequent decisions clarified that using existing computer components in new, unconventional ways is also an improvement to computing technology that can weigh in favor of patent eligibility.⁷⁵

In *BASCOM Global Internet Services Inc. v. AT&T Mobility LLC*, for example, the Federal Circuit upheld the patent eligibility of

67. *DDR Holdings, L.L.C. v. Hotels.com, L.P.*, 773 F.3d 1245, 1248-49 (Fed. Cir. 2014).

68. *Id.* at 1248.

69. *Id.* at 1259.

70. *Id.* at 1257.

71. *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1330 (Fed. Cir. 2016).

72. *Id.* at 1330-32.

73. *Id.* at 1336.

74. *Id.*

75. *See BASCOM Global Internet Servs., Inc. v. AT&T Mobility L.L.C.*, 827 F.3d 1341, 1348 (Fed. Cir. 2016).

a method for filtering Internet content on an individual user basis.⁷⁶ The filtering was accomplished via user accounts that selected customized filter schemes that are applied but not dictated by the ISP.⁷⁷ This was as opposed to having the end user install and control the filtering mechanism on the user's own computer, or have the ISP control all filtering, as was done in the prior art.⁷⁸ The inventors essentially used existing Internet technology (personal computers, user accounts, ISP servers) in a new and improved way. The court, while finding the claims directed to the abstract idea of filtering content on the Internet, explained that the inventive concept inquiry "requires more than recognizing that each claim element, by itself, was known in the art. As is the case here, an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces."⁷⁹ Although "[f]iltering content on the Internet was already a known concept, [] the patent describes how its particular arrangement of elements is a technical improvement over prior art ways of filtering such content."⁸⁰

Similarly, in *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, the Federal Circuit deemed patent eligible methods relating to accounting and billing by network service providers, involving network devices (e.g., servers) "arrayed in a distributed architecture that minimizes the impact on network and system resources."⁸¹ Essentially, the distributed architecture allowed for data to reside closer to the information sources, which reduced network bottlenecks.⁸² As in *BASCOM*, the court again clarified that using "arguably generic components" such as servers did not defeat patent eligibility in that case because the "generic components operate in an unconventional manner to achieve an improvement in computer functionality."⁸³

76. *Id.* at 1344-45, 1352.

77. *Id.*

78. *Id.*

79. *Id.* at 1350.

80. *Id.*

81. *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1291-92 (Fed. Cir. 2016).

82. *Id.* at 1292.

83. *Id.* at 1300-01 ("In other words, this claim entails an unconventional technological solution (enhancing data in a distributed fashion) to a technological problem (massive record flows which previously required massive databases). The solution requires arguably generic components, including network devices and 'gatherers' which 'gather' information. However, the claim's enhancing limitation necessarily requires that these generic components operate in an unconventional manner to achieve an improvement in computer functionality.").

The prevailing Federal Circuit view of the law places computer-implemented business methods at a distinct disadvantage compared to other computerized processes. In much of the field, the focus of the invention may be on improving the computer technology itself, as opposed to the creative use of that existing technology for a different business objective. But limiting patentable subject matter for computerized methods to those that improve the capabilities of computing technology cannot be squared with new or old Supreme Court precedent on the subject, as the following Subsection shows.

2. *Doctrinal Tension in the Post-Alice Landscape*

The Federal Circuit's view that one must improve computing technology to create patent-eligible computer-implemented methods is doctrinally problematic. The Supreme Court has never gone that far and has reversed the Federal Circuit several times in recent years for the creation of similar bright-line rules.⁸⁴ Both recent and older Supreme Court precedent would allow the patenting of methods that use computers to improve a field without improving computing technology per se.

Looking strictly at the Supreme Court's opinions, whether a claimed computer system or process is "well-known, routine, and conventional" depends largely on the usage of those computer components or processes in the industry that is the subject of the patent at issue—not in the computer industry or another industry. *Mayo*, for example, explained that reciting "well-understood, routine, conventional activity previously engaged in by [those] in the field" cannot demonstrate an inventive concept.⁸⁵ *Alice* similarly found that there was no inventive concept for "computer functions [that] are 'well-understood, routine, conventional activit[ies]'" previously known to the industry.⁸⁶ Indeed, in *Alice* the Court noted that improving

84. See, e.g., *Octane Fitness, L.L.C. v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749, 1756 (2014) (rejecting "inflexible framework" for shifting of attorneys' fees); *Bilski v. Kappos*, 561 U.S. 593, 604 (2010) (rejecting machine-or-transformation as the "sole" test for patent-eligibility); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415 (2007) (rejecting teaching, suggestion, or motivation test as unduly "rigid approach" for obviousness analysis); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 392-93 (2006) (rejecting presumption of injunctive relief upon finding of infringement in favor of "traditional equitable" analysis).

85. *Mayo Collaborative Servs. v. Prometheus Labs. Inc.*, 566 U.S. 66, 72-73 (2012) (emphasis added).

86. *Alice Corp. Pty. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2359 (2014) (quoting *Mayo*, 566 U.S. at 72-73) (emphasis added).

computer technology was only one way an inventive concept could be demonstrated in a computer-implemented invention: One could “purport to improve the functioning of the computer itself . . . [or] effect an improvement in *any other technology or technical field*.”⁸⁷ This suggests that using computer technology in conventional ways should be patent-eligible under *Alice* if the use improves some other technology or field or if the use of the claimed technology did not conventionally occur in that field.

The Court has long recognized the difference between using existing technology as a building block for one’s invention and patenting the fundamental building blocks of technology per se.⁸⁸ The former—combining known concepts and technologies to perform a new process—may be patent-eligible, particularly when considering the steps as an “ordered combination” under *Alice*.⁸⁹ The novelty of the steps and components used in the method is not supposed to have any relevance to the question of patent eligibility, as “a new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made.”⁹⁰

Diamond v. Diehr, a 1981 case that has been reaffirmed and cited approvingly in *Bilski*, *Mayo*, and *Alice*,⁹¹ is instructive and confirms that one can use, but not reinvent, a computer and still cross the § 101 threshold. In *Diehr*, the claimed invention utilized an existing computer to perform calculations under a “well-known mathematical

87. *See id.* (emphasis added).

88. *See id.* at 2354 (“At some level, ‘all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.’ Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept.”) (citations omitted); *Diamond v. Diehr*, 450 U.S. 175, 188 (1981) (“It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis. This is particularly true in a process claim because a new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made.”). *Cf. KSR Int’l Co.*, 550 U.S. at 418-19 (“[I]nventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.”).

89. *See, e.g.*, cases cited *supra* notes 75-81.

90. *Diehr*, 450 U.S. at 188-89 (“The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”); *see also Alice*, 134 S. Ct. at 2354.

91. *Alice*, 134 S. Ct. at 2358; *Mayo*, 566 U.S. at 66-67; *Bilski v. Kappos*, 561 U.S. 593, 611 (2010).

equation” in connection with a process for curing rubber.⁹² Basically, the computer used the equation to make calculations that determined when the rubber mold should be opened to avoid over- or under-curing the rubber.⁹³ To be clear, rubber could be cured just as well without a computer, but the use of a computer improved the reliability of the process.⁹⁴ What *Diehr* had invented, in essence, was the use of a computer for better quality control over an existing rubber-curing process. Because the result was considered to be an improvement to the rubber-curing process, the claims were deemed a patent-eligible “application of a . . . mathematical formula” even though no computer technology per se was improved by the invention, and even though the computer improved the consistency of the curing process, not the technical capability of rubber curing.⁹⁵

The Court in *Alice* later explained that “the claims in *Diehr* were patent eligible because they improved an existing technological process, not because they were implemented on a computer.”⁹⁶ Yet under *Enfish* the claims in *Diehr* might be viewed as merely accomplishing “tasks for which a computer is used in its ordinary capacity”—namely, making calculations based on inputs.⁹⁷ And under *DDR* the claims in *Diehr* might similarly be viewed as “routine or conventional use of the [computer],” rather than solving a problem “necessarily rooted in computer technology.”⁹⁸

While the process in *Diehr* was industrial rubber molding, not a business method, the key to patent-eligibility in *Diehr* was the fact that the computer-implemented steps had been applied to improve a non-computer field.⁹⁹ The four corners of *Alice* support that understanding. Indeed, *Diehr* distinguished cases such as *Gottschalk v. Benson*,¹⁰⁰ where the claims merely recited a computer calculation for converting

92. *Diehr*, 450 U.S. at 187.

93. *Id.*

94. *Id.* (“[O]ne does not need a ‘computer’ to cure natural or synthetic rubber, but if the computer use incorporated in the process patent significantly lessens the possibility of ‘overcuring’ or ‘undercuring.’”).

95. *Id.* at 187-88 (emphasis in original).

96. *Alice*, 134 S. Ct. at 2358.

97. *Enfish*, L.L.C. v. Microsoft Corp., 822 F.3d 1327, 1336 (Fed. Cir. 2016).

98. *DDR Holdings*, L.L.C. v. Hotels.com, L.P., 773 F.3d 1245, 1257, 1259 (Fed. Cir. 2014).

99. 450 U.S. at 187-88 (deeming invention a patent-eligible “application of a . . . mathematical formula”).

100. *Id.* at 185 (citing *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)).

binary-coded decimal numbers to pure binary format.¹⁰¹ Cases like *Benson* were considered patent-ineligible because “[t]he sole practical application of the algorithm was in connection with the programming of a general purpose digital computer.”¹⁰²

Diehr, by contrast, had the computer involved in a non-computer task and limited to a particular field of application:

In contrast [to *Benson*], the respondents here do not seek to patent a mathematical formula. Instead, they seek patent protection for a process of curing synthetic rubber. Their process admittedly employs a well-known mathematical equation, but they do not seek to pre-empt the use of that equation. Rather, they seek only to foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.¹⁰³

Thus, under *Diehr*, making calculations for an unspecified purpose may not be patent-eligible, but incorporating such computer functions into another broader process may be patent-eligible.

Much of the precedential value of *Diehr* has been overshadowed by *Alice*'s progeny such that inventions analogous to that in *Diehr* (in that they are using existing computer technology to improve another industrial field) are nonetheless held ineligible.¹⁰⁴ Even computerized business method claims typically at least recite the computer functions as fulfilling a specific objective outside the computer calculation.¹⁰⁵

101. *Gottschalk*, 409 U.S. at 68 (“Here the ‘process’ claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion.”); *see also Diehr*, 450 U.S. at 185-86 (“In *Benson*, we held unpatentable claims for an algorithm used to convert binary code decimal numbers to equivalent pure binary numbers. The sole practical application of the algorithm was in connection with the programming of a general purpose digital computer.”).

102. *Diehr*, 450 U.S. at 185-86.

103. *Id.* at 187.

104. *See, e.g., Becton, Dickinson & Co. v. Baxter Int’l, Inc.*, 127 F. Supp. 3d 687, 689 (W.D. Tex. 2015) (holding ineligible method of using computers, a camera, and a network for remotely supervising and verifying sterile compounding of pharmaceuticals) (Note: the Author was counsel to Becton, Dickinson and Company in this case). *See generally Certusview Techs., L.L.C. v. S&N Locating Servs.*, 111 F. Supp. 3d 688 (E.D. Va. 2015) (finding ineligible computerized process for generating electronic record of dig area, including underground facilities, for excavation purposes); *East Coast Sheet Metal Fabricating Corp. v. Autodesk, Inc.*, No. 12-cv-517, 2015 WL 226084 (D.N.H. Jan. 15, 2015) (deeming patent-ineligible computerized process for building detailed schematic and manufacturing blueprint for ventilation systems).

105. *See, e.g., OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1361 (Fed. Cir. 2015) (discussing the method of pricing a product for sale and communicating an offer involving statistical analysis from prior offers); *Planet Bingo*,

Supreme Court precedent does not fully support the Federal Circuit's view of § 101 that would render such methods ineligible, but this extant doctrinal tension has not hindered the widespread and successful eligibility challenges to computer-implemented methods.

3. Section 101 as a Threshold Inquiry and a Blunt Policy-Setting Instrument

The abstract-idea exception to § 101 is rooted in concerns about preemption.¹⁰⁶ As the Court put it in *Alice*:

[W]e must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more, thereby transforming them into a patent-eligible invention. The former would risk disproportionately tying up the use of the underlying ideas, and are therefore ineligible for patent protection. The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.¹⁰⁷

Setting the scope of the abstract-ideas exception is a powerful tool with which to engineer the patent system. How this judicially created exception is applied in the courts plays a large part in balancing the patent incentive to innovate with the need to keep technological building blocks in the public domain.

But patent eligibility is only a “threshold” question along the path to patent protection.¹⁰⁸ Any ultimate patent protection would still require the claimed invention to be novel and nonobvious, as well as adequately described and precisely claimed.¹⁰⁹ A claim that involves nothing more than computerizing conventional activities in an industry would likely encompass old technology or obvious uses of it under §§ 102–103, or perhaps would be claimed too broadly to be fully described or enabled under § 112.

For these reasons, some judges and commentators have advocated that claims viewed as ineligibly abstract could be more easily disposed of via other patentability requirements where the law is more settled and predictable, and that courts and parties would be

L.L.C. v. VKGS L.L.C., 576 F. App'x 1005, 1006-07 (Fed. Cir. 2014) (noting the method of computer-aided management of bingo game).

106. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354-55 (2014).

107. *Id.* (citations, alternations, and internal quotation marks omitted).

108. *Diehr*, 450 U.S. at 188 (“Arrhenius’ equation is not patentable in isolation, but when a process for curing rubber is devised which incorporates in it a more efficient solution of the equation, that process is at the very least not barred at the threshold by § 101.”).

109. *See* 35 U.S.C. §§ 102(a), 103, 112 (2012).

better served by avoiding a “vague and contentious” resolution on § 101 grounds.¹¹⁰ TRIPS would also seem to suggest that purported exclusions on eligibility grounds could be addressed via other patentability requirements, putting eligibility and patentability on equal footing.¹¹¹ Section 101 itself even refers to the “new” and “useful” requirements for patentability.¹¹²

Others view the § 101 threshold inquiry as more jurisdictional in nature and find it useful for efficiently weeding out large classes of patents rather than taking each claim individually as per other patentability requirements.¹¹³ As one Federal Circuit judge explained,

110. See, e.g., *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1261 (Fed. Cir. 2012) (“Following the Supreme Court’s lead, courts should avoid reaching for interpretations of broad provisions, such as § 101, when more specific statutes, such as §§ 102, 103, and 112, can decide the case.”); *id.* at 1261-62 (“[W]hen the question of abstractness is presented in its usual abstract terms, the trial court could as a matter of case management summarily put aside the § 101 defense on whatever grounds seem applicable in the case. The litigants will then be left to address the invalidity defenses of §§ 102, 103, and 112, as the statute provides, and the litigants, the trial court, and this court on review would have some semblance of a chance at arriving at a predictable and understandable result.”); Dennis Crouch & Robert P. Merges, *Operating Efficiently Post-Bilski by Ordering Patent Doctrine Decision-Making*, 25 BERKLEY TECH. L.J. 1673, 1691 (2010) (“[I]t is best not to try to map the swampy terrain of § 101 in any great detail. Whenever possible, we argue, try something else: just avoid it.”); *id.* at 1686-87 (describing studies showing that 84–94% of claims rejected on § 101 grounds in the USPTO are also rejected on other grounds, which “show[s] an exceptionally high rate of doctrinal overlap and lends credence to the idea that, by initially avoiding subject-matter-eligibility questions, many of those potential issues will be avoided”).

111. See TRIPS art. 27(1) (requiring patent eligibility for “any inventions, whether products or processes, in all fields of technology, *provided that they are new, involve an inventive step and are capable of industrial application*”) (emphasis added). A footnote to this provision clarifies that the European-phrased “inventive step” and “capable of industrial application” patentability requirements are “synonymous with the terms ‘non-obvious’ and ‘useful’” in U.S. law. *Id.* n.5.

112. 35 U.S.C. § 101 (2012) (stating that “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”).

113. *MySpace, Inc.*, 672 F.3d at 1264 (Mayer, J., dissenting) (citing *Bilski v. Kappos*, 561 U.S. 593, 601 (2010) (describing statutory subject matter as a “threshold test”)) (stating that “[t]his court must first resolve the issue of whether the GraphOn patents are directed to an unpatentable ‘abstract idea’ before proceeding to consider subordinate issues related to obviousness and anticipation”); *Parker v. Flook*, 437 U.S. 584, 593 (1978) (stating that “[t]he obligation to determine what type of discovery is sought to be patented’ so as to determine whether it falls within the ambit of [§] 101 ‘must precede the determination of whether that discovery is, in fact, new or obvious’”); Joshua D. Sarnoff, *Patent-Eligible Inventions After Bilski: History and Theory*, 63 HASTINGS L.J. 53, 105-06 (2011) (arguing that using § 101 to make

“Addressing 35 U.S.C. § 101 at the outset not only conserves scarce judicial resources and spares litigants the staggering costs associated with discovery and protracted claim construction litigation, it also works to stem the tide of vexatious suits brought by the owners of vague and overbroad business method patents.”¹¹⁴ The efficiency of using § 101 in this manner is undeniable, but it should be counter-balanced by the sentiment, expressed in *Bilski* and elsewhere, that § 101 should be considered both broad and flexible so as not to prematurely exclude patent protection in new frontiers.¹¹⁵

District courts have embraced the jurisdictional view and indicated a clear willingness to use § 101 as a blunt instrument to manage patent litigation. In doing so, they have found at least some of the challenged claims ineligible two-thirds of the time.¹¹⁶ And a considerable number of those decisions are being rendered at the pleadings stage of the case in response to a Rule 12(b)(6) motion to dismiss or a Rule 12(c) motion for judgment on the pleadings.¹¹⁷ This

categorical exclusions of subject matter is doctrinally supportable, despite some overlap with novelty/non-obviousness, and has numerous utilitarian benefits); David Swetnam-Burland & Stacy O. Stitham, *Patent Law 101: The Threshold Test as Threshing Machine*, 21 TEX. INTELL. PROP. L.J. 135, 140-41 (2013) (explaining that “advocates of the jurisdictional view see Section 101 as the only barricade against invasive species that periodically threaten to overwhelm the patent ecosystem . . . [because §] 101 asks the Court to police the boundaries of what can and cannot be patented, a different enterprise with a different set of aims [than other doctrines of patentability]”).

114. OIP Techs., Inc. v. Amazon.com, Inc., 788 F.3d 1359, 1364 (Fed. Cir. 2015) (Mayer, J., concurring).

115. See *Bilski*, 563 U.S. at 607; *In re Schrader*, 22 F.3d 290, 297 (Fed. Cir. 1994) (Newman, J., dissenting) (“The nation has benefitted from the adaptability of the patent system to new technologies.”).

116. See 2015 YEAR IN REVIEW, *supra* note 11. 67% of all § 101 motions filed from the day that *Alice* was decided (June 19, 2014) through the end of 2015 were granted in whole or in part. *Id.*

117. See, e.g., *Clear with Computers, L.L.C. v. Altec Indus., Inc.*, Nos. 6:14-cv-79, 6:14-cv-89, 2015 WL 993392, at *6 (E.D. Tex. Mar. 3, 2015) (granting Rule 12(b)(6) motion); *Clear with Computers, L.L.C. v. Dick’s Sporting Goods, Inc.*, 21 F. Supp. 3d 758, 769 (E.D. Tex. 2014) (granting Rule 12(c) motion); *Cogent Med., Inc. v. Elsevier, Inc.*, 70 F. Supp. 3d 1058, 1066 (N.D. Cal. 2014) (granting Rule 12(b)(6) motion); *Open Text S.A. v. Alfresco Software Ltd.*, No. 13-cv-04843-JD, 2014 WL 4684429, at *5 (N.D. Cal. Sept. 19, 2014) (granting Rule 12(b)(6) motion); *Eclipse IP L.L.C. v. McKinley Equip. Corp.*, No. SACV 14-154-GW(AJWx), 2014 WL 4407592, at *12 (C.D. Cal. Sept. 4, 2014) (granting Rule 12(b)(6) motion); *Genetic Techs. Ltd. v. Lab. Corp. of Am. Holdings*, No. 12-1736-LPS-CJB, 2014 WL 4379587, at *14 (D. Del. Sept. 3, 2014) (granting Rule 12(b)(6) motion); *Tuxis Techs., L.L.C. v. Amazon.com, Inc.*, No. 13-1771-RGA, 2014 WL 4382446, at *6 (D. Del. Sept. 3, 2014) (granting Rule 12(b)(6) motion); *UbiComm, L.L.C. v. Zappos IP*,

practice of holding patent claims ineligible at the earliest juncture of a patent infringement lawsuit is thus done without the benefit of discovery; it can be done without even construing the claims or considering each claim individually.¹¹⁸

The Federal Circuit has very recently attempted to undermine this practice, holding that “[w]hether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent

Inc., No. 13-1029-RGA, 2013 WL 6019203, at *6 (D. Del. Nov. 13, 2013) (granting Rule 12(b)(6) motion); *Cardpool, Inc. v. Plastic Jungle, Inc.*, No. C. 12-04182-WHA, 2013 WL 245026, at *4 (N.D. Cal. Jan. 22, 2013) (granting Rule 12(b)(6) motion); *OIP Techs., Inc. v. Amazon.com, Inc.*, No. C-12-1233-EMC, 2012 WL 3985118, at *20 (N.D. Cal. Sept. 11, 2012) (granting Rule 12(b)(6) motion); see also Steven Seidenberg, *After Alice: Business-method and Software Patents May Go Through the Looking Glass*, 101 A.B.A. J. 19 (2015), http://www.abajournal.com/magazine/article/business_method_and_software_patents_may_go_through_the_looking_glass_after [<https://perma.cc/7Y2V-8TTE>] (“[I]n the wake of *Alice*, courts are ruling on patent eligibility earlier in the litigation process. Instead of waiting until summary judgment to strike down patents for ineligible subject matter, a number of courts have issued such rulings on motions to dismiss.”); Matthew Prosen, *Dismissed Out of Hand: The Rise of Successful Motions to Dismiss Under 35 U.S.C. § 101 in the Wake of Alice*, BAKER BOTTS (May 6, 2015), <https://s3.amazonaws.com/documents.lexology.com/a7d36139-8417-4d77-ba38-512ca29a2ce4.pdf> [<https://perma.cc/FT2K-4J8W>] (“[D]istrict courts are applying the *Alice* test to pre-claim-construction motions alleging invalidity under § 101, which has resulted in a rising death toll of patent claims directed to ‘abstract ideas.’ At least for the time being, patentees asserting claims arguably directed towards abstract ideas can expect to defend against pleadings-stage § 101 motions more often.”); Michael D. Wilburn, H. James Abe & Marsha Diedrich, *Pretrial Dismissals and Judgments in Post-Alice Courts*, LAW360 (Apr. 23, 2015, 10:22 AM), <http://www.law360.com/articles/642593/pretrial-dismissals-and-judgments-in-post-alice-courts> [<https://perma.cc/PWX4-CYDC>] (“In the wake of *Alice* . . . many courts are willing to grant pretrial dismissal of patent infringement cases based on patent-ineligible subject matter. Courts have cited to Circuit Judge Haldane Robert Mayer’s concurrence to address the Section 101 issue ‘at the very outset’ of a case. Since *Alice*, there have been more than 60 cases that address pretrial dispositive motions based on patent-ineligible subject matter. In over 70 percent of those cases, the court granted or affirmed dismissal. Remarkably, courts granted 11 of the 15 motions to dismiss under Rule 12(b)(6), thus affirming invalidity at the earliest stage of litigation.”).

118. *BuySafe, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014); *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1349 (Fed. Cir. 2014) (explaining that only an “understanding of the basic character of the claimed subject matter” is required to resolve the legal issue of patent-eligible subject matter); *CyberFone Sys., L.L.C. v. CNN Interactive Grp., Inc.*, 558 F. App’x 988, 991 n.1 (Fed. Cir. 2014) (“There is no requirement that the district court engage in claim construction before deciding § 101 eligibility.”); *Ultramercial, Inc. v. Hulu, L.L.C.*, 772 F.3d 709, 713, 717 (Fed. Cir. 2014) (affirming grant of “pre-answer motion to dismiss under Rule 12(b)(6) without formally construing the claims”).

is a factual determination.”¹¹⁹ The court separately held that the patent specification¹²⁰ and the allegations in a patentee’s civil complaint¹²¹ are capable of creating factual disputes that would preclude a pretrial judgment of ineligibility. But the court also acknowledged that “not every § 101 determination contains genuine disputes over the underlying facts material to the § 101 inquiry,” and it has yet to be seen whether district court practices will change.¹²²

Similarly, a claim construction ruling from the district court has been recognized as “the single most important event in the course of a patent litigation [because] [i]t defines the scope of the property right being enforced, and is often the difference between infringement and non-infringement, or validity and invalidity.”¹²³ As such, the Federal Circuit recently explained that claims should be construed to the extent needed to resolve the § 101 dispute at the 12(b)(6) stage¹²⁴ but left open the possibility that claim construction may not be required in some cases.¹²⁵

For these reasons, most early dispositive motions in patent cases would ordinarily be denied or deferred pending claim construction and the close of discovery. Not so for § 101 motions after *Alice*, at least thus far.

119. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018). This is not the first time the Federal Circuit has made this point, but it is the first time after several years of silence. *See Ultramercial, Inc. v. Hulu, L.L.C.*, 722 F.3d 1335, 1339 (Fed. Cir. 2013), *vacated sub nom. WildTangent, Inc. v. Ultramercial, L.L.C.*, 134 S. Ct. 2870 (2014) (“This legal conclusion may contain underlying factual issues,” and “[a]lmost by definition, analyzing whether something was ‘conventional’ or ‘routine’ involves analyzing facts.”); *Accenture Global Servs. v. Guidewire Software, Inc.*, 728 F.3d 1336, 1341 (Fed. Cir. 2013) (indicating that there may be factual issues within a determination of patent eligibility).

120. *Berkheimer*, 881 F.3d at 1370 (“We only decide that on this record summary judgment was improper, given the fact questions created by the specification’s disclosure.”).

121. *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121 (Fed. Cir. 2018) (“There are factual allegations in the second amended complaint, which when accepted as true, prevent dismissal pursuant to Rule 12(b)(6).”).

122. *Berkheimer*, 881 F.3d at 1368.

123. *Retractable Techs. v. Becton, Dickinson and Co.*, 659 F.3d 1369, 1370 (Fed. Cir. 2011) (Moore, J., dissenting).

124. *Aatrix*, 882 F.3d at 1125 (“If there are claim construction disputes at the Rule 12(b)(6) stage, . . . the court must proceed by adopting the non-moving party’s constructions, or the court must resolve the disputes to whatever extent is needed to conduct the § 101 analysis, which may well be less than a full, formal claim construction.”) (citations omitted).

125. *Id.* (“The district court granted this Rule 12(b)(6) motion without claim construction. We have some doubt about the propriety of doing so in this case . . .”).

4. *Judicial Motivation*

It is not terribly surprising that judges would embrace a robust § 101 toolbox. With busy dockets and pressure to move cases along in a timely fashion, a § 101 issue allows a judge to quickly dispose of what could otherwise be a complex and protracted lawsuit and to do so without investing a great deal of judicial resources on other time-consuming preliminary matters such as claim construction and discovery orders.

But are there discriminatory motivations that can be fairly inferred? Business method patents have long been the subject of skepticism because they are often broadly enforceable and usually associated with controversial PAE campaigns.¹²⁶ Whether this skepticism directly or indirectly informed or influenced *Alice* and its progeny is difficult to discern because judges will rarely explain motivations that do not impact the legal reasoning, and the identity or business model of the patent owner are not proper legal considerations under § 101. In this Author's research, no § 101 decision ostensibly turned on the status or business model of the patent owner.

Alice may or may not have been influenced by a desire to target PAEs' preferred types of patents, and the Court's opinion makes no mention of such an intention. The Court did, however, receive amicus briefs emphasizing that PAEs tend to aggressively enforce vague business-method and computer-implemented process patents.¹²⁷ And the Court has elsewhere commented about PAEs in a negative light, suggesting that such entities are entitled to less relief than what the lower courts have been giving to them.¹²⁸

126. See H.R. REP. NO. 112-98, at 54 (2011) ("A number of patent observers believe the issuance of poor [quality] business-method patents during the late 1990's through the early 2000's led to the patent 'troll' lawsuits that compelled the Committee to launch the patent reform project 6 years ago."); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364-65 (Fed. Cir. 2015) (Mayer, J., concurring) (explaining that employing § 101 against patents early in litigation "works to stem the tide of vexatious suits brought by the owners of vague and overbroad business method patents").

127. See, e.g., Brief for Electronic Frontier Foundation as Amici Curiae Supporting Respondents at 4-7, *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) (No. 13-298), 2014 WL 828047; Brief for Retailers as Amici Curiae Supporting Neither Party at 15-16, *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) (No. 13-298), 2014 WL 295765.

128. See *Commil USA, L.L.C. v. Cisco Sys.*, 135 S. Ct. 1920, 1930 (2015) (suggesting that fee shifting under 35 U.S.C. § 285 should be employed to address the problem that "[s]ome companies may use patents as a sword to go after defendants for money, even when their claims are frivolous"); *eBay Inc. v. MercExchange*,

The Federal Circuit is also well aware of the PAE business model and recognizes that nuisance litigation should be actively discouraged.¹²⁹ One Federal Circuit judge has noted that vague claim language enables the PAE business model and invites unnecessary claim construction disputes.¹³⁰ Another Federal Circuit judge has expressly touted the utility of § 101 to combat PAEs' lawsuits, noting that early § 101 dispositions "work[] to stem the tide of vexatious suits brought by the owners of vague and overbroad business method patents."¹³¹

It is possible that a desire to stem the tide of abusive patent lawsuits, especially those involving business method patents, is a motivating factor for why the § 101 jurisprudence has evolved and been applied the way it has. But there is little objective evidence in the law to infer such a motivation, and the motivation may only be

L.L.C., 547 U.S. 388, 396-97 (2006) (Kennedy, J., concurring) ("An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees. For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent. When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest. In addition injunctive relief may have different consequences for the burgeoning number of patents over business methods, which were not of much economic and legal significance in earlier times. The potential vagueness and suspect validity of some of these patents may affect the calculus under the four-factor test.").

129. See, e.g., *SFA Sys., L.L.C. v. Newegg Inc.*, 793 F.3d 1344, 1350 (Fed. Cir. 2015) (explaining that "a pattern of litigation abuses characterized by the repeated filing of patent infringement actions for the sole purpose of forcing settlements, with no intention of testing the merits of one's claims, is relevant to a district court's exceptional case determination under § 285"); *Eon-Net L.P. v. Flagstar Bancorp*, 653 F.3d 1314, 1328 (Fed. Cir. 2011) (noting that "[h]ere, the district court did not clearly err when it found that Eon-Net filed an objectively baseless infringement action against Flagstar and brought that action in bad faith, specifically to extract a nuisance value settlement by exploiting the high cost imposed on Flagstar to defend against Eon-Net's baseless claims").

130. *In re Packard*, 751 F.3d 1307, 1324-25 (Fed. Cir. 2014) (Plager, J., concurring) (positing that "unnecessary incoherence and ambiguity in claim constructions should be disapproved [because] . . . they waste scarce judicial resources on claim construction cases that should never have been necessary to litigate, supporting and encouraging the kinds of litigation that have made 'patent trolls' dirty words").

131. *OIP Techs. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364 (Fed. Cir. 2015) (Mayer, J., concurring).

influenced by a handful of personal, privately held beliefs of individual judges.

5. *De Jure or De Facto Discrimination?*

Whatever the motivation, § 101 decisions are invalidating computerized method claims well above historical average invalidity rates—and earlier and with less evidentiary rigor than would ordinarily apply. The law is arguably neutral in terms of subject matter because it creates no categorical rules against patenting business methods, computerized or otherwise—at least some software and business methods are still patentable.¹³² But the practical effect of the law has been to aggressively invalidate patent claims that use computers for some beneficial purpose, but do not improve computer technology per se, even though this view is in considerable tension with both new and old Supreme Court precedent. There is a special, uniquely high bar for patenting computerized business methods in the U.S.

If one reads *Alice* and its progeny as field neutral because the law does not expressly deem any categories of subject matter ineligible, the law is likely not de jure discriminatory. In that event, even evidence of discriminatory purpose to prevent the patenting of computer-implemented business methods would likely fail to establish de jure discrimination.¹³³ *Canadian Pharmaceuticals*, the sole decision from the WTO Dispute Settlement Body involving TRIPS Article 27,¹³⁴ is instructive. There, a Canadian law allowed generic drug manufacturers to avoid infringement liability if their making, using, or selling of a patented drug was for purposes of securing regulatory

132. See Fusco, *supra* note 10, at 133 (explaining that “technically[,] software and business methods are patent eligible in the U.S., but, in practice, the level of protection that they now enjoy is much lower than it used to be and possibly lower than what is provided to inventions in other fields”); *infra* Part II.A.

133. *Canadian Pharmaceuticals*, *supra* note 46, at 172.

134. *Id.* at ii. Although two other matters concerning TRIPS Article 27(1) have been raised in the WTO dispute resolution body, both were resolved without intervention by the WTO Appellate Body. See World Trade Organization, European Communities - Patent Protection for Pharmaceutical and Agricultural Chemical Products, WTO Doc. WT/DS153/1, 1 (1998) (stating that it was in consultations on December 2, 1998); World Trade Organization, Brazil - Measures Affecting Patent Protection, WTO Doc. WT/DS199/4, 1-2 (2001) (stating that there was a mutually agreed solution July 19, 2001).

approval.¹³⁵ The law did not specifically mention pharmaceuticals but referred generally to any “patented invention,” “product,” or “article” subject to government regulation.¹³⁶ Although the legislative history of the regulations made clear that the provisions were intended to apply specifically to pharmaceuticals, and under Canadian law this legislative history was argued to effectively limit the regulations to that context,¹³⁷ this was deemed insufficient to show de jure discrimination.¹³⁸

But *Alice* and its progeny are not really field neutral like the challenged law in *Canadian Pharmaceuticals*. *Alice* expressly deems what it calls “generic computer implementation” of a business method to be patent-ineligible,¹³⁹ and subsequent case law explained that claims are patent-eligible if they “focus . . . on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.”¹⁴⁰ This law is applicable only to computer-implemented business methods and software, which constitutes de jure discrimination.

Even if de jure discrimination is lacking, the evidence of de facto discrimination is also much stronger here than in *Canadian Pharmaceuticals*. Here there is “systemic information on the range of industries [affected]” to show that the new law “‘in effect’ applie[s] only to [computer-implemented business method and software patents].”¹⁴¹ According to one thorough study of patent application

135. *Canadian Pharmaceuticals*, *supra* note 46, at 2 (providing in Section 55.2(1) of the Canadian Patent Act that “[i]t is not an infringement of a patent for any person to make, construct, use or sell the patented invention solely for uses reasonably related to the development and submission of information required under any law of Canada, a province or a country other than Canada that regulates the manufacture, construction, use or sale of any product”).

136. *Id.* at 172.

137. *Id.*

138. *Id.* (noting that “[a]bsent other evidence, the words of the statute compelled the Panel to accept Canada’s assurance that the exception was legally available to every product that was subject to marketing approval requirements”).

139. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2352 (2014).

140. *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

141. *Canadian Pharmaceuticals*, *supra* note 46, at 173. Although it was clear that pharmaceutical patents were the focus of the regulation at issue, and the WTO panel understood that enhancing pharmaceutical competition was the “primary reason” for the law, it emphasized that “preoccupation with the effects of a statute in one area does not necessarily mean that the provisions applicable to other areas are a sham, or of no actual or potential importance.” *Id.*

Individual problems are frequently the driving force behind legislative actions of broader scope. The broader scope of the measure usually reflects an important legal principle that rules being applied in the area of primary

filings, “While *Alice* rejections can be found all over the USPTO, roughly two-thirds of them are found in [Technology Center] 3600 . . . the home of art units covering business methods,” with almost all of those rejections appearing in “e-commerce art units.”¹⁴² Other technology centers making up the remainder of the *Alice* rejection pool mostly involve computer networks, communications, electrical systems, and software.¹⁴³ *Alice* had no appreciable effect on subject matter eligibility rejections in “technology centers such as semiconductors and mechanical engineering,” where there were “essentially low and constant rejection rates” on § 101 grounds of around 2–3% both before and after *Alice*.¹⁴⁴

Likewise, in the courts the overwhelming majority of *Alice*’s effects are felt by business methods, software, and other computer-implemented processes, as the following chart illustrates:¹⁴⁵

interest should also be applied to other areas where the same problem occurs. Indeed, it is a common desideratum in many legal systems that legislation apply its underlying principles as broadly as possible. So long as the broader application is not a sham, the legislation cannot be considered discriminatory.

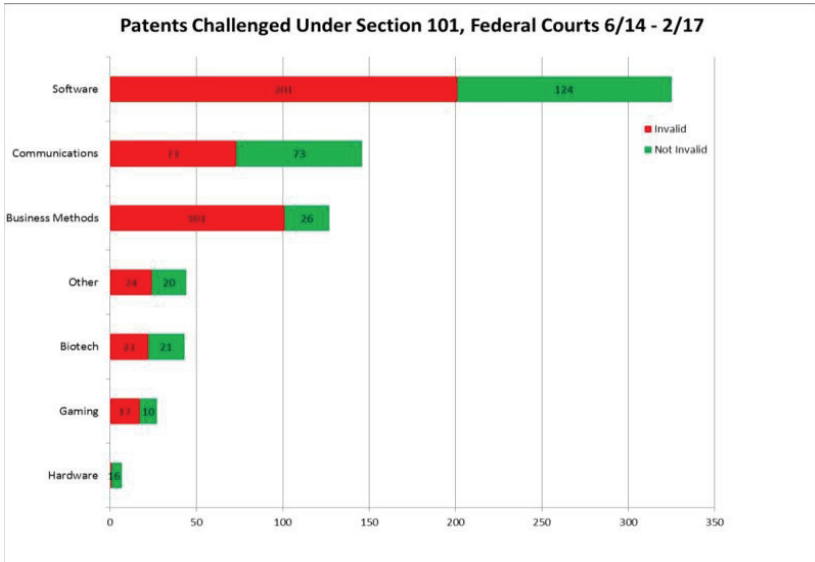
Id.

142. James Cosgrove, *The Most Likely Art Units for Alice Rejections*, IPWATCHDOG (Dec. 14, 2015), <http://www.ipwatchdog.com/2015/12/14/the-most-likely-art-units-for-alice-rejections/> [https://perma.cc/8JVV-ZPVY] (noting that the allowance rate of claims in those art units dropped from “79.8% before *Alice* to 44.7% since *Alice*”); see also Robert R. Sachs, *The One Year Anniversary: The Aftermath of #AliceStorm*, CPIP (June 27, 2015), <http://cpip.gmu.edu/2015/06/27/the-one-year-anniversary-the-aftermath-of-alicestorm/> [https://perma.cc/2YHF-NL52] (showing that § 101 rejections spiked in e-commerce art units after *Alice*).

143. See Sachs, *supra* note 142.

144. *Id.* This makes sense because such highly physical and concrete subject matter is not likely to be abstract.

145. See Robert R. Sachs, *AliceStorm Update February 2017*, BILSKI BLOG (Mar. 16, 2017), <http://www.bilskiblog.com/blog/2017/03/alicestorm-update-february-2017.html> [https://perma.cc/97VH-ARC4].



Much of the foregoing statistical data and Federal Circuit precedent post-dated the research conducted by Stefania Fusco, discussed above.¹⁴⁶ The lack of data, combined with the minimal WTO precedent on the issue, caused Fusco to conclude that there was “not enough information to conclude that these decisions constitute a violation of the U.S. obligations under TRIPS.”¹⁴⁷ But, with the more recent precedent and data in hand, the case for *de facto* discrimination is quite strong.

146. Fusco’s article was originally published in September 2015, just over a year after *Alice*. The final version still calls for pre- and post-*Alice* statistics to fill out the discussion. Fusco, *supra* note 10, at 156 (“[W]hen the outcome of [*Canadian Pharmaceuticals*] is translated into the context of a possible §101 challenge, it becomes evident that a WTO panel would not only consider that technically, the *Mayo* two-step test operates in all the fields of technology, but it would also investigate whether *in practice* the *Alice* standard imposes the absence of or reduced protection primarily for software and business methods and, as previously noted, medical diagnostics. Specifically, data gathered from before and after *Alice* on the software and business methods patent applications submitted, the patents issued and the enforcement actions would be analyzed. Moreover, comparisons with other fields of technology would be made; the relevance of the *Alice* and *Bilski* aftermath becomes, at this point, axiomatic.”).

147. *Id.* at 158; *id.* at 155 (“[A]dditional WTO decisions on TRIPS Article 27(1) appear to be necessary to fully address the issue of *de facto* discrimination and, more importantly, for the purpose of this article, to define its relevance in the context of the *Mayo* two-step test.”).

Finally, Fusco did not consider the CBM program alongside the judicial developments. The following Section shows how the CBM program considerably bolsters the argument that the U.S. discriminates against computer-implemented business methods.

B. Legislative Discrimination

The 2011 Leahy–Smith America Invents Act (AIA)¹⁴⁸ created three new proceedings by which issued patents may be challenged and invalidated at the U.S. Patent and Trademark Office. These proceedings are called *inter partes* review (IPR),¹⁴⁹ post-grant review (PGR),¹⁵⁰ and covered business method review (CBM).¹⁵¹ Although the basic procedures are largely the same among the proceedings,¹⁵² some substantive aspects differ. For example, PGR proceedings can only be instituted for recent patents that have an effective filing date post-AIA, but IPR and CBM proceedings are available for patents filed at any time.¹⁵³ IPR proceedings may be brought only on certain prior art grounds,¹⁵⁴ but CBM and PGR review are available for any ground of patentability, including § 101.¹⁵⁵ While IPR and PGR proceedings are made available indefinitely, the CBM program is “transitional” in that it sunsets eight years after it went into effect (on September 16, 2020).¹⁵⁶ Unlike in IPR and PGR, where any person can

148. See Leahy-Smith America Invents Act, Pub. L. No. 112-29, §§ 16-18, 125 Stat. 284, 299, 306, 329 (2011).

149. See generally 35 U.S.C. §§ 311-319 (2012).

150. See generally *id.* §§ 321-329.

151. See generally AIA § 18. As a temporary proceeding, the AIA § 18 provisions for CBM proceedings were not codified in the U.S. Code. See *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1310 n.3 (Fed. Cir. 2015).

152. See generally Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756 (Aug. 14, 2012) (to be codified at 37 C.F.R. pt. 42).

153. Changes to Implement Post-Grant Review Proceedings, 77 Fed. Reg. 7,060, 7,063 (Feb. 10, 2012) (“[T]he post-grant review provisions will apply to patents issued from applications that have an effective filing date on or after March 16, 2013, eighteen months after the date of enactment.”).

154. § 311(b) (“A petitioner in an *inter partes* review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under [§] 102 or 103 and only on the basis of prior art consisting of patents or printed publications.”).

155. See AIA § 18(a)(1)(A) (incorporating standard of § 321(b) pertaining to post-grant review proceedings).

156. *Id.* § 18(a)(3)(A) (“This subsection, and the regulations issued under this subsection, are repealed effective upon the expiration of the 8-year period beginning on the date that the regulations issued under to paragraph (1) take effect.”).

submit a petition, to challenge a CBM patent the challenger must have been sued for infringement.¹⁵⁷

The most glaring substantive distinction concerns the kinds of patents subject to each proceeding. While IPR and PGR proceedings are available without any discrimination as to the subject matter of the patent,¹⁵⁸ the CBM program is only available for what the AIA calls “covered business method patents”¹⁵⁹

Per the statute, a “covered business method patent” is defined as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service.”¹⁶⁰ The Federal Circuit has held that this definition “is not limited to products and services of only the financial industry, or to patents owned by or directly affecting the activities of financial institutions such as banks and brokerage houses . . . [and] on its face covers a wide range of finance-related activities,” including other commercial practices such as determining product pricing.¹⁶¹ But it is not enough that a method relates to some potential monetary transaction because “[a]ll patents, at some level, relate to potential sale of a good or service.”¹⁶² In any case, the definition puts computerized business methods directly in the crosshairs.

157. *Id.* § 18(a)(1)(B) (“A person may not file a petition for a transitional proceeding with respect to a covered business method patent unless the person or the person’s real party in interest or privy has been sued for infringement of the patent or has been charged with infringement under that patent.”).

158. *See* 35 U.S.C. § 311 (allowing IPR proceedings for “a patent”); *id.* §321 (allowing PGR proceedings for “a patent”).

159. AIA § 18(a)(1)(E) (“The Director may institute a transitional proceeding only for a patent that is a covered business method patent.”).

160. *Id.* § 18(d)(1).

161. *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1325 (Fed. Cir. 2015)

162. *Unwired Planet, L.L.C. v. Google, Inc.*, 841 F.3d 1376, 1382 (Fed. Cir. 2016). *Unwired Planet* also states that:

The patent for a novel lightbulb that is found to work particularly well in bank vaults does not become a CBM patent because of its incidental or complementary use in banks. Likewise, it cannot be the case that a patent covering a method and corresponding apparatuses becomes a CBM patent because its practice could involve a potential sale of a good or service. All patents, at some level, relate to potential sale of a good or service. *See* 35 U.S.C. § 101. Take, for example, a patent for an apparatus for digging ditches. Does the sale of the dirt that results from use of the ditch digger render the patent a CBM patent? No, because the claims of the ditch-digging method or apparatus are not directed to “performing data processing or other

Another important carve out to the AIA's definition is that "patents for technological inventions" are not considered covered business methods.¹⁶³ The associated USPTO regulation unhelpfully defines a "technological invention" as one that has a "technological feature" and "solves a technical problem using a technical solution."¹⁶⁴ Considering this regulation, the Federal Circuit looked to *Alice* for guidance as to whether an invention was "technological" or merely utilizing a "general purpose computer to facilitate operations through un inventive steps."¹⁶⁵ According to the Federal Circuit, just as using a computer in a conventional way cannot recite a patent-eligible process under *Alice*, nor will it evidence sufficient "technological" character to save such a patent from the reach of the CBM program.¹⁶⁶ The USPTO adopted essentially the same restrictive view, as its Trial Practice Guide indicates that inventions are not shown to be "technological" by: (1) the "recitation of known technologies"; (2) "[r]eciting the use of known prior art technology"; or (3) "[c]ombining prior art structures to achieve the normal, expected, or predictable result of that combination."¹⁶⁷

While limiting the CBM program to exclude "technological" patents on its face might seem to pass muster as not discriminating based on "fields of technology," this tie-in to *Alice* jurisprudence reveals the clear differential treatment. That view of "technology" deems some technology non-technological and effectively misdefines technological to mean inventive, as discussed above.

Unlike the judicial developments discussed above in Part II.A, the motivation for the CBM program is clear. Creating a special, limited-time program for a targeted subset of patents was justified in the House Committee Report as being necessary to correct for the USPTO's over-issuance of business method patents around the turn of the century:

operations" or "used in the practice, administration, or management of a financial product or service," as required by the statute. AIA § 18(d).

Id. See also *Secure Access, L.L.C. v. PNC Bank N.A.*, 848 F.3d 1370, 1382 (Fed. Cir. 2017) (finding method of webpage authentication not a covered business method and explaining that "just because an invention could be used by various institutions that include a financial institution, among others, does not mean a patent on the invention qualifies under the proper definition of a CBM patent").

163. AIA § 18(d)(1).

164. 37 C.F.R. § 42.301(b) (2013).

165. *Versata Dev. Grp.*, 793 F.3d at 1327.

166. See *id.* at 1332, 1334-35.

167. Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012) (to be codified at 37 C.F.R. pt. 42).

A number of patent observers believe the issuance of poor [quality] business-method patents during the late 1990's through the early 2000's led to the patent "troll" lawsuits that compelled the Committee to launch the patent reform project 6 years ago. At the time, the USPTO lacked a sufficient number of examiners with expertise in the relevant art area. Compounding this problem, there was a dearth of available prior art to assist examiners as they reviewed business method applications. Critics also note that most countries do not grant patents for business methods.¹⁶⁸

Congress also held the Federal Circuit partially responsible due to its 1998 decision in *State Street Bank & Trust v. Signature Financial Group, Inc.*, which deemed patent-eligible any process with a "useful, concrete, and tangible result."¹⁶⁹ It was believed, in light of recent precedent such as *Bilski* that "sharply pulled back on the patenting of business methods, emphasizing that these 'inventions' are too abstract to be patentable," that the CBM program would "reduce the burden on the courts of dealing with the backwash of invalid business-method patents."¹⁷⁰ All of this discriminatory motivation can be inferred from the objective qualities of the CBM program,¹⁷¹ which singles out the CBM subject matter for special (including "abstractness") review but limits the program to actively litigated patents that are currently causing harm and only offers the program for a limited time to correct certain past mistakes.

Although Congress included a "[r]ule of [c]onstruction" that the CBM statute should not be interpreted "as amending or interpreting categories of patent-eligible subject matter set forth under section 101 of title 35,"¹⁷² the open hostility to business method patents suggests that the CBM system was intended to reflect Congress's disapproval of such methods being broadly patentable.¹⁷³ Congress clearly set out

168. H.R. REP. NO. 112-98, at 54 (2011).

169. *State Street Bank & Trust v. Signature Financial Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (citation and internal quotation marks omitted).

170. 157 CONG. REC. S1367 (daily ed. Mar. 8, 2011) (statement of Sen. Kyl).

171. *Canadian Pharmaceuticals*, *supra* note 46, at 173 (explaining that examining discriminatory purpose is "not an inquiry into the subjective purposes of the officials responsible for the measure, but an inquiry into the objective characteristics of the measure from which one can infer the existence or nonexistence of discriminatory objectives").

172. AIA § 18(e).

173. Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part II of II*, 21 FED. CIR. B.J. 539, 628 (2012) ("[S]ection 18 obviously reflects a congressional disapprobation of the patenting of business methods."); *id.* n.568 (citing 157 CONG. REC. S1053 (daily ed. Mar. 1, 2011) (statement of Sen. Schumer) ("[D]enouncing 'the scourge of business method patents currently plaguing the financial sector,' and stating that '[b]usiness method patents are anathema to the protection the patent system provides.'")); 157 CONG. REC. S1367 (daily ed. Mar. 8,

to invigorate *Bilski* to target “abstract business concepts and their implementation, whether in computers or otherwise.”¹⁷⁴ Indeed, Senator Schumer’s explanation of the difference between “covered business methods” subject to the CBM program and “technological” inventions was strikingly prescient of the subsequent *Alice* decision:

The technological invention exception is also not intended to exclude a patent simply because it recites technology. For example, the recitation of computer hardware, communication or computer networks, software, memory, computer-readable storage medium, scanners, display devices or databases, specialized machines, such as an ATM or point of sale device, or other known technologies, does not make a patent a technological invention. In other words, a patent is not a technological invention because it combines known technology in a new way to perform data processing operations.¹⁷⁵

Even if Congress stopped short of creating a special patent-eligibility rule per se, the Federal Circuit has bridged the gap and closely tied the permissible scope of CBM review to *Alice* and § 101 jurisprudence.¹⁷⁶ The result has been that, as Congress had clearly intended (or at least hoped), patent claims that reach a final judgment in the CBM program are being invalidated at extremely high rates—more than 80%.¹⁷⁷

2011) (statement of Sen. Kyl) (expressing the belief that “these ‘inventions’ are too abstract to be patentable,” and that the CBM program has “reduce[d] the burden on the courts of dealing with the backwash of invalid business-method patents”).

174. 157 CONG. REC. S1379 (daily ed. Mar. 8, 2011) (statement of Sen. Kyl); *see also id.* (noting that “the expectation that most if not all true business-method patents are abstract and therefore invalid in light of the *Bilski* decision”); H.R. REP. NO. 112-98, at 54 (2011) (“A number of patent observers believe the issuance of poor [quality] business-method patents during the late 1990’s through the early 2000’s led to the patent ‘troll’ lawsuits that compelled the Committee to launch the patent reform project 6 years ago.”).

175. 157 CONG. REC. S1364 (daily ed. Mar. 8, 2011) (statement of Sen. Schumer).

176. *Versata Dev. Grp, Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1327 (Fed. Cir. 2015) (citing *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014)) (“As the PTAB correctly noted, even if the invention required the use of a computer, the claim did not constitute a technological invention. As we are now instructed, the presence of a general purpose computer to facilitate operations through un inventive steps does not change the fundamental character of an invention.”).

177. *Patent Trial and Appeal Board Statistics*, USPTO 11 (Feb. 28, 2017), https://www.uspto.gov/sites/default/files/documents/aia_statistics_february2017.pdf [<https://perma.cc/T4AD-EMYL>] (showing that 81% of all final written decisions result in all challenged claims being invalidated (representing 29% of total petitions), with another 15% of final written decisions resulting in some challenged claims being invalidated (representing 5% of total petitions)); *see also* Elliot C. Cook, Daniel F. Klodowski & David C. Seastrunk, *Claim and Case Disposition*, FINNEGAN AIA BLOG, <http://www.aiblog.com/claim-and-case-disposition/> [<https://perma.cc/Z4UB-HZWK>] (last visited Mar. 19, 2018); Philip Swain, *The Remarkable Effectiveness of*

Through the end of 2015, only 1 out of 40 CBM proceedings resolved on § 101 grounds was decided in favor of the patent owner.¹⁷⁸

But Congress did more than single out of this field of patents for special invalidity proceedings, expecting that most of the patents would be invalidated. Congress also burdened the owners of those patents with two unique disadvantages relating to parallel litigation.

As substitutes for district court litigation, all the AIA proceedings include some estoppels to avoid duplicative litigation.¹⁷⁹ But those who challenge a CBM patent are significantly less restricted when challenging the patent on multiple fronts.¹⁸⁰ While invalidity positions taken in IPR and PGR proceedings broadly preclude petitioners from arguing in court as to “any ground that the petitioner raised *or reasonably could have raised* during that [proceeding],”¹⁸¹ in CBM proceedings the petitioner is only estopped from rearguing those grounds actually raised.¹⁸²

Congress also provided a rare right to an interlocutory appeal of a decision on a motion to stay litigation pending the outcome of a CBM proceeding.¹⁸³ Congress even made the standard of review for such an appeal *de novo*.¹⁸⁴ As the Federal Circuit explained, “[P]rior to the AIA, district court decisions on motions to stay pending U.S. Patent and Trademark Office (PTO) proceedings were generally not appealable and, when they were, we reviewed them under the abuse of discretion standard.”¹⁸⁵ Thus, any defendant targeted by a patent that is the subject of CBM proceeding now has a unique, new, and powerful leverage to help it obtain a stay of the parallel litigation. Again, these objective characteristics of the CBM program reveal

Alice v CLS Bank *Challenges at the PTAB*, PTAB BLOG (Oct. 23, 2015), <http://www.ptab-blog.com/2015/10/23/the-remarkable-effectiveness-of-alice-v-cls-bank-challenges-at-the-ptab/> [<https://perma.cc/S3YY-UL59>].

178. HOWARD, *supra* note 19, at 5.

179. See 35 U.S.C. §§ 315(e)(2), 325(e)(2) (2012).

180. See AIA § 18(a)(1)(D).

181. 35 U.S.C. §§ 315(e)(2), 325(e)(2) (2012) (emphasis added).

182. See AIA § 18(a)(1)(D) (establishing a “Transitional Program for Covered Business Method Patents”).

183. *Id.* § 18(b)(2) (“A party may take an immediate interlocutory appeal from a district court’s decision [on a motion to stay].”).

184. *Id.* § 12(b)(2) (“The United States Court of Appeals for the Federal Circuit shall review the district court’s decision to ensure consistent application of established precedent, and such review may be *de novo*.”).

185. *VirtualAgility, Inc. v. Salesforce.com, Inc.*, 759 F.3d 1307, 1310 (Fed. Cir. 2014).

Congress' discriminatory purpose of weeding out patents where the merits of the patent enforcement actions are highly suspect.

Although these disadvantages to owners of CBM patents were ostensibly intended to help curtail abusive CBM patent lawsuits brought by PAEs, the laws are not limited to PAEs but apply to all owners of CBM patents merely because of the subject matter of their patents. The only arguable tie to PAEs involved is the fact that a person cannot petition for CBM review unless that person has been sued or charged with infringement of the patent.¹⁸⁶ But non-PAEs can and do enforce their patents as well, making the enforcement of the patent against the petitioner a poor proxy for being a PAE. The law, regardless of motivation, discriminates solely on the type of subject matter claimed in the patent.

C. Discrimination Beyond Justifiable Differential Treatment

Of course, not every law that singles out a technology area will violate TRIPS Article 27. Prohibiting discrimination is not the same thing as requiring uniformity.¹⁸⁷ As the WTO panel in *Canadian Pharmaceuticals* put it, "Article 27 does not prohibit bona fide exceptions to deal with problems that may exist only in certain product areas."¹⁸⁸ The improper discrimination contemplated by Article 27(1) concerns "the unjustified imposition of differentially disadvantageous treatment."¹⁸⁹ Subject to Article 30, patent laws can sometimes treat different things differently because of their justifiable differences.¹⁹⁰

For example, in the United States patent terms may be extended for inventions such as drugs if the drugs are still undergoing regulatory review after the patent issues.¹⁹¹ Because regulatory review must be completed before drugs may be sold in the United States, this

186. See AIA § 18(a)(1)(B).

187. *Canadian Pharmaceuticals*, *supra* note 46, at 105 (Comments of Australia) ("Lack of discrimination in relation to enjoyment of patent rights should be distinguished from the application of uniform rules in all areas of technology. It was not inconsistent with the TRIPS Agreement to provide for distinct patent rules that responded to practical consequences of differences between fields of technology.").

188. *Id.* at 170-71 (noting that the concept of discrimination "certainly extends beyond the concept of differential treatment").

189. *Id.* at 171.

190. See *id.* at 169.

191. See 35 U.S.C. § 156(c) (2012) (stating that "[t]he term of a patent eligible for extension under subsection (a) shall be extended by the time equal to the regulatory review period for the approved product which period occurs after the date the patent is issued," with certain exceptions).

provision essentially restores to the patent owner the full patent term (and corresponding market exclusivity) that would otherwise be lost during regulatory review.¹⁹² Similarly, § 271(e), discussed below in Part IV, allows generics to begin their own regulatory review processes before the patent expires, recognizing that otherwise the patent owner would have an undue de facto extension of patent term.¹⁹³ Laws like these are likely acceptable under TRIPS Articles 27 and 30 because drugs have to navigate through a thicket of regulations that other kinds of inventions do not.¹⁹⁴

These examples of different treatment for drug patents are justified because they reflect the actual differences in how the patent rights are able to be exercised.¹⁹⁵ Because of the unique regulation of drugs, arguably the law would disproportionately advantage or disadvantage drug patent owners if it did *not* treat those drugs differently in the ways noted above.¹⁹⁶ Such differential treatment may be viewed as nondiscriminatory because it was “implemented with the very intention of ensuring that patent rights could be enjoyed without discrimination,” and it effectively “ensure[s] that the basic balance of rights and obligations [is] maintained.”¹⁹⁷

192. *See id.*

193. *See generally id.* § 271(e); *cf. Canadian Pharmaceuticals*, *supra* note 46, at 161 (“The additional period of market exclusivity in this situation is not a natural or normal consequence of enforcing patent rights. It is an unintended consequence of the conjunction of the patent laws with product regulatory laws, where the combination of patent rights with the time demands of the regulatory process gives a greater than normal period of market exclusivity to the enforcement of certain patent rights.”).

194. *Canadian Pharmaceuticals*, *supra* note 46, at 49 n.146 (“The fact that eight to 12 years of the patent term were ‘lost’ because of marketing approval requirements constituted the ‘good reason’ to treat pharmaceutical patents more favourably than other patents, where marketing approval, if at all required, could be obtained in a much shorter period of time.”); *id.* at 161 (“For the vast majority of patented products, there is no marketing regulation of the kind covered by Section 55.2(1), and thus there is no possibility to extend patent exclusivity by delaying the marketing approval process for competitors.”).

195. *Id.* at 105 (“[T]he need to respond to lengthy regulatory delays in the pharmaceutical domain had led to forms of term extension which were designed to restore the balance of interests. Similarly, limited exceptions to patent rights allowing generic competitors to seek regulatory approval for pharmaceuticals aimed to restore the balance of interests that applied immediately upon the expiry of the patent.”).

196. *See id.* As Australia argued in *Canadian Pharmaceuticals*, sometimes “undifferentiated treatment, when applied across the board, could result in discrimination against those that face technology-specific circumstances.” *Id.*

197. *Id.* Europe, the United States, and Australia all took the position in the *Canadian Pharmaceuticals* dispute that patent term extensions for drugs did not run

That is not what is happening in the United States with respect to business methods. The U.S. draws a line between using computing technology and creating it, calling the former non-technology when what it really means is non-innovative, which is beside the point. That discrimination does not seek to provide balance to the system, treating computerized business methods differently because of some inherent handicap that attaches to the subject matter. It appears to be a simple policy choice—the government does not like patenting computerized business methods because they seem vague and non-innovative and they are so often wielded by abusive PAEs.

There are many technology-neutral ways that such problems with computerized business method patents can be remedied: enhancing examination quality across the board, promoting clearer claim drafting, and providing more robust tools to deter litigation misconduct. While these are all being done to some degree,¹⁹⁸ the U.S. then goes further—too far—by making it especially hard to patent computerized business methods and especially easy to invalidate the ones that are already patented. That is not mere differential treatment justified by some special characteristic of the subject matter. It is discrimination.

This is not to say that computerized business methods cannot be singled out for some special treatment. They can, but the special treatment must relate to and compensate for something unique to the subject matter. For example, if it is uniquely challenging for the USPTO to locate relevant prior art in the computerized business method space—due, e.g., to limited access to the relevant non-patent literature—a law requiring the preparation and submission of a certified prior art search by the applicant might be justified. As another

afoul of Article 27(1). *Id.* at 49 n.146 (“[T]he EC said that they shared the views expressed by Australia and the United States that patent term extension for pharmaceutical products . . . did not constitute a discrimination prohibited by Article 27.1 of the TRIPS Agreement, and that one could even argue that, under certain circumstances, patent term extension might be mandated by Article 27.1.”). The U.S. also believed that its § 271(e) exemption complied with Articles 27 and 30. *See id.* at 157.

198. *See, e.g., Patent Quality*, USPTO, <https://www.uspto.gov/patent/initiatives/enhanced-patent-quality-initiative-0> [<https://perma.cc/2N4Z-KE47>] (last modified Feb. 23, 2018) (describing various efforts to improve examination practices and procedures); *see also* *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2130 (2014) (raising the threshold for claim definiteness and holding that “[i]t cannot be sufficient that a court can ascribe *some* meaning to a patent’s claims”); *Octane Fitness, L.L.C. v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749, 1756 (2014) (adopting broad, flexible framework for shifting of attorneys’ fees).

example, if business methods are inherently difficult to claim with precision because they are often phrased in functional, outcome-oriented terms, regulations specifying that certain types of functional language will require additional operational details to pass muster under the definiteness standard might be proper.

But the U.S. has not employed such tailored approaches. It has instead made blanket discriminatory laws against computerized business methods.

II. COMPUTER-IMPLEMENTED BUSINESS METHODS ARE FIELDS OF TECHNOLOGY

As a member of TRIPS, the United States has agreed to make patent protection available for “any inventions, whether products or processes, in all fields of technology,” such that “patent rights [are] enjoyable without discrimination as to the . . . field of technology.”¹⁹⁹ This Part examines whether the above-described discrimination against computer-implemented business methods, subjecting them to an especially high hurdle for protection and special invalidity procedures, is an improper discrimination as to a “field of technology.” It shows that the text of TRIPS, contemporary conduct, historical and normative context, and good policy all favor a reading of “fields of technology” that includes computer-implemented business methods. This Part further shows that the result of a broad reading of “technology” need not, and does not, open the flood gates for excessive or overbroad business method patenting.

A. Textual and Doctrinal Support

To start with the text of TRIPS, the plain meaning of “fields of technology” would appear to include computerized business methods. Such phrases in treaties are presumed to have their ordinary meanings, both in context and considering the purpose of the treaty.²⁰⁰ Many dictionary definitions for “technology” contemplate that technology is not only something invented or created, but also used—e.g., “the branch of knowledge that deals with the *creation and use* of technical

199. TRIPS, *supra* note 1, art. 27(1).

200. Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331 (entered into force Jan. 27, 1980) (“A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”).

means”;²⁰¹ “the *use* of science in industry, engineering, etc., to *invent useful things or to solve problems*”;²⁰² “the methods for *using scientific discoveries* for practical purposes, esp. in industry.”²⁰³ None of these definitions strictly requires that a field of technology involve inventing technology per se, as *Alice*, *Enfish*, *DDR*, and their progeny would suggest.

Yet U.S. law essentially conflates the idea of being technological with the idea of improving technological tools over what already exists. *Alice* demands more than using computing technology to perform “well-understood, routine, conventional activit[ies].”²⁰⁴ Likewise, Congress excluded “technological inventions” from the scope of the CBM program,²⁰⁵ but the Federal Circuit then tied that question back to *Alice*,²⁰⁶ and the USPTO will not treat inventions as technological if they recite the use of known technologies in conventional ways.²⁰⁷

These efforts to distinguish technology from non-technology are addressing the wrong patentability concepts, however. Being known or understood in the prior art is the domain of § 102’s novelty requirement,²⁰⁸ not § 101, and the notion of modifications and combinations being ordinary or predictable is squarely within the territory of § 103’s obviousness requirement.²⁰⁹ TRIPS likewise refers

201. See *Technology*, DICTIONARY.COM, <http://www.dictionary.com/browse/technology> [<https://perma.cc/XHD8-55M5>] (last visited Mar. 19, 2018) (emphasis added).

202. *Technology*, MERRIAM-WEBSTER DICTIONARY, <http://www.merriam-webster.com/dictionary/technology> [<https://perma.cc/63A2-CNZA>] (last visited Mar. 19, 2018) (emphasis added) (using the definition for “English Language Learners”).

203. *Technology*, CAMBRIDGE DICTIONARY, <http://dictionary.cambridge.org/us/dictionary/english/technology> [<https://perma.cc/JKA3-CDSN>] (last visited Mar. 19, 2018) (emphasis added).

204. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2359 (2014).

205. AIA § 18(d)(1).

206. *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1327 (Fed. Cir. 2015).

207. Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,763-64 (Aug. 14, 2012) (to be codified at 37 C.F.R. pt. 42) (deeming the following not indicative of a technological invention: (1) the “recitation of known technologies”; (2) “[r]eciting the use of known prior art technology”; or (3) “[c]ombining prior art structures to achieve the normal, expected, or predictable result of that combination”).

208. 35 U.S.C. § 102(a)(1) (2012) (“A person shall be entitled to a patent unless—(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.”).

209. *Id.* § 103.

to “new” inventions possessing an “inventive step” separately from “fields of technology” in Article 27(1),²¹⁰ which plainly distinguishes those concepts just like U.S. law does (or should, under *Diehr*).²¹¹ Nor would it be appropriate to limit “technological” inventions to those deemed to possess “industrial applicability” or “utility,” as some have argued,²¹² as that patentability requirement is also separately recited in § 101 and Article 27.²¹³

Whatever a “field of technology” is under TRIPS, it is not the same thing as a novel, nonobvious, or useful invention. If inventions are to be excluded from patent protection for being non-technological, it cannot be solely on such other patentability grounds.

B. Conduct- and Context-Based Support

Context surrounding TRIPS indicates that many computer-implemented processes are within the scope of Article 27. Although business methods may not have been explicitly patentable in the U.S.

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in [§] 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.

Id. See *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007) (stating that in determining obviousness, “a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions”).

210. TRIPS, *supra* note 1, art. 27(1).

211. *Abbott v. Abbott*, 560 U.S. 1, 33 (2010).

In interpreting statutory text, we ordinarily presume that the use of different words is purposeful and evinces an intention to convey a different meaning. See, e.g., *Russello v. United States*, 464 U.S. 16, 23, 104 S. Ct. 296, 78 L.Ed.2d 17 (1983) (“We refrain from concluding here that the differing language in the two subsections has the same meaning in each. We would not presume to ascribe this difference to a simple mistake in draftsmanship”). There is no reason we should presume otherwise in the context of treaties.

Id. But see Joshua D. Sarnoff, *Patent-Eligible Inventions After Bilski: History and Theory*, 63 *HASTINGS L.J.* 53, 101-02 (2011) (arguing that some overlap in novelty and obviousness is appropriate and necessary to ensure that the subject matter is the *kind* of invention that belongs in the patent system).

212. Thomas, *supra* note 29, at 1178 (“Concise, proven, and compatible with the TRIPS Agreement, the industrial applicability requirement provides an apt way to limit the patent system to what we understand to be technological.”).

213. TRIPS, *supra* note 1, art. 27, n.5 (“For the purposes of this Article, the terms ‘inventive step’ and ‘capable of industrial application’ may be deemed by a Member to be synonymous with the terms ‘non-obvious’ and ‘useful’ respectively.”).

when TRIPS was ratified,²¹⁴ it is clear that software was.²¹⁵ Considering that one important aspect of the TRIPS negotiations was to secure protection for “processes” when some countries did not want to patent processes at all,²¹⁶ a more inclusive reading of “fields of technology” to encompass computer-implemented processes accords well with the state of the law at the time.

The United States’ conduct subsequent to TRIPS’s ratification also supports the view that computerized business methods are among the “processes” for which Article 27(1) ensures protection. TRIPS does not define “processes” or mention software or business methods expressly (though it does allow countries to exclude certain other processes),²¹⁷ but the U.S. post-ratification has consistently acted as if Article 27 includes both. Specifically, WTO mechanisms allow TRIPS members to question the laws of new members or the new laws of existing members for compliance with TRIPS provisions,²¹⁸ and as Stefania Fusco has demonstrated, on ten separate occasions the U.S. questioned the patent laws of another country concerning the availability of protection for software and/or business methods.²¹⁹ Fusco concluded that “the U.S. has consistently interpreted [] TRIPS Article 27(1) as requiring WTO countries to provide protection to both software and business methods.”²²⁰ And because the Vienna Convention²²¹ deems “subsequent practice in the application of the treaty” as probative of the meaning of the treaty’s text, this conduct

214. See Fusco, *supra* note 10, at 138, 146 (noting that TRIPS post-dated *Diehr* regarding software patentability but predated *State Street Bank* regarding business method patentability); accord H.R. REP. NO. 110-314, at 38-39 (2007).

215. See Fusco, *supra* note 10, at 138, 146.

216. See TRIPS, *supra* note 1, art. 27(1) (requiring patentability of inventions, “whether products or processes”); DANIEL C.K. CHOW & EDWARD LEE, INTERNATIONAL INTELLECTUAL PROPERTY: PROBLEMS, CASES, AND MATERIALS 314 (2d ed. 2012) (“[Article 27] effectively prohibits the practice of some countries that had excluded pharmaceuticals, chemicals, and processes from patents.”).

217. TRIPS, *supra* note 1, art. 27(1), (3) (“[P]atents shall be available for any inventions, whether products or processes. . . . Members may also exclude from patentability: (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals.”).

218. See Fusco, *supra* note 10, at 146-47 (discussing the author’s “exhaustive search of documents made available by the WTO” concerning “*Review of Legislations*, either at the time other countries became WTO members or when they amended their laws; the special *Transitional Review Mechanism (TRM) of China*; and *Trade Policy Reviews*”).

219. See *id.* at 147 (stating that Australia, Canada, and Brazil have made similar inquiries concerning business methods).

220. *Id.* at 150.

221. Vienna Convention on the Law of Treaties, *supra* note 200, art. 31(2)(b).

suggests that the U.S. would, if challenged, have a very hard time arguing that TRIPS does not require the protection of at least some software and business methods.²²²

Beyond the U.S., although the majority of TRIPS members do not protect business methods per se, some do.²²³ The importance of information technology in business has pressured patent offices abroad to bring at least some computerized business methods into the fold, and the line between sufficiently “technical” computerized methods and mere computer implementation of business practices is not a bright one.²²⁴ While the exact scope of computerized business

222. See Fusco, *supra* note 10, at 150-51.

223. Allison & Tiller, *supra* note 29, at 1022 n.111 (“[M]ost other countries do not recognize patents on business methods.”); Rajnish Kumar Rai & Srinath Jagannathan, *Do Business Method Patents Encourage Innovation?*, 2012 B.C. INTELL. PROP. & TECH. F. 1, 5-6 (“While the U.S. grants patents to business methods as long as they have useful application, other countries are divided. For instance, Japan, Australia, Singapore and possibly Korea generally appear to follow the U.S., whereas the European Union (‘EU’), the United Kingdom (‘UK’), Canada and India are more conservative on the issue and do not favor BMPs.”); Jason Taketa, Note, *The Future of Business Method Software Patents in the International Intellectual Property System*, 75 S. CAL. L. REV. 943, 962 (2002) (“Several countries’ patent laws, such as Germany’s, expressly prohibit the patenting of business methods and computer programs. Furthermore, the EPO has recently clarified its position that business methods are not of a technical nature, and therefore cannot receive patent protection as a process under the EPO system.”).

224. Rai & Jagannathan, *supra* note 223, at 5-6 (“[A]s the rapid development and diffusion of information technology resulted in a significant increase in importance of business methods, the [Japanese Patent Office] revised its guidelines for examination of computer software related inventions, and suggested that a business method may be patentable when claimed as a part of an invention involving a computer program.”); see Taketa, *supra* note 223, at 962-63 (explaining that “some processes [in Europe] may find protection, while others will not. For inventors deciding whether to pursue patent protection abroad for their computerized processes, the state of the law may still represent a legal crap shoot”); *id.* at 982 (“[C]omputer-implemented business methods have announced their arrival on the international scene as an industrial property that is begging for protection.”). The European Union, for example, purports to exclude “programs for computers” and “methods for . . . doing business” per se from the patent system but appears to leave room for at least some computerized business methods that have a “technical character” to be patented. See Convention of the Grant of European Patents (European Patent Convention) art. 52, Oct. 5, 1973, 1056 U.N.T.S. 199, 271-72; *Patenting Software*, WIPO, http://www.wipo.int/sme/en/documents/software_patents_fulltext.html [<https://perma.cc/J9TD-876B>] (last visited Mar. 19, 2018) (explaining that despite the potential availability of patent protection abroad because of the different legal standards utilized, “it may be that certain software-related innovations are considered as patentable subject matter in the USA, while the same

method protection around the world may be somewhat unclear, what is clear is that the U.S. is not alone among TRIPS members in offering some patent protection in the field.

C. Historical and Normative Support

Scholars who have attempted to draw the line between technology and non-technology in this context have ended up with blurry, subjective boundaries that involve deeming something “technological” based on the degree of technical detail in the claims, the kind of improvement involved, or even whether the subject matter feels sufficiently like what most traditionally would consider technological—i.e., industrial.²²⁵ As Sean O’Connor observed, “A ‘technological arts’ test sends us down a rabbit hole of trying to determine what ‘technology’ is, which is frustrated by the fact that popular use of this term is quite vague; ‘technology’ is some sort of active ‘technical’ or science-based processes *and* the artifacts that result from them.”²²⁶

But whether something is or is not a field of technology need not be a fuzzy spectrum. A better inquiry would simply ask whether the subject matter involves inventing or using tools or technology for a

innovations might fall outside of the scope of patentable subject matter in Europe or Japan”).

225. See, e.g., Durham, *supra* note 29, at 1451, 1523 (equating “useful arts” with “technological arts” and concluding that because of contextual subtleties, “[t]here is simply no single, generally accepted definition of ‘technology’”).

When a patent claims a software implementation of a non-technological plan, the validity of the claim under § 101, and under the “useful arts” clause of the Constitution, should depend on whether the claim includes enough substantive details relating to program logic or data structures that the invention is one within the technological art of computer programming . . .

. If the claim, in substance, speaks in non-technological language of non-technological concepts, it should be considered a claim to a non-technological invention. On the other hand, if the claim speaks in the programmer’s language of the programmer’s art, then the claim should be considered one to a “useful art.” Often the line may be difficult to draw.

Id.; Thomas, *supra* note 29, at 1185 (“Our patent law should comport with our perception of what technology is, not defy it. Restoring a patentability standard firmly grounded in industrial applicability, rather than equating technology with anything artificial, would enable us to maintain the integrity of our current patent system. Moreover, it would enable us to respect the boundary between the whole expression of our humanity and that small part of it that is properly called technological.”).

226. Sean M. O’Connor, *The Lost “Art” of the Patent System*, 2015 U. ILL. L. REV. 1397, 1474.

practical purpose. This view is consistent with the historical scope of the “useful arts” that have long been the domain of patent systems.²²⁷

In an excellent article tracing the history of various “arts” from antiquity through the present, Sean O’Connor explains that early patent systems both before and after the Scientific Revolution did not require that a patentable advancement be rooted in science or technology.²²⁸ Rather, patents were consistently available to advancements in the “useful arts.”²²⁹ “[I]t took until well into the twentieth century for ‘technology’ to even begin to displace ‘art’ in cases and commentary.”²³⁰ That substitution of terminology, O’Connor argues, was unfortunate because definitions of technology tend to be vague²³¹ or formalistic in ways that exclude what is clearly patentable subject matter.²³²

Inventors and invention are typically associated with STEM fields, but O’Connor argues that “‘technology’ is, in its proper usages, a descriptor of *approaches* to artisanal fields and problem-solving, it is not really about the *subject matter* of anything, much less that of patentable inventions.”²³³ Linking “science” with patentable subject matter is even more problematic from O’Connor’s perspective, as it

227. See U.S. CONST. art. I, § 8, cl. 8 (granting Congress the power “[t]o promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries”). See generally O’Connor, *supra* note 226.

228. See O’Connor, *supra* note 226, at 1470-73.

229. *Id.* at 1473 (“Famous eighteenth and nineteenth century science-based patented inventions, and cases arising from them, receive the most attention from historians of science, technology, and law (respectively); but that does not mean the patent systems of the times were limited to such inventions. Further, even with the interest in science-based inventions at the time—as suggested by nineteenth century patent treatise writers—the language of patents was still very much that of ‘arts.’”).

230. *Id.* at 1473-74.

231. See *id.* at 1474 (discussing the ambiguity of a “technological arts” test); *id.* at 1469 (“[W]e are stuck in an age where ‘technology’ has supplanted ‘art’ for essentially all human manipulations of natural materials and forces *except* those we somehow intuit are works of fine art.”).

232. See *id.* at 1474-75 (stating that “[t]he only way to get rigorous about the scope of ‘technology’ is to limit it back to one of the formal definitions such as the applied science or systematic study of *techné* fields senses. But this would unnecessarily exclude many valuable traditional (and current) patent eligible inventions such as the proverbial better mousetrap.”).

233. See *id.* at 1475 (emphasis added) (concluding that “there is not great value in distinguishing inventors who take a ‘technological’ approach from those who take any other sort of productive approach”).

arguably encourages patenting scientific principles, natural phenomena, and abstract ideas.²³⁴

O'Connor therefore advocates for a return to a focus on "art," not technology or science, and specifically the "useful arts" that the U.S. Constitution explicitly seeks to promote.²³⁵ Under O'Connor's thoroughly supported definition, "useful arts" would include any and all arts that involve the "use of natural materials or forces for practical (useful) ends."²³⁶ The key distinction is that between: (1) "practical" applications that can be measured or compared as somehow objectively or quantifiably better, stronger, faster, cheaper, etc.; and (2) fields like the fine arts, where the value or contribution is subjective and comes down to "purely taste or sentiment."²³⁷ As so understood, this definition of "useful arts" would easily encompass computerized business methods, which employ electromagnetic forces for various practical and measurable ends,²³⁸ but would still exclude the pure "building blocks" of science or economic theory.²³⁹

Importantly, though, O'Connor is careful not to conflate the concept of measurable "advances" with a requirement that the

234. *See id.*

235. *Id.* at 1476 ("The key to restoring some order to the scope of patent eligible subject matter is to revive the concept of 'useful arts.'").

236. *See id.*

237. *See id.* at 1472 ("[Francis Bacon's] resolute focus on practical and useful arts and his tripartite scheme of Memory, Reason, and Imagination (followed with some changes by the *Encyclopédists*) laid the groundwork for the category of 'useful arts' as those workings of natural materials for practical (i.e., physical well-being) ends, separate from arts with purely taste or sentiment ends."); *id.* at 1474 (explaining that patent systems' encouragement of "advances" in the art supports the "distinction between 'progress' fields that can be measured quantitatively and 'taste' or 'sentiment' fields that can only be measured qualitatively"); *see also id.* at 1414 ("[The] Quarrel of the Ancients and Moderns[, where] [a] central insight of the debate was that the output of some fields could be quantified and compared over time, while that of others could only be assessed on a qualitative basis. Progress in the former could be demonstrated because an attribute of a produced artifact was measurably stronger, faster, etc. Progress could not be demonstrated in the latter because its artifacts were valued subjectively based on 'taste' or 'sentiment.'").

238. *See id.* at 1429-30 (discussing automatically generating electronic communications and tracking customer behavior to increase conversions of cross-sales and upsales, using computers to more efficiently or less expensively process accounting records or projections for complex businesses, or reducing online shopping friction by using certain combinations or various website functions).

239. *See id.* at 1429-30, 1475 (explaining this definition would also exclude the use of computers for non-practical purposes such as the creation of computer-generated music or photography, for which the quality or improvements cannot be objectively measured).

invention be science-based, observing that “the products of a field can be measured quantitatively without the artisans practicing in it knowing much more than basic mathematics and the skills of their art.”²⁴⁰ This is consistent with Part II.A above, which shows that the use of computing technology for practical business purposes is supposed to be patent eligible under U.S. law even if it does not amount to the creation of new technology per se (as perhaps only electrical engineers and computer scientists might be able to accomplish).

In short, O’Connor’s work makes a compelling case that the scope of patent systems is supposed to extend to all useful arts, rather than the narrower fields-of-technology subset thereof recited in TRIPS.²⁴¹ Under either framing, however, uses of computer technology for practical, measurable business purposes are within the scope. Many, perhaps most, endeavors in those fields may not be “inventive” or ultimately patentable, but that is beside the point of whether the field itself is technological.

It also appears that the norms of business methods have changed in recent years such that they now better align with other fields considered “technological.” That business methods were not widely considered patent-eligible when TRIPS was ratified, but became so afterwards at least in some member countries, might be largely a matter of timing. There were at least two major shifts that culminated right around the turn of the last century. The first is the advent of the Internet and the democratization of computing technology throughout the 1990s, which fundamentally changed how commerce and communication could be conducted and lowered barriers to enter a wide variety of markets.

The second is the migration of information technology and engineering concepts and tools into business and finance fields over the latter half of the twentieth century. As John Duffy explained, “As early as the mid-twentieth century, engineers and physical scientists were already migrating into the academic realms of business, economics, and management.”²⁴² By the late 1980s, a field dubbed “financial engineering,” for example, emerged and became

240. *See id.* at 1474 (noting that “[a]t the same time, an artisan or even amateur can develop an entirely new art that is not measurable directly against existing arts but can still be quantitatively shown to address practical needs faster, cheaper, more effectively, etc.”).

241. *See id.* at 1397.

242. John F. Duffy, *Why Business Method Patents?*, 63 STAN. L. REV. 1247, 1263 (2011).

increasingly prevalent.²⁴³ Around the same time, universities began creating business-focused engineering departments, placing those programs in their engineering schools.²⁴⁴ And from the 1990s through the present, many more top engineering universities began creating financial engineering degree programs and courses that have a foundation of scientific and mathematical rigor.²⁴⁵ Thus, it is probably not a coincidence that the critical mass of both these shifts coincided with the Federal Circuit's 1998 *State Street* decision, which deemed patent-eligible any process with a "useful, concrete, and tangible result" and thereby permitted much broader patenting of business methods.²⁴⁶

Finally, a broad, technology-neutral understanding of patentable subject matter has the benefit of avoiding premature exclusion of patent protection in emerging areas like computerized business methods.²⁴⁷ The Supreme Court's decision in *Diamond v. Chakrabarty* that read § 101 broadly to deem a genetically engineered bacterium patent-eligible²⁴⁸ arguably played a significant role in fostering a robust and innovative genetics and biotechnology industry in the U.S.²⁴⁹ Likewise, with the democratization of computing technology

243. See *id.* at 1267-69.

244. *Id.* at 1268-69 ("[N]umerous universities have created courses, programs, laboratories, and even whole departments dedicated to the study of topics like financial engineering. A good example is Princeton University, which has created the Department of Operations Research and Financial Engineering as a center for the study of 'engineering for business, commerce, and industry.' Princeton, like other schools offering studies in this specialized field, has placed this department in its engineering school (specifically its School of Engineering and Applied Science).").

245. See *id.* at 1269.

246. *State Street Bank & Trust v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998); cf. Ben McEnery, *Physicality and the Information Age: A Normative Perspective on the Patent Eligibility of Non-Physical Methods*, 10 CHI-KENT J. INTEL. PROP. 106, 165 (2010) ("[F]rom a normative perspective, physicality has no role to play in patent eligibility, as a physicality requirement is an undesirable limitation on patentable subject matter. It essentially confines all process patents to manufacturing methods, using a test that may have been appropriate during the Industrial Age, but is no longer appropriate in an information-based economy.").

247. See *Bilski v. Kappos*, 561 U.S. 593, 607 (2010); *In re Schrader*, 22 F.3d 290, 297 (Fed. Cir. 1994) (Newman, J., dissenting) ("The nation has benefitted from the adaptability of the patent system to new technologies.").

248. See *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (holding that the bacterium could be considered a "manufacture" or "composition of matter" under § 101).

249. See Orozco, *supra* note 29, at 49; see also Stephen H. Haber, F. Scott Kief & Troy A. Paredes, *On the Importance to Economic Success of Property Rights in Finance and Innovation*, 26 WASH. U. J.L. & POL'Y 215, 223 (2008) ("Although

in commercial endeavors, the best approach may be not to foreclose the vast majority of computerized business methods from entering the patent system to be judged on the merits.²⁵⁰

D. Patentability Backstops

Business methods that require no computers at all (e.g., the risk-hedging method of *Bilski*) or that can be performed mentally are clearly non-technological.²⁵¹ But, as demonstrated above, computer-implemented business methods should easily be considered “fields of technology” for purposes of TRIPS Article 7(1).²⁵² Such methods possess at least some practical, measurable characteristics, removing them from the kinds of subject matter measurable only in terms of taste or sentiment. Whether those technological endeavors are ultimately patentable or are merely old and obvious computerization techniques for well-known processes is where the relative “technological” merits should be evaluated on a spectrum.²⁵³

we recognize that numerous factors impact the growth of any industry, a natural reading of this data suggests that adding patents helped spur the U.S. biotechnology industry to be the most vibrant and competitive in the world, as measured by the number of competitors doing business in the area and the number of new products brought to market.”).

250. *Bilski*, 561 U.S. at 606 (“[T]he Court today is not commenting on the patentability of any particular invention, let alone holding that any of the above-mentioned technologies from the Information Age should or should not receive patent protection. This Age puts the possibility of innovation in the hands of more people and raises new difficulties for the patent law.”).

251. *See id.* at 597-99.

252. *But see* Colleen V. Chien, *Tailoring the Patent System to Work for Software and Technology Patents 2* (Santa Clara Univ. Sch. of Law, Nov. 16, 2012), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2176520 [<https://perma.cc/XAL5-DMDT>]. Chien, whose work is discussed further below, contends that when TRIPS mandates protection for all fields of technology, that “does not mandate the patent-eligibility of methods of doing business, or the patenting of abstract claims that are devoid of technical detail.” *See id.*

253. Crouch & Merges, *supra* note 110, at 1691 (“[I]t is best not to try to map the swampy terrain of § 101 in any great detail. Whenever possible, we argue, try something else: just avoid it.”); *see id.* at 1686-87 (describing studies showing that 84–94% of claims rejected on § 101 grounds in the USPTO are also rejected on other grounds, which “show[s] an exceptionally high rate of doctrinal overlap and lends credence to the idea that, by initially avoiding subject-matter-eligibility questions, many of those potential issues will be avoided”); McEniery, *supra* note 246, at 166 (“Even though there are concerns about the patent system, and in particular business method and computer software patents, introducing a physicality requirement at the threshold is a suboptimal means of addressing these concerns. Rather, it is the

If the scope of “technology” is broad, it avoids turning away nascent fields at the door to the patent system. But that breadth at the threshold need not, and should not, translate into too many business method patents or excessively broad patent rights. Many, perhaps most, computerized business methods will not pass muster because the computer implementation itself will be technically obvious and because market pressure and common sense provide ample motivation for the automation of a plethora of business practices.²⁵⁴ Common “innovations” like taking pre-Internet processes and merely applying them to the Internet are easily found obvious.²⁵⁵ The post-*Alice* doctrine discussed above, by applying what is effectively an invention requirement, has essentially confirmed that computerized business methods will often, but not always, lack the requisite inventiveness to be patented.

To take a rather extreme example,²⁵⁶ consider a patent claim directed to a digitally stored video recording of an advertisement. Assume that the digital file format is old and only the content of the advertisement itself is new. There is surely a technological link via the digitization, but in spirit the claim falls well outside of what we think of as patentable subject matter because the substance of the claim is the expressive subject matter that is best measured by taste or sentiment. A claim directed to such a digital file would nonetheless be

strictures of novelty, inventiveness and sufficiency of description that will exclude undeserving subject matter from patentability.”).

254. See, e.g., *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417-21 (2007) (in determining obviousness, “a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions,” and should consider what “design need[s] or market pressure[s]” are involved, what “common sense” might suggest, and what “ordinary skill” and “ordinary creativity” might accomplish); David Schumann, *Obviousness with Business Methods*, 56 U. MIAMI L. REV. 727, 763 (2002) (“[T]o the extent that most businesses use computers extensively, a person of ordinary skill, given the opportunity, will computerize any procedure that can be computerized, regardless of the absence of a ‘suggestion or motivation’ in the prior art references. In light of this inherent or implicit motivation, the Federal Circuit should abandon its contrary presumption for computer-implemented business methods, and adopt the presumption that a person of ordinary skill in the art is motivated to computerize existing business methods.”).

255. See, e.g., *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1326 (Fed. Cir. 2008), *abrogated by* *Travel Sentry, Inc. v. Tropp*, 877 F.3d 1370 (2017) (observing that web browser technology was conventional and well known, and that “the modification of Parity® to incorporate web browser functionality represents a combination of two well known prior art elements to a person of ordinary skill in the art”).

256. Thanks to Mark Lemley for posing a similar hypothetical about digital music to help flesh out this analysis.

within a field of technology because of its computer-implemented nature, which affords the claimed subject matter some objectively measurable characteristics, such as data storage efficiency, recording latency, etc. Although the creative content of the file might not lend itself to a typical obviousness analysis, the digital data would not be entitled to patentable weight under the “printed matter” doctrine.

The printed matter doctrine has long excluded from patent protection arrangements of expressive or informative text where a significant or the sole “difference between the claimed subject matter and the prior art lies in the content of the information.”²⁵⁷ Put another way, the doctrine will “not give patentable weight to printed matter absent a new and unobvious functional relationship between the printed matter and the substrate.”²⁵⁸ Digitally stored data might sometimes possess a functional relationship to the disk that stores the data, as in the case of software that “dictates how application programs manage information.”²⁵⁹ Ordinary stored digital data, however, differs from the prior art only in its content.²⁶⁰ While a new digital file structure or storage format might overcome this hurdle, mere digital music, movies, and other expressive content, though within a field of technology, are unpatentable.²⁶¹

257. *In re Miller*, 418 F.2d 1392, 1395 (C.C.P.A. 1969) (“In this instance the claimed indicia and legend, being merely placed on the claimed structure in any desired location and manner, do not produce the required cooperative structural relationship necessary before the printed matter can be given patentable weight.”); *In re Russell*, 48 F.2d 668, 669 (C.C.P.A. 1931) (stating that “[t]he mere arrangement of printed matter on a sheet or sheets of paper, in book form or otherwise,” is not patentable).

258. *In re Lowry*, 32 F.3d 1579, 1582 (Fed. Cir. 1994).

259. *See, e.g., id.* at 1583 (explaining that printed matter typically concerns information that is “useful and intelligible only to the human mind,” whereas software is designed only to be computer-readable); *see id.* (holding that the data structures claimed involve more than “merely the information content of a memory,” but provide functionality that actively “manages information” and “provide[s] increased computing efficiency”).

260. *See id.* at 1584.

261. *Cf. Ex parte Carver*, 227 U.S.P.Q. 465, 1985 WL 71927, at *5 (B.P.A.I. Aug. 30, 1985) (concurring opinion) (agreeing that claims directed to a sound recording were directed to statutory subject matter, but concluding that the claims were unpatentable because “[t]he only difference between the claimed sound recording and prior art sound recordings resides in the recorded sound pattern on the substrate”); *Ex parte S*, No. 109, 25 J. PATENT OFF. SOC’Y 904, 904 (B.P.A.I. Aug. 4, 1943) (analogizing printed matter on paper to sound recordings on records). The opinion expressed concern that

[i]f the subject matter contained on the record could be considered as a material limitation in appraising the patentable novelty of the combination,

III. THE DISCRIMINATION CANNOT BE JUSTIFIED BY OTHER TRIPS PROVISIONS

Although broad, TRIPS Article 27(1)'s non-discrimination provision is qualified in significant ways.²⁶² Article 27(2) allows members to exclude from patent protection subject matter as necessary to "protect *ordre public* or morality," giving examples such as protecting human life or serious prejudice to the environment.²⁶³ Article 27(3) permits member countries to exclude some specific subject matter from patent protection, such as medical diagnostic and treatment methods, as well as plants and animals other than microorganisms.²⁶⁴ And Article 30 permits unspecified "limited exceptions" to a patent owner's exclusive rights, with two caveats to ensure that the patent right is not unduly diminished by the exception: The exception must not (1) "unreasonably conflict with a normal exploitation of the patent," or (2) "unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties."²⁶⁵

Colleen Chien believes that the flexibility provided by these exceptions is an "open secret" that permits TRIPS members to treat different inventions differently in a number of contexts, despite Article 27(1).²⁶⁶ Aside from the CBM program, Chien points to three examples of what she considers proper invention discrimination in U.S. patent law: (1) 35 U.S.C. § 287(c), which prevents doctors from being liable for infringement by performing medical or surgical procedures; (2) 35 U.S.C. § 271(e), which exempts from liability certain acts with respect to drugs and biological materials for the purpose of obtaining regulatory approval; and (3) the prohibition on patenting tax strategies under AIA § 14.²⁶⁷ But these are poor analogues to the current law concerning business method patents.

The § 287(c) exemption for medical and surgical procedures is not a restriction on patentability, but a limitation on enforceability. It

a large number of records containing widely differing kinds of novel and meritorious subject matter, such as classroom lectures, advertising formulas, music, experimental data and many other subjects could be presented for patent.

Id. at 905.

262. See TRIPS, *supra* note 1, art. 27(1).

263. *Id.* art. 27(2).

264. See *id.* art. 27(3).

265. *Id.* art. 30.

266. Chien, *supra* note 252, at 1.

267. See *id.*

implicates Article 27(1) as well as Article 30.²⁶⁸ Although “suspect” under Article 27(1) because it limits patent enforceability only as to a specified class of subject matter,²⁶⁹ the medical procedures exemption is arguably acceptable under Article 30 because it is narrowly defined,²⁷⁰ still allows for significant alternative enforcement options,²⁷¹ and involves a legitimate public interest in doctors being able to save lives without fear of infringement liability.²⁷² The fact that medical procedures, unlike business methods, are expressly allowed under TRIPS Article 27(3) to be excluded outright from patent

268. Article 30’s “limited exceptions” are subject to Article 27(1)’s non-discrimination requirement. *See Canadian Pharmaceuticals*, *supra* note 46, at 170-71 (“Article 30 exceptions are explicitly described as ‘exceptions to the exclusive rights conferred by a patent’ and contain no indication that any exemption from non-discrimination rules is intended. A discriminatory exception that takes away enjoyment of a patent right is discrimination as much as is discrimination in the basic rights themselves. . . . [T]he anti-discrimination rule of Article 27.1 does apply to exceptions of the kind authorized by Article 30.”).

269. Thomas, *supra* note 29, 1142-43 (“Given the TRIPS Agreement mandate that patent rights be enjoyable without discrimination as to the field of technology, even the recent amendment concerning medical methods appears suspect.”); *id.* at 1177 (“Under a strict reading of the TRIPS Agreement, § 287(c) presents a violation of this agreement: signatories may deny such patents altogether but once issued, may not refuse to grant such patent holders the full panoply of rights and remedies available to other patentees.”).

270. *Canadian Pharmaceuticals*, *supra* note 46, at 156 (“With no limitations at all upon the quantity of production, the stockpiling exception removes that protection entirely during the last six months of the patent term, without regard to what other, subsequent, consequences it might have. By this effect alone, the stockpiling exception can be said to abrogate such rights entirely during the time it is in effect.”). By contrast, one regulation at issue in *Canadian Pharmaceuticals* would have allowed unlimited stockpiling of patented drugs for the six-month period leading up to the patent’s expiration, which the WTO panel deemed a “substantial curtailment” of patent rights, not a limited exception. *See id.* at 155-56 (“The term ‘limited exception’ must therefore be read to connote a narrow exception - one which makes only a small diminution of the rights in question. . . . [T]he question of whether the stockpiling exception is a ‘limited’ exception turns on the extent to which the patent owner’s rights to exclude ‘making’ and ‘using’ the patented product have been curtailed.”).

271. The § 287(c) exemption also does not limit enforceability against doctors and hospitals using patented machines, drugs, or biotechnologies and leaves room for indirect liability as to other entities that induce or contribute to the performance of the patented medical procedure. *See* 35 U.S.C. § 287(c)(1)-(2)(A) (2012); *Canadian Pharmaceuticals*, *supra* note 46, at 161 (“The normal practice of exploitation by patent owners, as with owners of any other intellectual property right, is to exclude all forms of competition that could detract significantly from the economic returns anticipated from a patent’s grant of market exclusivity.”).

272. *See* Chien, *supra* note 29, at 478.

protection, and may also be justified as necessary to “protect human . . . life or health” under Article 27(2), also places § 287(c) on solid ground for TRIPS compliance.²⁷³

The § 271(e) exemption, which allows generic drug makers to perform activities to complete regulatory review before the branded drug patent expires, is similarly limited, supported by important public health policy, and essentially identical to the Canadian regulatory review exemption found to comply with Article 30 in *Canadian Pharmaceuticals*.²⁷⁴ And AIA § 14 is limited to precluding patents on “strateg[ies] for reducing, avoiding, or deferring tax liability,” which are facially non-technological, and specifically does not apply to any

273. TRIPS, *supra* note 1, art. 27(2)-(3).

274. Similar to the Bolar exemption codified in 35 U.S.C. § 271(e), the challenged Section 55.2(1) of the Canadian Patent Act provided:

It is not an infringement of a patent for any person to make, construct, use or sell the patented invention solely for uses reasonably related to the development and submission of information required under any law of Canada, a province or a country other than Canada that regulates the manufacture, construction, use or sale of any product.

Canadian Pharmaceuticals, *supra* note 46, at 2. The WTO panel found that the regulation was:

“[L]imited” because of the narrow scope of its curtailment of Article 28.1 rights. As long as the exception is confined to conduct needed to comply with the requirements of the regulatory approval process, the extent of the acts unauthorized by the right holder that are permitted by it will be small and narrowly bounded.

Id. at 158. The regulation did not unreasonably conflict with a normal exploitation of the patent because it effectively took away an *abnormal* de facto extension of the patent term caused by the regulatory review process. *Id.* at 161 (“The additional period of market exclusivity in this situation is not a natural or normal consequence of enforcing patent rights. It is an unintended consequence of the conjunction of the patent laws with product regulatory laws, where the combination of patent rights with the time demands of the regulatory process gives a greater than normal period of market exclusivity to the enforcement of certain patent rights. It is likewise a form of exploitation that most patent owners do not in fact employ.”). And the normative debate did not strongly demonstrate any legitimate interest on the part of patent owners who opposed the law. *Id.* at 168 (“[T]he interest claimed on behalf of patent owners whose effective period of market exclusivity had been reduced by delays in marketing approval was neither so compelling nor so widely recognized that it could be regarded as a ‘legitimate interest’ within the meaning of Article 30 of the TRIPS Agreement.”). The regulatory review law therefore passed muster under Article 30. *Id.* at 169 (“Having reviewed the conformity of Section 55.2(1) with each of the three conditions for an exception under Article 30 of the TRIPS Agreement, the Panel concluded that Section 55.2(1) does satisfy all three conditions of Article 30, and thus is not inconsistent with Canada’s obligations under Article 28.1 of the TRIPS Agreement.”).

other methods or devices that are used to prepare tax returns or are otherwise separable from the tax strategy itself.²⁷⁵

The law discriminating against computerized business methods and the CBM program cannot be lumped together with any of these examples. The doctrine, as applied, is preventing the vast majority of computerized business methods from being patent eligible, and the CBM program deliberately targets such patents for special invalidity proceedings where the patent owner is uniquely disadvantaged.²⁷⁶ As demonstrated above, this discrimination is de jure, or at least de facto, and solely on the basis of subject matter.²⁷⁷ And if the stockpiling exception in *Canadian Pharmaceuticals*, which only affected the enforceability of the patent against specific manufacturing and storage activities during the last six months of the patent term, was not a permissible “limited exception” to the patent right, it is hard to imagine how a complete prohibition on patenting certain subject matter could be appropriately “limited.”²⁷⁸ The primary focus of Article 27 concerns discrimination in the form of denying patent rights altogether, not limiting the scope or enforceability of those rights.²⁷⁹

Nor can the doctrine or the CBM program be justified by the “legitimate interests of third parties” under Article 30.²⁸⁰ While there

275. Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 14, 125 Stat. 284, 327-28 (2011). *Accord* H.R. REP. NO. 110-314, at 38-39 (2007) (expressing the view that similar provisions excluding tax strategies from patenting would comply with TRIPS).

276. See generally *supra* Part I.

277. See *supra* Part I.

278. See *Canadian Pharmaceuticals*, *supra* note 46, at 156. *Canadian Pharmaceuticals* also states:

With no limitations at all upon the quantity of production, the stockpiling exception removes that protection entirely during the last six months of the patent term, without regard to what other, subsequent, consequences it might have. By this effect alone, the stockpiling exception can be said to abrogate such rights entirely during the time it is in effect.

Id.

279. TRIPS, *supra* note 1, art. 27(1) (referring first to ensuring that patent rights are “available for any inventions” in all technological fields, while Articles 27(2)-(3) provide exceptions where members may “exclude from patentability” certain subject matter); see also *Canadian Pharmaceuticals*, *supra* note 46, at 105 (“The principal form of discrimination on the grounds of the field of technology contemplated in Article 27.1 was that of denial of patent rights altogether – this was the subject of the specific exceptions to this rule in the subsequent paragraphs of Article 27.”).

280. TRIPS, *supra* note 1, art. 30. While TRIPS Article 30 would also consider the legitimate interest of the patent owner, here they believed right to patent protection

are many who are targeted by abusive PAE lawsuits involving such patents, and there is a need to curtail such litigation abuses, the law does not target the abuse—the law targets the patent rights per se, regardless of the owner’s identity or conduct.²⁸¹ Eliminating patents on a particular subject matter is, at best, oblique to such interests. Plus, as Stefania Fusco notes, the broader debate about the costs and benefits of non-practicing entities in the U.S. has not reached a consensus,²⁸² which weighs against considering such factors as “legitimate interests” that warrant a limited exception for patent rights.²⁸³

is a legal interest rather than a normative “legitimate interest.” See *Canadian Pharmaceuticals*, *supra* note 46, at 164. *Canadian Pharmaceuticals* further states:

To make sense of the term “legitimate interests” in this context, that term must be defined in the way that it is often used in legal discourse – a normative claim calling for protection of interests that are “justifiable” in the sense that they are supported by relevant public policies or other social norms [T]he reference to the “legitimate interests of third parties” makes sense only if the term “legitimate interests” is construed as a concept broader than legal interests.

Id. at 164-65.

281. See *supra* Part II.B. Other actions taken to target litigation conduct instead of the patents themselves might be justified under TRIPS. See Chien, *supra* note 252, at 2 (explaining that the proposed SHIELD Act, which would help shift fees against PAEs who bring frivolous patent infringement suits, might be justified under TRIPS Article 30 because “[t]here is no ‘legitimate interest’ in imposing millions of dollars in defense costs based on a non-meritorious suit, or in racking up legal fees that far exceed the economic value of the patent, when a reasonable offer of settlement has been made”). “The insight that [PAEs] are going after the innocent users of technology such as wifi, scanners, and ecommerce protocols, could be used to craft some sort of innocent user exception to infringement.” *Id.*

282. Fusco, *supra* note 10, at 154 (“[W]ould the intent to limit NPE activity be considered a *legitimate purpose* for excluding business methods and software from patent protection? The answer to this question is difficult to determine, given the fact that, as mentioned, even in the U.S. there is no consensus with respect to the role of NPEs within the patent system.”). Fusco also asks: “How much weight should a WTO panel give to what is considered to be *legitimate* in the country in which the provision operates as opposed to the situation in other countries? Which TRIPS provisions could be used to inform the legitimacy concept in this context?” *Id.* at 154-55.

283. *Canadian Pharmaceuticals*, *supra* note 46, at 166. Because “legitimate interests” are normative in nature, a lack of consensus likely precludes an interest from being “legitimate” for Article 30 purposes. See *id.* In *Canadian Pharmaceuticals*, for example, “[t]he EC argued that patent owners who suffer a reduction of effective market exclusivity from [regulatory] delays should be entitled to impose the same type of delay in connection with corresponding regulatory requirements upon the market entry of competing products.” *Id.* The panel rejected the argument that the patent owner’s regulatory delay reflected a legitimate interest in delaying competitors’ entry into a drug market. See *id.* at 167-68. The evidence showed that although some countries had granted patent owners term extensions to compensate for the lost term,

Finally, while Article 27(2) does allow *ordre public* or morality exceptions for patentability, those exceptions are inapplicable here.²⁸⁴ The U.S. does not invoke a broad *ordre public*-based hurdle to patentability.²⁸⁵ But the European Union does, and as the European Patent Office says in its Guidelines for Examination:

This [*ordre public* or morality] provision is likely to be invoked only in rare and extreme cases. A fair test to apply is to consider whether it is probable that the public in general would regard the invention as so abhorrent that the grant of patent rights would be inconceivable.²⁸⁶

Computerized business methods do not likely rise to this level of moral outrage, like patents directed to cloning human beings or using human embryos for commercial purposes, for example.²⁸⁷ Litigation abuse involving computerized business method patents does not warrant an *ordre public* or morality exclusion of such patents either.²⁸⁸ As the EPO itself explains, “The mere possibility of abuse of an invention is not sufficient to deny patent protection . . . if the invention

other countries allowed a regulatory exception for generics but did *not* grant a corresponding term extension to the patent owner:

In addition to Canada, several countries have adopted, or are in the process of adopting, regulatory review exceptions similar to Section 55.2(1) of the Canadian Patent Act, thereby removing the de facto extension of market exclusivity, but these countries have not enacted, and are not planning to enact, any *de jure* extensions of the patent term for producers adversely affected by delayed marketing approval. When regulatory review exceptions are enacted in this manner, they represent a decision not to restore any of the period of market exclusivity due to lost delays in obtaining marketing approval. Taken as a whole, these government decisions may represent either disagreement with the normative claim made by the EC in this proceeding, or they may simply represent a conclusion that such claims are outweighed by other equally legitimate interests.

Id. at 168.

284. Taketa, *supra* note 223, at 964 (“Because it would take a leap of logic to conclude that business methods would endanger public morality, or *ordre public*, business methods are not likely to fall into the category of specifically excluded subject matter under TRIPS.”).

285. *See id.*

286. *Guidelines for Examination in the European Patent Office*, EUR. PATENT OFF. pt. G, ch. 2, § 4.1 (2017), http://www.epo.org/law-practice/legal-texts/html/guidelines/e/g_ii_4_1.htm [<https://perma.cc/P3N9-B76R>] [*hereinafter* EUR. PATENT OFF.].

287. Leahy-Smith America Invents Act, Pub. L. 112-29, § 33, 125 Stat. 284, 340 (2011) (“Notwithstanding any other provision of law, no patent may issue on a claim directed to or encompassing a human organism.”); EUR. PATENT OFF., *supra* note 286, at pt. G, ch. 2, § 5.3 (listing biotechnology inventions that are deemed to be unpatentable on *ordre public* or morality grounds).

288. EUR. PATENT OFF., *supra* note 286, pt. G, ch. 2, § 4.1.

can also be exploited in a way which does not and would not infringe ‘*ordre public*’ and morality.”²⁸⁹

The PAE phenomenon, even if morally offensive and against public policy, is not a proper reason to discriminate against patenting computerized business methods in the first place, even though those patents happen to be the types of patents often favored by PAEs. Nor does the general subject matter of “business methods” likely lend itself to arguably immoral conduct, like patenting tax strategies specifically might incentivize the exploitation of tax loopholes, as Congress once determined.²⁹⁰ Broadly taking away the ability to seek or enjoy patent protection for all computerized business methods is not justifiable on moral grounds.

Finally, Chien suggests that the discrimination against computer-implemented processes might be better viewed as a functional discrimination rather than discrimination based on subject matter.²⁹¹ Pointing to the law of contributory infringement, which provides that “staple article[s] or commodit[ies] of commerce suitable for substantial noninfringing use” are immunized from infringement liability,²⁹² Chien contends that “[p]erhaps this favorable treatment should be extended, as it is the building blocks of modern commerce—smartphones and online commerce—that are under the greatest attack today.”²⁹³ This notion has great policy appeal, especially to those who would embrace the jurisdictional view of § 101. But the law of contributory infringement is a limitation on enforceability, not patentability, and to recast it as a prohibition on patenting certain functional elements would indeed require a major “exten[sion]” of the law of § 101, if not also §§ 102 and 103.²⁹⁴ Although a more focused type of discrimination might be justifiable on some of the grounds noted above, here the existing law—and particularly the CBM program—discriminates based on the general type of claimed subject matter, not the invocation of specific kinds of technological tools.

289. *Id.*

290. See H.R. REP. NO. 110-314, at 38-39 (2007) (suggesting that a ban on tax strategy patents would be justified under TRIPS Article 27(3), which “allows members to exclude from patentability inventions that are necessary to protect *ordre public* or morality,” because such patents would be contrary to tax policy and would incentivize exploitation of tax loopholes).

291. See Chien, *supra* note 252, at 2-3.

292. 35 U.S.C. § 271(c) (2012).

293. Chien, *supra* note 252, at 3.

294. See *id.*

CONCLUSION

Computer-implemented business methods are, and should be treated as, a field of technology under TRIPS. Textually, historically, and normatively, those kinds of methods possess the technological involvement and objectively measurable qualities that are well within the proper scope of patent systems. Whether such methods are inventive or such patents are valuable and enforceable is beside the point and should be tested elsewhere.

TRIPS does not tolerate the kind of discrimination that the United States employs with respect to computer-implemented business methods. The *Alice* doctrine and the CBM program disadvantage these kinds of inventions in ways that do not correspond to anything unique about the subject matter. Computer-implemented business methods are essentially singled out as the poster child for vague, overbroad claims that are abusively asserted, but they are not the only low-quality patents that are being wielded in unsavory ways, and they should not be treated as if they are. Whether those claims are ultimately patentable should turn on the quality of the invention, not the field of technology. Nor should we single out a type of invention because we disfavor how certain owners of those patents have been behaving.

There are plenty of ways to get at the problems that have been highlighted with computer-implemented business method patents. As to patent quality, better examination for claim precision and novelty/nonobviousness will improve the situation for all patents, including business methods. As to litigation abuse, proposals such as heightened pleading requirements, mandatory disclosures, discovery efficiencies, and fee shifting can help to prevent or discourage bad actors.

As the United States considers new proposals to modify the scope of patentable subject matter, as well as proposals to extend or expand the CBM program, it should be more mindful of these TRIPS obligations. We should look at both the forest and the trees, but we should not discriminate against individual trees because of things that plague the entire forest.²⁹⁵

295. Lemley & Melamed, *supra* note 21, at 2180 (“Patent trolls are taking the rap for problems with the patent system. That is not to say trolls are not a problem; they are a large and growing one. But they are not *the* problem. Rather, they are a symptom of systemic issues the patent system faces in the IT industry—too many patents interpreted too broadly, a remedy system that routinely awards excessive damages and enables patent holders to bargain for excessively costly settlements, and an enormous royalty stacking problem. Practicing entities, as well as trolls, can and do take advantage of these issues. Rather than focusing on the trolls—the symptoms—the law should turn its attention to the disease itself.”).