

No. 08-964

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IN THE  
**Supreme Court of the United States**

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BERNARD L. BILSKI and RAND A. WARSAW,

*Petitioners,*

*v.*

DAVID J. KAPPOS, Under Secretary of Commerce  
for Intellectual Property and Director,  
U.S. Patent and Trademark Office,

*Respondent.*

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ON WRIT OF CERTIORARI TO THE UNITED STATES  
COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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**BRIEF OF ENTREPRENEURIAL AND  
CONSUMER ADVOCATES *AMICI CURIAE*  
IN SUPPORT OF RESPONDENT**

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**TABLE OF CONTENTS**

	<i>Page</i>
TABLE OF CITED AUTHORITIES .....	iv
INTEREST OF THE <i>AMICI CURIAE</i> .....	1
SUMMARY OF ARGUMENT .....	3
ARGUMENT .....	5
I. A “process” under § 101 of the Patent Act has historically been limited to technological processes .....	5
A. Congress did not intend for all processes to be patentable under § 101 – only those that advance technological progress .....	5
B. A technological process advances the development, understanding, or application of a machine, manufacture, or composition of matter .....	9
II. Allowing patents on non-technological processes is unnecessary and harmful to innovation .....	13
A. Patent protection has been unnecessary to promote innovation in non-technological business and service methods .....	14

*Contents*

	<i>Page</i>
B. By their nature, non-technological business and service innovators do not need patent incentives because they have less intensive R&D costs than technological innovators .....	21
C. Non-technological innovations in business and service disciplines are often more diffuse and collaborative and thus fall outside of the classic patent “reward” paradigm .....	22
D. Extending patent protection to non-technological methods in business and services would disrupt settled expectations and impose substantial additional costs on innovators and investors .....	23
1. Small businesses, individual entrepreneurs, and start-up companies would face new and potentially insurmountable barriers to entry if non-technological methods were patentable .....	24

*Contents*

	<i>Page</i>
2. Follow-on innovators would likely have to divert current R&D funding into defensive patenting .....	25
III. Reinforcing the long-standing technological limit on § 101 processes would improve judicial and administrative efficiency .....	27
A. Strong § 101 limitations allow the PTO to efficiently reject non-technological patent applications ...	28
B. Meaningful § 101 limitations allow courts to efficiently dismiss non-technological patent litigation .....	31
C. Congress, not the courts, is the proper institution to expand patentable subject matter .....	33
CONCLUSION .....	33

**TABLE OF CITED AUTHORITIES**

	<i>Page</i>
<b>Cases</b>	
<i>AT&amp;T Corp. v. Excel Commc'ns, Inc.</i> , 172 F.3d 1352 (Fed. Cir. 1999) .....	32
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	<i>Page</i>
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U.S. Const., art. I, § 8, cl. 8 . . . . .	5, 8
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35 U.S.C. § 101 . . . . .	<i>passim</i>
35 U.S.C. § 102 . . . . .	28
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	<i>Page</i>
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**INTEREST OF THE *AMICI CURIAE***

This brief is filed on behalf of the following organizations and individuals who fund, speak, write, and work to support entrepreneurship and consumer interests, including the freedom to innovate.<sup>1</sup>

The Kauffman Foundation is the nation's largest foundation devoted to the advancement of understanding of entrepreneurship and the important role it plays in economies and societies.

The Electronic Frontier Foundation (EFF) is a nonprofit, membership-supported public interest organization working to protect consumer interests, civil liberties, innovation, and free expression in the digital world.

Public Knowledge is a Washington-based public interest group working to defend citizens' rights in the emerging digital culture.

Brad Feld has been an entrepreneur and venture capitalist for 25 years. He has personally been involved in the creation of over 300 companies.

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1. No counsel for a party authored this brief in whole or in part, and no such counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *amici curiae*, their members, or their counsel made a monetary contribution to its preparation or submission. Letters of the Parties' general consent to file amicus briefs are on file with the Court.

Robert J. Glushko is an Adjunct Full Professor at the University of California at Berkeley in the School of Information and the Director of the Center for Document Engineering. He has nearly thirty years of R&D, consulting, and entrepreneurial experience.

Mitchell Kapor is the founder of Lotus Development Corporation and the designer of Lotus 1-2-3, the “killer app” widely credited with having helped the personal computer become ubiquitous in the business world.

Jason Mendelson is a venture capitalist, lawyer and former software engineer. He makes a living from investing in early-stage innovative companies.

Tim O’Reilly is the founder and CEO of O’Reilly Media. O’Reilly is a computer book publisher, technology conference producer, and technology advocate. He has played a key role in commercializing the internet, open source software, and Web 2.0.

Eric von Hippel is Professor and Head of the Innovation and Entrepreneurship Group at the Massachusetts Institute of Technology’s Sloan School of Management. He specializes in research related to the nature and economics of distributed and open innovation.



## SUMMARY OF ARGUMENT

Petitioners ask this Court to reject Congress' sound policy judgment, ignore § 101's substantive limitation on patentable subject matter, and open the patent floodgates in a wide variety of fields where exclusive rights are unnecessary and harmful. This Court should decline this invitation for three reasons: (1) the history and structure of § 101 limit the construction of "process" to technological processes; (2) allowing patents on non-technological methods such as those in the business and service industries is unnecessary and harmful to innovation; and (3) removing the long-standing technological limit on § 101 processes would undermine the institutional competence of both the United States Patent and Trademark Office ("PTO") and the federal courts to protect innovation.

Just over ten years ago, the Federal Circuit decided *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), knocking patent law loose from its historical moorings and improperly injecting patents into business areas where they were neither needed nor wanted. Since then, the PTO has been flooded with patent applications on a wide variety of non-technological processes that cover services like arbitration, tax-planning, legal counseling, charity fundraising, and even novel-writing.<sup>2</sup> The results

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2. *See, e.g.*, U.S. Patent Application No. 11/930,920 (filed Oct. 31, 2007) (method for modeling and executing a deferred award instrument plan); U.S. Patent No. 6,607,389 (filed Dec. 3, 2001) (method of selecting a jury); U.S. Patent No. 6,544,037 (filed Apr. 17, 2001) (method for teaching experiential writing);

(Cont'd)

have been nothing short of disastrous: many business and service companies now face serious patent threats to both their freedom to operate and to innovate. And, because few if any service-based industries need patent incentives to provide consumers with professional competence and innovation, these costs far outweigh any appreciable benefit.

The method in this case is a textbook example. If Mr. Bilski were allowed to patent his hedging method, he would be able to extract rents and potentially put out of business any individual or company who invests money or even advises others on investing in the same way as he does. In patent law, limiting competition is tolerable only when incentives are needed to promote technological progress. Bilski's method, however, does nothing to advance the useful arts; in fact, one need not even use technology to invest as Bilski does. Moreover, there can be little question that investment firms—exemplars of service-based businesses—already strive to develop innovative and effective investing methods in order to entice more clients. Thus, providing exclusive rights to a single individual or firm to control such methods goes against the core of patent policy. *See Lab. Corp. of Am. Holdings v. Metabolite, Inc.*, 548 U.S. 124, 126-27 (2006) (Breyer, J., dissenting) (“[S]ometimes *too*

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(Cont'd)

U.S. Patent No. 5,102,338 (filed July 31, 1990) (method for training children in the art of dialogue writing); U.S. Patent No. 5,190,458 (filed Apr. 17, 1991) (method of assessing a person's character); U.S. Patent Application No. 10/869,082 (filed June 17, 2004) (process of relaying a story having a unique plot); U.S. Patent Application No. 11/081866 (filed Mar. 15, 2006) (method of directing funds to a charity).

*much* patent protection can impede rather than ‘promote the Progress of Science and useful Arts.’” (quoting U.S. Const., art. I, § 8, cl. 8)) (emphasis in original).

Congress implicitly recognized as much in 1952, when it limited patentable subject matter to *technological* processes. Non-technological processes such as business methods and services were understood to be excluded from that definition, an exclusion courts respected for decades. The Federal Circuit’s *State Street* decision marked a dramatic departure from this sensible approach. Amici urge the Court to bring patent law back in line with the history, structure, and purpose of the Patent Act.

## ARGUMENT

- I. **A “process” under § 101 of the Patent Act has historically been limited to technological processes**
  - A. **Congress did not intend for all processes to be patentable under § 101 – only those that advance technological progress**

The history and structure of the Patent Act, and this Court’s own decisions, dictate that the Court should construe the word “process” to cover only technological processes – processes that advance the development, understanding, or application of machines, manufactures, and compositions of matter.

Petitioners’ interpretation of the word “process” in § 101 contradicts the spirit and holdings of this Court’s

guiding cases. Petitioners ask this Court to read “process” in § 101 as “extremely broad,” effectively covering “any” process under the sun one could invent without significant limitation. *See* Pet’r’s Br.18-20 (arguing that aside from laws of nature and abstract ideas, there are no limits on patenting processes). But Congress did not authorize patenting of “any [process] under the sun.” *See* Resp’t’s Br. 28. In § 101, Congress expressly limited patenting to four types of inventions—processes, machines, manufactures, and compositions of matter—leaving other forms of innovation, such as methods of organizing businesses, mathematical formulae, alphabets, and languages, in the public domain where freedom to innovate is prevalent. *See Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (noting that while each individual term of the four is to be construed broadly, “every discovery is *not* embraced within the statutory terms”) (emphasis added); *Parker v. Flook*, 437 U.S. 584, 588-89 (1978).

These limits are informed by the history of the Patent Act.<sup>3</sup> When Congress last amended § 101 in 1952, it did so at the height of the industrial age, an era when science and engineering focused on machines, manufacturing and the creation of compositions of matter. These were the technologies that were patentable at the time, along with the processes of creating them.

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3. As this Court has held, “a page of history is worth a volume of logic.” *Eldred v. Ashcroft*, 537 U.S. 186, 200 (2003) (quoting *New York Trust Co. v. Eisner*, 256 U.S. 345, 349 (1921)).

Not surprisingly, the prevailing understanding at that time was also that non-technological processes, such as processes for doing business, practicing law, arbitrating disputes, raising money for charity, or writing novels, were unpatentable. *See In re Bilski*, 545 F.3d 943, 1001-02 (Fed. Cir. 2008) (en banc) (Mayer, J., dissenting) (collecting cases that rejected patenting of non-technological methods). When Congress amended § 101 in 1952, it merely ratified this prevailing understanding. *See Nationwide Mut. Ins. Co. v. Darden*, 503 U.S. 318, 322 (1992) (holding that where no contrary indication is present, courts presume Congress intended to ratify, rather than overturn, the prevailing legal understanding at the time). As Judge Giles Rich, one of the principle drafters of the 1952 Act, explained soon after the Act was passed:

*Of course, not every kind of an invention can be patentable. Invaluable though it may be to individuals, the public, and national defense, the invention of a more effective organization of the materials in, and the techniques of teaching a course in physics, chemistry, or Russian is not a patentable invention because it is outside of the enumerated categories of "process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." Also outside that group is one of the greatest inventions of our times, the diaper service.*

Giles S. Rich, *Principles of Patentability*, 28 Geo. Wash. L. Rev. 393, 393-94 (1960) (quoting 35 U.S.C. § 101).

What all of Judge Rich’s examples have in common – the diaper service, a more effective organizational approach, and improved techniques for teaching courses – is that they are non-technological in nature. Even if they *use* technology—a washing machine in the case of a diaper service, telephones in implementing an improved method of organization, and a blackboard and chalk in teaching—the processes themselves are not patentable because they do not promote or advance the *technologies* themselves. See U.S. Const. art. I, § 8, cl. 8 (the purpose of patents is to “promote the progress of . . . useful Arts.”); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007) (“[T]he results of ordinary innovation are not the subject of exclusive rights under the patent laws. Were it otherwise patents might stifle, rather than promote, the progress of useful arts.”).

Limiting patentability to technological processes also comports with the historical origin of “process”, which this Court has held is synonymous with “art.” *Diehr*, 450 U.S. at 182-84. As others have pointed out “[t]he term ‘useful arts,’ as used in the Constitution . . . is best represented in modern language by the word ‘technology.’” Karl B. Lutz, *Patents and Science: A Clarification of the Patent Clause of the U.S. Constitution*, 18 Geo. Wash. L. Rev. 50, 54 (1949). See also Resp’t’s Br. 16.

In short, patentable processes must be *technological* processes.

**B. A technological process advances the development, understanding, or application of a machine, manufacture, or composition of matter**

What, then, is a “technological” process? Taken together, the Patent Act and this Court’s interpretations thereof suggest it is a process that advances the development, understanding, or application of a machine, manufacture, or composition of matter – the other subject matter categories of § 101.

This definition is grounded in this Court’s patent jurisprudence, which has consistently found these subject matters to be the “clues” for judging the patentability of processes. *See Diehr*, 450 U.S. at 187 (noting that the rejected *Flook* claims did not “contain any disclosure related to the *chemical processes* at work, the [electronic] *monitoring* of the process variables, or the [mechanical] *means* of setting off an alarm system.” (quoting *Flook*, 437 U.S. at 586)) (emphasis added), 184 (finding the “clue” to patentability in an industrial rubber curing process to be its ability to transform a *composition of matter* into rubber); *Flook*, 437 U.S. at 588 n.9 (finding strong clues to patentability lay in processes tied to particular machinery or that change materials into a different state or thing); *Gottschalk v. Benson*, 409 U.S. 63, 70-71 (1972); *Cochrane v. Deener*, 94 U.S. 780, 788 (1876) (“A process is . . . an act, or a series of acts, performed upon the *subject-matter* to be transformed and reduced to a different state or thing.”) (emphasis added).

As this Court has held, these clues are to be interpreted in light of the structure and purpose of the patent laws. *See Diehr*, 450 U.S. at 192 (“[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, *is performing a function which the patent laws were designed to protect* (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.”) (emphasis added). And while the application of a principle to a machine or the transformation of an object into a different shape or things are “clues” to patentability, by contrast, the acts of claiming postsolution insignificant activity, abstract ideas, mental processes, laws of nature and natural phenomenon are “clues” to the lack of patentability. Further clues to unpatentability include claiming technology as a mere field of use limitation, *Flook*, 437 U.S. at 595, or claiming that a process is merely capable of being carried out on a machine but does not require a particular machine for its implementation. *Benson*, 409 U.S. at 71-72; *see also generally* Pamela Samuelson, *Benson Revisited: The Case Against Patent Protection for Algorithms and Other Computer Program-Related Inventions*, 39 *Emory L.J.* 1025 (1990).

The function of the patent laws historically was not only to protect new machines, manufactures, and compositions of matter, but also the “working or making of any manner of new manufactures within this realm.” *Bilski*, 545 F.3d at 968 (Dyk, J., concurring) (quoting English Statute of Monopolies of 1623, 21 Jac. 1 c.3, s.6). One example of such workings and makings was James Watt’s famous 1769 patent on a “[m]ethod of diminishing



the consumption of fuel in [steam]-engines.” *Id.* at 970 (citation omitted). These kinds of processes – the working and making of machines and manufactures – advanced these technological subject matters, advancing the useful arts. *See also Corning v. Burden*, 56 U.S. 252, 267-68 (1853) (noting patentable processes must produce a certain effect or manufacture by means of “chemical action, by the operation or application of some element or power of nature, or of one substance to another”); *Cochrane*, 94 U.S. at 787-88 (finding patentable processes to be “a mode of treatment of certain materials to produce a given result”); *Tilghman v. Proctor*, 102 U.S. 707, 722 (1880) (manufacturing processes are within the meaning of the term “art”). Thus, each time this Court has spoken to the patentability of processes, it has reinforced that valid processes must advance the development, understanding, or application of a machine, manufacture, or composition of matter.<sup>4</sup>

This definition of “process” is also consistent with the canons of statutory construction. Under the doctrine of *noscitur a sociis*, courts look to surrounding terms to inform the meaning of any individual term in a statute.

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4. *See also Corning*, 56 U.S. at 267 (a patentable art includes “methods, or operations, . . . called processes” such as the “arts of tanning, dyeing, making water-proof cloth, vulcanizing India rubber, [and] smelting ores”); *Jacobs v. Baker*, 74 U.S. 295, 297 (1868) (quoting Curtis on Patents at 91: “But if the subject-matter be neither a machine nor a manufacture, nor a composition of matter, then, . . . it must be an art, for there can be no valid patent except it be *for a thing made*, or for the art or process of *making a thing*.”) (emphasis added) (internal citations omitted).

*See Babbitt v. Sweet Home Chapter of Comtys. for a Great Or.*, 515 U.S. 687, 687 (1995) (noting that “a word is known by the company it keeps”), 702 (*noscitur a sociis* counsels that a word “gathers meaning from the words around it” (quoting *Jarecki v. G. D. Searle & Co.*, 367 U.S. 303, 307 (1961))). Here, the word “process” is side-by-side with machine, manufacture, and composition of matter, and cannot be understood in isolation from its statutory companions.

As Judge Mayer notes in his *Bilski* Dissent, the machine-or-transformation test, if mechanically applied, is too easily circumvented with artful drafting. *Bilski*, 545 F.3d at 1008-09 (Mayer, J., dissenting). A comprehensive technological standard for patentability incorporates this Court’s clues into a holistic and workable approach, tying the word “process” to the function of the patent laws (i.e., technological progress) while at the same time minimizing the mechanical and lexicographical games that artful drafters will play if a more wooden and less historical, statutory, and policy-driven standard is adopted.<sup>5</sup>

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5. Some amici contend that lines such as “technology” are too blurry and thus unworkable as a boundary for patentable subject matter. However, contentious definitions are neither new to the law nor this Court. In fact, they exist in all areas of intellectual property law to provide judicial and administrative economy and to ensure that laws reflect public policy goals such as protecting the public domain. *See, e.g., Metabolite*, 548 U.S. at 134 (Breyer, J., dissenting) (comparing line between patentable processes and unpatentable principles to copyright law’s distinction between copyrighted material and non-copyrightable ideas); John R. Thomas, *The Patenting of the*

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## II. Allowing patents on non-technological processes is unnecessary and harmful to innovation

Drawing the line between technological and non-technological processes is not only historically and structurally proper but also comports with sound patent policy. Expanding patentable subject matter to include non-technological processes such as Bilski's business method and those in other service-based professions is unsound because (a) there are other sufficient incentives for innovation in these industries already; (b) the research and development ("R&D") costs that typically justify patent protection are lower in these fields than in technological fields; (c) innovation is far more diffuse and collaborative in non-technological fields; and (d) extending patent protection to non-technological methods in business and service industries would disrupt settled expectations and impose substantial additional costs on investors and innovators.

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*Liberal Professions*, 40 B.C. L. Rev. 1139, 1145 (1999) (comparing doctrinal bars to patents on business methods, mental steps, algorithms and printed matter to copyright law limits that protect public domain). As this Court has pointed out in other cases, there is no reason to grant patent law exceptional status simply because it presents similarly tough questions. *See eBay Inc. v. MercExchange L.L.C.*, 547 U.S. 388, 391-92 (2006); *Dickinson v. Zurko*, 527 U.S. 150, 165 (1999).

**A. Patent protection has been unnecessary to promote innovation in non-technological business and service methods**

“[F]rom the outset, federal patent law has been about the difficult business ‘of drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not.’” *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 148 (1989) (quoting 13 Thomas Jefferson, *Writings of Thomas Jefferson* 335 (Memorial ed. 1904)). Patents on non-technological methods fall firmly in the latter category.

Prior to the Federal Circuit’s ill-conceived *State Street Bank* decision, businesses and service innovations thrived in the United States without patent incentives. *See* Resp’t’s Br. 24 (discussing myriad historical financial innovations that occurred without the benefit of patent protection); Leo J. Raskind, *The State Street Bank Decision: The Bad Business of Unlimited Patent Protection For Methods of Doing Business*, 10 *Fordham Intell. Prop. Media & Ent. L.J.* 61, 93 (1999) (citing the rapid growth of fast food restaurants, self-service gasoline stations, quick oil change facilities, ATMs, and alternative long-distance telephone services as examples of business innovations that occurred without patent incentives).

Today, even in more technologically-oriented service industries, patents are rarely sought or needed to encourage innovation for new business models or services. In a recent survey of over 1,300 high technology entrepreneurs, close to three-fourths of

software and e-commerce startups reported that they do not own patents and have not applied for them, compared with less than twenty-five percent of similarly-situated biotechnology and medical device companies. Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey* (“*Berkeley Survey*”), 24 *Berkeley Tech. L.J.* (forthcoming 2009) (manuscript at 19), available at <http://ssrn.com/abstract-1429049>. Software and e-commerce companies report also seeking patent protection almost five times less frequently than computer hardware startups. *Id.* at 19-23 (reporting patents offer “relatively mixed to weak incentives to engage in innovation” in these areas). *See also id.* at 24 (reporting that patents provide between “slight” and “no incentive at all” for internal process innovations), 30-31 (reporting “patenting” as the least important incentive for innovation and maintaining competitive advantages). Thus, even in technology-based service industries, patent protection is largely disfavored as a source of incentives for innovation; for non-technological innovations, it would provide even less.

Instead, business- and service-oriented industries rely upon a wide variety of other incentives that promote innovation. These include first-mover advantages, complementary assets, trade secrets, and customer loyalty. *Berkeley Survey, supra*, at 27-28 (noting that first-mover advantages, complimentary assets, and trade secrecy are the most important strategies for securing competitive advantages among software and e-commerce startups), 32 (noting, in summary, that software and internet startups strongly prefer first-mover advantages to patents when seeking incentives to innovate).

First-mover advantages are particularly prevalent in business and service innovation because they provide competitive advantages that cannot be copied, such as consumer brand loyalty and switching costs. *See* Stefania Fusco, *Is the Use of Patents Promoting the Creation of New Types of Securities?*, 25 Santa Clara Computer & High Tech L. J. 243, 256 (2009) (citing Peter Tufano, *Financial Innovation and First-Mover Advantages*, 25 J. Fin. Econ. 213, 214-15, 234-35 (1989) and Helios Herrera & Enrique Schroth, *Profitable Innovation Without Patent Protection: The Case of Derivatives* 6 (Feb. 25, 2003), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=384822](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=384822)); Adam B. Jaffe & Josh Lerner, *Innovation and Its Discontents: How Our Broken Patent System Is Endangering Innovation and Progress, and What To Do About It* (2004) (“*Innovation Discontents*”) at 47 (discussing brand loyalty and consumer learning curves as strong first mover advantages over competitors); Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* (Nat’l Bureau of Econ. Research, Working Paper No. W7552, 2000), available at <http://ssrn.com/abstract=214952>.

For example, in frequent flyer programs, the first airline to convince a customer to invest often remains the primary program for that customer—despite robust competition from other airlines—because of the customer’s substantial investment in the program and the high switching costs associated with starting over. Such programs also face little danger of the kind of copying and free-riding that patents are meant to prevent. One airline can copy the general rules and

structure of another's program, but the true value and competitive advantage are in the customer's investment and loyalty to their account and achieving the benefits it offers. At the same time, competition keeps the pressure on airlines to continue innovating and responding to consumer demand, so that the switching costs do not become worthwhile to the customer. Patent incentives, on the other hand, would not encourage such competition—if customer-friendly programs like frequent flying were patentable, then the first airline would gain the spoils, and other airlines would be prevented from innovating and competing. *See also* Fred Smith & Brian Dumaine, *How I Delivered the Goods*, *Fortune Small Bus.*, Oct. 1, 2002, at 28, *available at* [http://money.cnn.com/magazines/fsb/fsb\\_archive/2002/10/01/330568/index.htm](http://money.cnn.com/magazines/fsb/fsb_archive/2002/10/01/330568/index.htm). (describing Federal Express' first-mover advantages).

Patent monopolies are equally unnecessary for many service-driven Internet companies such as Google, Twitter, YouTube, and MySpace. These companies have few, if any, patents and almost never enforce them. Yet they command significant market shares through their first-mover statuses, innovation-driven cultures, and emphasis on customer service and loyalty. *See* Sara Kehaulani Goo, *Building a 'Googley' Workforce*, *Washington Post Online*, Oct. 21, 2006, <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/20/AR2006102001461.html>.

In addition to first-mover advantages, business and service industries can use complementary assets to secure their market positions and recoup their investment. Lawyers who provide high quality services

to clients may also attract those clients when additional matters such as litigation arise. A good doctor will attract the family and friends of patients. A good plumber will attract repeat business for additional household problems. These business advantages—and the innovation and quality required to maintain them—are based on loyalty and reputation, not patent incentives. See Pamela Samuelson, *What Effects Do Legal Rules Have on Service Innovation?*, in *Handbook of Service Science* (P.P. Maglio, C.A. Kieliszewski & J. Spohrer, eds., 2009), available at <http://ssrn.com/abstract=1421946>; *Hearing on Issues Relating to the Patenting of Tax Advice Before the Subcomm. On Select Revenue Measures of the H. Comm. on Ways & Means*, 109th Congress (2006) (statement of Ellen Aprill, Professor of Law, & John E. Anderson Chair of Tax Law, Loyola Law School, Los Angeles, California) (noting that existing economic incentives for tax planning already provide ample inducement for the development, promotion, and implementation of new strategies).

Other non-patent incentives for innovation in the business and service industries include ongoing professional development and expertise (e.g., the more one performs and improves one's service, the higher quality performance one offers) and customization (e.g., solving a particular client's problem often provides information on the client that competitors lack). See Robert P. Merges, *The Uninvited Guest: Patents on Wall Street ("Uninvited Guest")* 10-11 (Univ. Cal. Berkeley Publ. Law & Legal Theory Res. Paper Series, Paper No. 126, 2003), available at <http://ssrn.com/abstract=410900> (citing Tufano, *supra*, at 235 (reporting



a banker's view that innovation is the best way to advertise expertise) and Michael Polanyi, *The Tacit Dimension* (1967) (discussing the highly detailed, often context-specific knowledge actually required to do a complex job well)).

Rather than the repetition of identical items, which is characteristic of manufacturing and quite vulnerable to copying, it is these individualized qualities of the service marketplace that provide competitive advantage. See Conrad Lashley, *Towards an Understanding of Employee Empowerment in Hospitality Services*, 7 Int'l J. Contemp. Hosp. Mgmt. 27, 27-32 (1995); Frances X. Frei, *Breaking the Trade-Off Between Efficiency and Service*, Harv. Bus. Rev., Nov. 2006, at 93, 93-101. Put another way, the provision of services cannot be duplicated in the same way that a product or device can be copied; thus, the classic free-riding problem in patent-intensive industries is avoided. See *Uninvited Guest*, *supra*, (citing Robin Cowan, Paul A. David & Dominique Foray, *The Explicit Economics of Knowledge Codification and Tacitness*, 9 Indus. & Corp. Change 211, 211-53 (2000) (noting that customized knowledge is difficult to codify and even harder to transfer from one person to another)).

The potential perils of patent protection in the context of financial innovation are particularly ominous. As noted above, a chief driver behind financial innovation is to make profits through perfect or near-perfect arbitrage. In other words, by repackaging and restructuring existing financial assets in new forms or combinations, arbitragers can take advantage of price discrepancies between two otherwise equivalent bundles of assets. Arbitrage is a fundamental activity in financial

markets. Moreover, it is one that has been quite active since at least the middle ages, when Venetian bankers were able to exploit regional differences in gold/silver exchange rates to turn a considerable profit. *See* Ivo Welch, *Corporate Finance: An Introduction* 248 (2008). Because arbitrage activities offer short-term profits that are often close to risk-free, such activities do not need the decades-long protection of patents to incentivize their innovation and use.

Moreover, the activities of quick-acting arbitrageurs are critical to efficiency and price discovery in financial markets. Virtually every accepted technique within financial engineering for valuing financial assets, from the Capital Asset Pricing Model to Arbitrage Pricing Theory to the Black Scholes options pricing formula depend critically on the existence of arbitrageurs who will identify and quickly dissipate arbitrage opportunities. *See, e.g.*, Mark Grinblatt & Sheridan Titman, *Financial Markets and Corporate Strategy* 230-31 (2nd ed. 2002) (discussing the critical role of arbitrage in financial derivatives pricing).

Viewed in this light, the effects of allowing patent protection for investment strategies such as the one here are plain. By its very nature, patent protection allows a patentee to delay her activities of profit extraction, unafraid of competition by others. In an arbitrage context, this implies that a patentee arbitrageur may decide to “milk” her strategy for many months, years, or even decades, and her property right to exclude others from the same strategy will induce her arbitrage position to become relatively gradual. Extending this across all (or even many) financial

innovators, the repercussions for financial market efficiency are potentially severe: market efficiency, price discovery, and the viability of benchmark valuation models in finance will be compromised by a system that induces a dampened, attenuated, and ultimately unproductive system of arbitrage.

**B. By their nature, non-technological business and service innovators do not need patent incentives because they have less intensive R&D costs than technological innovators**

Patents should only be granted to those inventions “which would not be disclosed or devised but for the inducement of a patent.” *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 11 (1966). The high R&D costs of technology innovation, coupled with low costs of copying, are a major reason why patent incentives help to promote innovation in technology-intensive industries. See James Bessen & Michael J. Meurer, *Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovators at Risk* (“*Patent Failure*”) 216 (2008).

Business and service innovations, however, do not typically require the substantial up-front investments—e.g., engineering teams, R&D labs, expensive equipment, and/or clinical trials—that undergird the perceived need for patent protection in manufacturing innovations. See Andrew A. Schwartz, *The Patent Office Meets the Poison Pill: Why Legal Methods Cannot be Patented*, 20 Harv. J.L. & Tech. 333, 369 (2007) (noting “[t]here is no need to buy or build expensive machinery or run tests on prototypes” in service professions like the practice of law). Without high up-front costs to

recoup, there is simply less need to protect service innovations with patents. Low R&D costs also allow innovators to recoup their investments more quickly without the need of twenty years of patent protection.

**C. Non-technological innovations in business and service disciplines are often more diffuse and collaborative and thus fall outside of the classic patent “reward” paradigm**

In classic patent economics, we presume that the costs of innovation will be efficiently internalized within single firms or individuals and thus, those actors will need exclusive rights to encourage investment and recoup those costs. *Patent Failure, supra*, at 216. In most technological industries such as pharmaceutical, electronics, and manufacturing firms, single entities bear the full R&D costs of initial development, refinement, production, maintenance, and ongoing innovation. These R&D costs are typically passed on to consumers as part of the price of specific products, but consumers have typically played a very minimal and indirect role in the actual practice of research and development.

In service and business industries, however, such economics do not map easily or appropriately because innovation is often derived from collaboration with customers. Mary Jo Bittner et al., *Technology Infusion in Service Encounters*, 28 J. Acad. Marketing Sci. 138, 138-49 (2000). For example, professional services innovations are often discovered and developed on-site with clients at their place of business or as a result of a client’s own innovative approaches to the problem the provider is helping to solve.

Even when the subject matter *is* technological, consumers frequently innovate new processes and then voluntarily transfer that knowledge back to the producers of the technology without patenting them and at no charge. See Jeroen P.J. de Jong & Eric von Hippel, *Measuring User Innovation in Dutch High Tech SMEs: Frequency, Nature, and Transfer to Producers* (MIT Sloan Sch. of Mgmt., Working Paper No. 4724-09, 2009), available at <http://ssrn.com/abstract=1352496>; Fred Gault & Eric A. Von Hippel, *The Prevalence of User Innovation and Free Innovation Transfers: Implications for Statistical Indicators and Innovation Policy* (MIT Sloan Research Paper No. 4722-09, 2009), available at <http://ssrn.com/abstract=1337232>. See also Yochai Benkler, *Coase's Penguin, or, Linux and the Nature of the Firm*, 112 Yale L. J. 369 (2002); Eric von Hippel, *The Sources of Innovation* (1988).

Thus, granting patents for business and service innovation fails to allocate rewards appropriately and potentially bars some user-innovators from practicing the very methods they underwrote or to which they contributed.

**D. Extending patent protection to non-technological methods in business and services would disrupt settled expectations and impose substantial additional costs on innovators and investors**

Setting aside their lack of necessity and inapplicability, patents for non-technological methods would also actively hurt innovation and disrupt settled expectations. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 739 (2002). As this Court has wisely observed, “[t]he balance between the interest

in motivating innovation and enlightenment by rewarding invention with patent protection on the one hand, and the interest in avoiding monopolies that unnecessarily stifle competition on the other, has been a feature of the federal patent laws since their inception.” *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 63 (1998). Despite the Federal Circuit’s pronouncements, this Court has never endorsed patenting for non-technological processes. Extending exclusive rights in these areas would not only unsettle expectations but also tip the patent balance away from innovation and toward stifling competition.

**1. Small businesses, individual entrepreneurs, and start-up companies would face new and potentially insurmountable barriers to entry if non-technological methods were patentable**

Business and service industries attract a high proportion of individual entrepreneurs, small businesses, and other so-called “startups.” See U.S. Small Bus. Admin. (“SBA”), *The Small Business Economy: A Report to the President*, 20-21 tbl. 1.3 (2009) (showing 41.88 percent of new financial services are small businesses and 43.88 percent of new professional and business services are small businesses). See also Robert W. Fairlie, *Kauffman Foundation Index of Entrepreneurial Activity: 1996-2009* (2009) (noting that the entrepreneurial activity rate – the percentage of American non-business-owning adults who start a business each month – increased slightly in 2008 over 2007). These entrepreneurs already face disproportional regulatory costs that inhibit their advancement in the

marketplace vis-à-vis larger firms. See W. Mark Crain, *The Impact of Regulatory Costs on Small Firms* (2005), available at <http://www.sba.gov/advo/research/rs264tot.pdf>. Imposing a new layer of significant additional costs for patent searches, legal counsel, litigation defense, and license negotiation would further drain their resources, potentially deterring investment and entry.

Moreover, if the PTO is permitted to grant broad business and service process patents, small start-up businesses would face an entirely new regime of business regulation – essentially requiring businesses to request private permits to operate from their competitors who have patents, independent of whatever technology the new business uses to compete.

## **2. Follow-on innovators would likely have to divert current R&D funding into defensive patenting**

One of the key components of thriving industries is the ability to advance the state of the art through follow-on innovation. In an ideal marketplace, one firm would discover an innovative aspect of the business and others would follow, experimenting and modifying the original method or product to find other advances. See Chairman Alan Greenspan, Remarks at the 2003 Financial Markets Conference of the Federal Reserve Bank of Atlanta (April 4, 2003), available at <http://www.federalreserve.gov/BoardDocs/speeches/2003/20030404/default.htm>.

In technological industries, follow-on innovation is often impeded by a plethora of pre-existing patents. In

patent-intensive industries, firms often develop large patent portfolios in order to navigate the so-called “patent thickets.” Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting* (Mar. 2001), available at <http://ssrn.com/abstract=273550>. While this often leads to market inefficiencies, many technology industries have adapted reasonably well to the existence of patent thickets in their fields because they must already invest in patents in order to offset the significant R&D costs they are incurring.

In traditionally patent-free industries, however, this is not the case. There, firms have traditionally not sought or obtained patent protection. Therefore, if non-technological method patents should become a permanent part of the business and service industry landscape, as had begun to be the case in the aftermath of *State Street*, and firms continue to acquire patents on these methods, competing firms and new market entrants will have no choice but to develop defensive patent portfolios and blocking patents of their own in order to avoid the potentially catastrophic risk of injunctions on their primary business models. See, e.g., *NTP, Inc. v. Research in Motion, Ltd.*, No. 3:01CV767, 2003 U.S. Dist. LEXIS 26837, at \*3 (E.D. Va. Aug. 5, 2003) (staying permanent injunction of RIM’s Blackberry Wireless Email Service pending appeal due in part to a “demonstrated and increasing use” by the public); *Patent Failure, supra*, at 176 (noting evidence of large incumbents using patent injunctions anti-competitively as a means of discouraging entry by small inventors). Ironically, in order to acquire these patents, business and service firms would have to divert



resources away from their R&D budgets in order to pay legal fees and PTO fees, thereby potentially reducing innovation in their fields. *See Berkeley Survey, supra*, at 44 (noting that many startups, even in technology sectors, do not file patents because of their high cost). All of this goes against the current settled expectations of innovators and investors in these fields.

### **III. Reinforcing the long-standing technological limit on § 101 processes would improve judicial and administrative efficiency**

Reinforcing the traditional view of § 101 will also help the PTO and the courts to use public resources more appropriately. Whether a claim qualifies as patentable subject matter under § 101 is a “threshold inquiry” and any claiming that fails to meet the requirements of § 101 must be rejected, even if it meets all other legal requirements of patentability. *See Diehr*, 450 U.S. at 188. However, if the word “process” in § 101 were construed so broadly as to cover all potential processes, technological or otherwise, this “threshold inquiry” would become superfluous. *See United States v. Blasius*, 397 F.2d 203, 207 n.9 (2d Cir. 1968) (“There is a presumption against construing a statute as containing superfluous or meaningless words or giving it a construction that would render it ineffective.”). Moreover, both the PTO and the federal court system must be able to rely on § 101 in order to efficiently stem the tide of faulty applications and litigations that have flooded the patent system.

**A. Strong § 101 limitations allow the PTO to efficiently reject non-technological patent applications**

A technological § 101 standard gives the PTO a meaningful, efficient and predictable rule against which to test patent applications, at the threshold of the process, before significant costs are incurred. Every year, the PTO struggles to review and grant patents on appropriate inventions. The longer the PTO takes to review applications, the less protection and the fewer incentives are returned to innovators. *See Innovation Discontents, supra*, at 11. Since *State Street*, there has been a dramatic increase in the number of business and service method patent applications, adding to this problem. *See Fusco, supra*, at 108; Kevin M. Baird, *Business Method Patents: Chaos at the USPTO or Business as Usual?*, 2001 U. Ill. J.L. Tech. & Pol'y 347, 348 (2001) (noting backlog of business method applications at the USPTO). Therefore, not only do non-technological process patent applications threaten freedom to innovate, they also divert PTO resources away from legitimate applications in the traditional technological industries.

Issuing a § 101 rejection is among the easiest ways for the PTO to take action. *See Bilski*, 545 F.3d at 950 n.1 (noting that a PTO examiner may reject a claim solely on the basis of § 101 and independently of any other substantive requirement and suggesting that examiners first identify and reject claims on that basis). Unlike rejections under § 102 (lack of novelty) or § 103 (obviousness), § 101 determinations are made on the claim language alone and thus do not require extensive research into the state of the art or the details of other documents. This can save examiners significant research time and lead to faster rejections of non-technological applications.

Moreover, the PTO has a long history of hiring and training technologists to be patent examiners; to force it to hire bankers, arbitrators, charity fund-raisers, and storytellers to help examine the wide array of non-technological applications that Petitioners would allow would be both a waste of resources and outside of the competencies of the Office. See Josh Lerner, *Where Does State Street Lead? A First Look at Finance Patents, 1970-2000*, 57 J. Fin. 901, 902 (2002) (noting a surprising scarcity of relevant academic citations among the post-*State Street* business method application surge and suggesting this as a result of the PTO's lack of training and experience with non-technological processes). A meaningful § 101 standard takes advantage of the institutional competencies of the PTO, allowing it to easily reject non-technological applications, and focusing its resources on examining technological innovations to reward those innovators and reduce the current PTO backlog.

As an example of how such a standard would work, consider U.S. Patent Application No. 11/081866 (filed Mar. 15, 2006) (method of directing funds to a charity) in which the primary claim is:

A method of directing funds to a charity, comprising:

receiving a first signal from a donor computer, the first signal including instructions, a request or advice indicating a desire to direct one or more payments to a donor-selected charity, at least a portion of the payment to be transferred from a giving account, the

giving account having been established to hold funds for charitable gift-giving.

This is essentially a business method patent for charities. Under Petitioners' rule, this would clearly be patentable.

However, under a rule requiring patentable processes to be technological, this claim quickly fails. It is not a process for advancing the development, understanding, or application of a machine, a manufacture, or a composition of matter. Instead, much like Judge Rich's example of a diaper service, it merely uses technology (a donor computer) without promoting its progress. Under a robust technological § 101 standard, the PTO could easily and quickly reject this application and focus its resources on other applications of more merit.

Under a robust § 101 technological standard, the Bilski application fares no better. Bilski's method makes no claim to advance the development, understanding, or application of machines, manufactures, or compositions of matter. Nor would the mere addition of a machine make it technological. *See Benson*, 409 U.S. at 71-72 (rejecting claims even though capable of being carried out on a computer). No artful drafting would save it, and a strong technological § 101 standard would allow for easy disposition.

Nor would the method from *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007), survive. There, the applicant claimed a method and a system of mandatory arbitration for disputes arising from unilateral and contractual legal

documents. *Id.* at 1368. Again, nothing present in the method attempts to advance the development, understanding, or application of machines, manufactures, or compositions of matter. Thus, it would be easily found unpatentable by the PTO. Merely implementing it on a machine (as Comiskey did in later claims) fails too because the technology employed is neither advanced nor even necessary to carry out the process, *id.* at 1379, and would merely be a field-of-use limitation. *See Flook*, 437 U.S. at 595.

**B. Meaningful § 101 limitations allow courts to efficiently dismiss non-technological patent litigation**

Beyond the PTO, a robust § 101 threshold would also empower courts to reject patent claims that were erroneously granted to improper subject matter. Much has been made of the avalanche of patent litigation in the federal court system, especially as it relates to so-called “patent trolls” – entities that acquire patents for rent-seeking but which do not actually produce products covered by the patent. *eBay*, 545 U.S. at 396 (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.”). These lawsuits are problematic because they are so costly. Rarely does one win or lose such cases on summary judgment. Parties often have little choice but to settle to avoid the cost of litigating through trial and possible appeal. *See Innovation Discontents, supra*, at 14.

Restoring § 101 as a substantive gatekeeper on inappropriate patent claims will allow at least some

defendants who are fighting patent trolls and other suspect litigants to bring relatively straight-forward motions to dismiss and for summary judgment on § 101 issues. See *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1355 (Fed. Cir. 1999) (noting, on appeal from a motion for summary judgment, that § 101 determinations are an issue of law). This could have a substantial effect on reducing unwarranted and inappropriate patent litigation in the federal court system. Compare John A. Allison & Mark R. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 187, 208 tbl. 1 (1998) (finding that from 1989 through 1996, even before *State Street*, expansive subject matter doctrines resulted in less than 1% of patents being invalidated by courts for improper subject matter) with *CyberSource Corp. v. Retail Decisions, Inc.*, 620 F. Supp. 2d. 1068, 1081 (N.D. Cal. 2009) (ruling, after the *Bilski* en banc decision, that a business method patent was invalid subject matter on motion for summary judgment and observing that “[t]he closing bell may be ringing for business method patents[.]”), *Fort Props., Inc. v. Am. Master Lease, L.L.C.*, 609 F.Supp.2d 1052 (C.D.Cal. 2009) (holding a real estate business method patent invalid under *Bilski*’s machine-or-transformation test), and *Research Corp. Techs., Inc. v. Microsoft Corp.*, No. CV-01-658-TUC-RCJ, slip op. at 9 (D. Ariz. July 29, 2009) (holding two patents invalid on motion for summary judgment under *Bilski* ’s machine-or-transformation test). A strong § 101 standard helps courts resolve these cases quickly and efficiently.

**C. Congress, not the courts, is the proper institution to expand patentable subject matter**

Finally, some argue that upholding the historically-grounded definition of “process” leaves out important areas of innovation from the world of patents. *Bilski*, 545 F.3d at 1011 (Rader, J., dissenting); *Id.* at 980-81 (Newman, J., dissenting). However, just as it is within the institutional competence of the PTO and the courts to protect innovation by using § 101’s historic threshold, expansion of patentable subject matter is the institutional domain of Congress. *Diamond v. Chakrabarty*, 447 U.S. 303, 318 (1980); *Benson*, 409 U.S. at 73. Thus, should patentable subject matter need expansion, it is for Congress to undertake, not this Court.

**CONCLUSION**

In order to preserve the freedom to innovate and proper patent policy, the Court should affirm for the reasons stated above.

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