No. 08-964

IN THE

Supreme Court of the United States

BERNARD L. BILSKI and RAND A. WARSAW,

Petitioners,

v.

JOHN DOLL, Acting Under Secretary of Commerce for Intellectual Property and Acting Director, Patent and Trademark Office,

Respondent.

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

BRIEF AMICI CURIAE OF 20 LAW AND BUSINESS PROFESSORS IN SUPPORT OF NEITHER PARTY

MICHAEL RISCH
WEST VIRGINIA UNIVERSITY
COLLEGE OF LAW
P.O. Box 6130
Morgantown, WV 26506

R. POLK WAGNER
UNIVERSITY OF PENNSYLVANIA
LAW SCHOOL
3400 Chestnut Street
Philadelphia, PA 19104

MARK A. LEMLEY
Counsel of Record
STANFORD LAW SCHOOL
559 Nathan Abbott Way
Stanford, CA 94305
(650) 723-4605

TED SICHELMAN
UNIVERSITY OF SAN DIEGO
LAW SCHOOL
5998 Alcalá Park
San Diego, CA 92110

Attorneys for Amici Curiae

224361

COUNSEL PRESS
(800) 274-3321 • (800) 359-6859

TABLE OF CONTENTS

	Page
TABLE OF CITED AUTHORITIES	iii
STATEMENT OF INTEREST OF AMICUS CURIAE	1
SUMMARY OF ARGUMENT	1
ARGUMENT	5
I. The Statute and this Court's Precedents Properly Establish a Flexible, Technology-Neutral Approach to Patentable Subject Matter	5
A. The Patent Act and Precedent Establish that Patentable Subject Matter Accommodates the Emergence of New Technologies	5
B. The Court's Limitations on Patentable Subject Matter Distinguish Between Applied and Abstract Inventions	8
C. The Federal Circuit Has Improperly Converted a Flexible, Adaptable Approach Into a Hard-and-Fast Rule	14

Contents

Page

II. Arbitrarily Narrow Limits on Patentable Subject Matter Will Reduce Incentives to Produce Valuable Inventions 16

A. The Flexible Applied/Abstract Doctrine Promotes Innovation 18

B. The Federal Circuit's Rule Will Harm Innovation 19

III. Existing Patent Doctrines Can Deal With the Problems Bad Patent Applications Create 25

A. The Patent Act Provides the Tools to Bar Bad Patents 26

B. Other Doctrines Limit the Harm from Weak Patents 29

IV. Bilski's Application Fails This Court's Applied/Abstract Test 31

CONCLUSION 33

APPENDIX 1a

TABLE OF CITED AUTHORITIES

Page

Cases:

Baker v. Selden,
101 U.S. 99 (1879) 6

Cochrane v. Deener,
94 U.S. 780 (1877) 6

Corning v. Burden,
56 U.S. 252 (1854) 6

Diamond v. Chakrabarty,
447 U.S. 303 (1980) . . . . . *passim*

Diamond v. Diehr,
450 U.S. 175 (1981) . . . . . *passim*

eBay Inc. v. MercExchange, L.L.C.,
547 U.S. 388 (2006) 4, 15, 30

Ex parte Bilski,
Appeal No. 2002-2257 (Sept. 26, 2006) 26

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.,
535 U.S. 722 (2002) 15

Funk Bros. Seed Co. v. Kalo Inoculant Co.,
333 U.S. 127 (1948) 8, 13, 17

Page

Gottschalk v. Benson,
409 U.S. 63 (1972) . . . . . *passim*

In re Alappat,
33 F.3d 1526 (Fed. Cir. 1994) 19

In re Bilski,
545 F.3d 943 (Fed. Cir. 2008) . . . . . *passim*

In re Schrader,
22 F.3d 290 (Fed. Cir. 1994) 6, 28

In re Seagate Tech., *LLC*,
497 F.3d 1360 (Fed. Cir. 2007) 4, 29

J.E.M. Ag Supply, *Inc.*
v. Pioneer Hi-Bred Int'l, *Inc.*,
534 U.S. 124 (2002) 16

Jacobs v. Baker,
74 U.S. 295 (1868) 6

KSR Int'l Co. v. Teleflex Inc.,
127 S. Ct. 1727 (2007) 26

KSR Int'l Co. v. Teleflex Inc.,
550 U.S. 398 (2007) 2, 4, 15

Le Roy v. Tatham,
14 How. 156 (1853) 13

Page

Mackay Radio & Tel. Co. v. Radio Corp. of Am.,
306 U.S. 86 (1939) 11

MedImmune, Inc. v. Genentech, Inc.,
549 U.S. 118 (2007) 15, 29

O'Reilly v. Morse,
56 U.S. 62 (1854) 9, 10, 11, 29, 32

Parke Davis & Co. v. H.K. Mulford & Co.,
189 F. 95 (S.D.N.Y. 1911) 22

Parker v. Flook,
437 U.S. 584 (1978) . . . . . *passim*

Randall v. Loftsgaarden,
478 U.S. 647 (1986) 5

State Street Bank & Trust Co. v. Signature Financial Group, Inc.,
149 F.3d 1368 (Fed. Cir. 1998) 19

W.L. Gore & Assoc., Inc., v. Garlock, Inc.,
721 F. 2d 1540 (Fed. Cir. 1983) 27

Page

Statutes:

35 U.S.C. § 100(b) 5, 21

35 U.S.C. § 101 ..... *passim*

35 U.S.C. § 112 ..... 14, 28, 29

Other:

Christopher Todd Abernethy, Note, *Cruel Hand of Bilski: Culminating the Shortsighted Crusade for Marginalization of the 'Process' Patent*, available at http://papers.ssrn.com/sol3/ papers.cfm?abstract_ id=1420205 30

American Heritage Dictionary (4th ed. 2009), *available at* http://dictionary.reference.com/search?q=process 5

http://minoxidil.us/history.htm 21

Mark A. Lemley & Bhaven Sampat, *Is the Patent Office a Rubber Stamp?*, 58 Emory L.J. 181 (2008) 27

Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 Berkeley Tech. L.J. 577 (1999) 27

Page

Kristen Osenga, *Ants*, *Elephant Guns*, *and Statutory Subject Matter*, 39 Ariz. St. L.J. 1087 (2007) 30

Patent Act of 1836, Ch. 357, 5 Stat. 117, § 6 (July 4, 1836) 9

Patent No. 1700, Improvement in the Mathematical Operation of Drawing Lottery (July 18, 1840) 10

Pharmaceutical Research and Manufacturers of America, Why Do Prescription Drugs Cost So Much . . . , http://www. phrma.org/ publications/publications/brochure/questions/ 21

Random House Dictionary (2009) 5

H.R. Rep. No. 1923, 82nd Cong., 2nd Sess. 6 (1952) 1, 7

S. Rep. No. 1979, 82nd Cong., 2nd Sess. 5 (1952) 1, 7

Michael Risch, *Everything is Patentable*, 75 Tenn. L. Rev. 591 (2008) 30

U.S. Pat. No. 4,877,805 (Oct. 31, 1989) 21

STATEMENT OF INTEREST OF AMICUS CURIAE

Amici are professors who teach and write about patent law at law and business schools throughout the United States and Canada. A complete list of signatories is attached as Appendix A. We are interested in seeing that patent law develops in a way that continues to encourage innovation in all fields of endeavor.[1]

SUMMARY OF ARGUMENT

Both the language of Section 101 of the Patent Act and the legislative history surrounding its enactment are expansive, permitting patent protection for "anything under the sun that is made by man." 35 U.S.C. § 101 ("Whoever invents or discovers *any* new and useful process… or *any* new and useful improvement thereof . . . .") (emphasis added); *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (quoting S. Rep. No. 1979, 82nd Cong., 2nd Sess. 5 (1952); H.R. Rep. No. 1923, 82nd Cong., 2nd Sess. 6 (1952)). That expansive scope reflects a wise policy judgment not to discourage innovation in new and unforeseen areas of technology by imposing arbitrary, inflexible limits on the scope of patent protection. Since this Court last addressed the scope of patentable subject matter nearly three decades ago,

1. *Amici* have no financial interest in the outcome of this case. No counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *amici* made a monetary contribution to its preparation or submission. The parties have consented to the filing of this brief.

technology has changed in unforeseeable ways. Indeed, novelty is an essential requirement to receive a patent. *Cf. KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (unpredictability is important in obvious analysis). A rule that freezes the definition of patentable subject matter in time will hobble new areas of innovation.

Unfortunately, the Federal Circuit created just such a static rule via its so-called "machine or transformation" test. It purported to draw from this Court's precedent a detailed series of requirements for patentability, but it missed the forest for the trees. This Court's precedents do not stand for the proposition that only certain classes of traditional technologies are eligible for patent protection. Instead, they reflect a broad, flexible approach to patentable subject matter, limited only by traditional exceptions for abstract ideas, natural phenomena, and laws of nature.

This flexible approach, tempered by a stable set of exceptions, is sound policy. The Federal Circuit in this case imposed new—and as we show below, essentially arbitrary—limits on the patentability of particular types of inventions. This turn by the Federal Circuit interferes with the core purposes of the patent laws in two important ways.

First, new and nonobvious processes do not arise only in fields of endeavor denominated "technological." Nor do they always involve the "physical transformation" of matter or reside in a specific type of "machine." If patent law is to play its fundamental role in spurring invention, then patentable subject matter must include any sort of new and nonobvious invention, however it is

embodied, subject only to the limitations designed to prevent the patenting of abstract ideas, laws of nature, and natural phenomena.

Second, even when the embodiment of an invention transforms matter or resides in a machine, the new and nonobvious contribution often resides in the inventor's insight that an existing transformation or machine could have an unexpected property. Limiting patent protection to physical transformations and specific machines would have problematic consequences for a variety of industries, including not only software but also pharmaceuticals and biotechnology. In these research-intensive industries, invention often consists not merely of making a new thing, but of harnessing a scientific principle or fact about the world to a new and useful end. New and nonobvious insights into which molecular structure might cure cancer, what ratio of measured chemicals in the human body indicates disease, and which form of an algorithm will properly measure the risk inherent in a debt instrument, should be patentable so long as they involve the practical application of the idea or discovery. By contrast, the scientific principle or fact itself should not be patentable, because it is merely an abstract idea, law of nature, or natural phenomenon.

We recognize there are legitimate concerns that certain business method and software patents, even those tied to a practical application, can present problems for society by walling off fundamental principles from other researchers and engineers. But the solution to the problem of bad patents in the software and business method fields (as in any area of

innovation) is not the creation of new dogmatic rules against patentability, but the application of traditional doctrines, coupled with the reform of other doctrines that encourage litigation abuse. Recent decisions, including *KSR*, *eBay*, and *Seagate*, give the courts many of the tools they need to both weed out bad patents and limit the use of patents to hold up an industry. Indeed, one of the lessons of prior attempts to restrict subject matter was that the primary effect was not to prevent the patenting of software, but—in response to patent attorneys' creative efforts to draft around these essentially arbitrary limitations—to make it more difficult for the Patent & Trademark Office ("Patent Office") and courts to identify and weed out questionable patents.

This Court should reaffirm its precedent allowing the patentability of "anything under the sun that is made by man," subject to the well-established exceptions incorporated by the abstract idea, law of nature, and natural phenomenon doctrines. Where an idea is claimed *as applied*, it is eligible for patentability, but if it is claimed merely *in the abstract* it is not.

This test provides ample basis to weed out those patents that attempt to mark not a practical application, but instead a fundamental principle, such as the patent at issue in this case. Bilski and Warsaw claim a broad principle of doing business, without tying it to any specific application. For this reason, their claims are merely "abstract ideas" and should be unpatentable. But this Court should take care not to sweep away protection for true innovations in an effort to prevent the grant of a patent in this case.

ARGUMENT

I. The Statute and this Court's Precedents Properly Establish a Flexible, Technology-Neutral Approach to Patentable Subject Matter

A. The Patent Act and Precedent Establish that Patentable Subject Matter Accommodates the Emergence of New Technologies

We begin with the simple observation that Congress intended patentable subject matter to be broad. The statute provides protection for "*any* new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101 (emphasis added). The statutory definition of the term "process" has a wide sweep: "the term 'process' means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." [2] 35 U.S.C. § 100(b). The ordinary meaning of "process"—a series of definite steps taken to achieve some end[3]—is quite general as well. Further, the term "process" was written into the statute as a substitute for the term "art." *See Diamond v. Diehr*, 450 U.S. 175, 182-84 (1981)

2. The Federal Circuit expressly disregards this statutory definition in a footnote with virtually no analysis. *In re Bilski*, 545 F.3d 943, 951 n.3 (Fed. Cir. 2008). Of course, consideration of the term "process" must necessarily begin with the statute. *Randall v. Loftsgaarden*, 478 U.S. 647, 656 (1986) ("Here, as in other contexts, the starting point in construing a statute is the language of the statute itself.").

3. *See* Random House Dictionary (2009) and American Heritage Dictionary (4th ed. 2009), *available at* http://dictionary.reference.com/search?q=process.

("In the language of the patent law, [a process] is an art"). In turn, "art," as used in this context, was historically considered anything that did not fit into one of the other categories, another very broad definition.[4] *Jacobs v. Baker*, 74 U.S. 295, 298 (1868).

We acknowledge that an overly narrow reading of some early case law might well limit processes to physical transformations. *See*, *e.g.*, *Cochrane v. Deener*, 94 U.S. 780, 788 (1877) ("A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing."). But a non-physical process was not before the Court in *Cochrane*, which affirmed patentability of a physically transformative method.[5] 94 U.S. at 791. As such, the discussion in *Cochrane* should not be read as limiting "processes" to physical transformations, but instead as an example of a type of process that is patentable.

---

4. *Jacobs* also implies that "useful arts," a separate, but related, requirement of Section 101, are not limited to "technological arts," further confirming the statute's breadth. *Id.*; *see also Corning v. Burden*, 56 U.S. 252, 267 (1854) (finding that "useful art" is a general term); *Baker v. Selden*, 101 U.S. 99, 102 (1879) (ruling that copyright cannot protect bookkeeping forms because bookkeeping is a "useful art").

5. *See also In re Schrader*, 22 F.3d 290, 295 n.12 ("subject matter" in *Cochrane* was not limited to physical transformation, and transformation of "intangibles" is also statutory subject matter, or else the method used by the telephone would not have been patentable).

This Court's modern precedent has continued to recognize a flexible definition of patentable subject matter. In 1980, it recognized that the statute is expansive, permitting patent protection for "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (quoting S. Rep. No. 1979, 82nd Cong., 2nd Sess. 5 (1952); H.R. Rep. No. 1923, 82nd Cong., 2nd Sess. 6 (1952)).

A year later, the Court refused to limit the scope of protectable patents to the kinds of processes that existed in the 19th century. As explained in *Diamond v. Chakrabarty*, "[a] rule that unanticipated inventions are without protection would conflict with the core concept of the patent law that anticipation undermines patentability." 447 U.S. at 316.

Finally, as important as what the Court *has* done with respect to interpreting patent eligibility is what it *has not* done. The Court has been careful to recognize the need for flexibility even as it has denied patentability to abstract mathematical algorithms; thus, it did so based on grounds other than a narrow interpretation of "process" or a focus on the form of the technology involved. For example, in *Gottschalk v. Benson* the Court rejected a form of the rigid "machine-or-transformation" test imposed by the Federal Circuit here:

> It is argued that a process patent must either be tied to a particular machine or apparatus or must operate to change articles or materials to a 'different state or thing.' We do not hold that no process patent could ever

> qualify if it did not meet the requirements of our prior precedents.

409 U.S. 63, 71 (1972). Six years later, in *Parker v. Flook*, the Court was even more explicit, making clear that a "physical transformation" was not a limitation:

> The statutory definition of 'process' is broad. [] An argument can be made, however, that this Court has only recognized a process as within the statutory definition when it either was tied to a particular apparatus or operated to change materials to a 'different state or thing' . . . . *we assume that a valid process patent may issue even if it does not meet one of these qualifications of our earlier precedents.*

437 U.S. 584, 589 (1978) (emphasis supplied).

Both the statute and this Court's interpretation reflect an unbroken chain of broad, flexible patent eligibility.

B. The Court's Limitations on Patentable Subject Matter Distinguish Between Applied and Abstract Inventions

Nonetheless, patentable subject matter is not unlimited. *See, e.g.*, *Diamond v. Diehr*, 450 U.S. 173, 185; *see also Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948).

Yet, when limiting eligibility, this Court has not focused on the technology, form, or "physicality" of the claimed invention—the critical mistake made by the Federal Circuit in the instant case. Rather, the Court has uniformly recognized that the key to eligible subject matter is ascertaining whether an idea is claimed *as applied*—in which case it is eligible for patentability (assuming it is not a natural phenomenon or product of nature[6])—or merely *in the abstract*—in which case it is not.

In establishing this applied/abstract distinction, the Court has not resorted to quixotic attempts to categorize types of technology or discern the transformative properties of inventions, but has instead harmonized Section 101 with the long-standing requirement that a patent claim must "enable" a person of ordinary skill in the art to make and use the claimed invention. Indeed, the subject matter and enablement requirements were formerly part of the same statutory section. Patent Act of 1836, Ch. 357, 5 Stat. 117, § 6 (July 4, 1836).

This Court's applied/abstract doctrine is more than 150 years old, emerging in *Morse*. There, the Court invalidated a claim to all communication by electrical signal as "abstract," but allowed a claim to the *application* of the communications method to stand. *O'Reilly v. Morse*, 56 U.S. 62, 112-21 (1854). Importantly, in *Morse*, it was clear that the inventor's attempt to claim an idea (communication by electrical signals) in the abstract was prohibited in large measure because he could not adequately describe its boundaries. *See id.*,

6. *See Chakrabarty*, 447 U.S. at 309-310.

at 112-21 ("In fine he claims an exclusive right to use a manner and process which he has not described and indeed had not invented, and therefore could not describe when he obtained his patent.").

Conversely, where Morse did describe and claim practical applications of the same idea—for example a "system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, for numerals, letters, words, or sentences, substantially as herein set forth and illustrated, for telegraphic purposes" —the Court viewed it as clearly patentable. *Id.* at 121. That is, where Morse narrowed his claim to a specific application of the idea of electronic communication, matching the scope of his disclosure, the invention was eligible for patentability.

Importantly for present purposes, we note the Morse's valid "system of signs" claim is not significantly different from many of the applied software and other processes claimed by today's inventors. That claim is neither "tied to a particular machine" nor transforms anything other than data, so it would fail the Federal Circuit's *Bilski* test. Nonetheless, the *Morse* Court held it patentable.[7]

---

7. The claim in *Morse* is not alone. In addition to the life insurance plans, lottery-prize distribution, and railway-ticket checking patents discussed in Judge Newman's dissent below, 545 F.3d at 989, patents covering applied—but non-transformative—processes have traditionally been patentable. One example is Patent No. 1700, Improvement in the Mathematical Operation of Drawing Lottery (July 18, 1840), which claims a method for the random selection of lottery tickets.

The applied/abstract distinction continued to play a key role in *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86 (1939). There, a well-known mathematical principle regarding the reception of radio waves was directly implemented into the patented antenna. *Id.* at 92-3. The Court recognized that "the use of the formula in practice presupposes the use of a wire whose length is a multiple of half wave lengths" and that the "formula expressed a scientific truth." Despite the direct and simple use of the formula, the Court upheld the antenna as patentable subject matter: "While a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be." *Id.* at 94

This applied/abstract distinction was also central to *Gottschalk v. Benson*, 409 U.S. 63 (1972), where the Court considered a patent directed to the mathematical conversion of "binary coded decimals" into pure binary format, a conversion that was known and could be done by pencil and paper. *Id.* at 66-67. While *Benson* is often cited for the notion that "pure mathematical algorithms" are unpatentable subject matter, the Court was in fact more concerned with the inventor's inability to describe the process in such a way that it was clear that the applicant actually invented the claimed invention:

> Here the 'process' claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may (1) vary from the operation

> of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus.

Id. at 68; *see also id. at* at 69-70 (discussing other cases in terms of definiteness). Again, the Court ruled that applied principles are patentable, but abstractions are not.

In its most recent treatment of Section 101, the Court brought the same applied/abstract approach to bear in upholding the claims in *Diamond v. Diehr*, 450 U.S. 175 (1981): "The respondents' claims were not directed to a mathematical algorithm or an improved method of calculation but rather recited an improved process for molding rubber articles *by solving a practical problem* which had arisen in the molding of rubber products." *Id.* at 181 (emphasis added). The Court noted, after surveying precedents, that:

> It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection. . . . 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 least not barred at the threshold by §101.

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

We also think that the essence of this Court's applied/abstract doctrine can be seen in Section 101's prohibition against patenting products of nature. Here, the Court has repeatedly emphasized that the patent law is designed to protect applications of human ingenuity, not simply "nature's handiwork." *See Chakrabarty*, 447 U.S., at 310; *see also Funk Brothers Seed*, 333 U.S., at 131. Thus, while a man-made organism is eligible for patentability, *see Chakrabarty*, 447 U.S., at 310, a natural bacterium is not, *see Funk Brothers*, 333 U.S., at 131. The boundary is neither the form of the invention nor its ability to "transform" nature; instead the analysis turns on whether the patent claims describe the application of human knowledge to a practical end, rather than merely identification of the existence of useful properties. In this way, a claim to an abstract idea is like a claim to a product of nature: unmoored to real-world applications of human inventiveness, and thus ineligible for patenting. "A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right." *Le Roy v. Tatham*, 14 How. 156, 175 (1853); *see also Diehr*, 450 U.S. 185 (quoting *Le Roy*), *Chakrabarty*, 447 U.S., at 309.

Finally, we note that the applied/abstract doctrine usefully harmonizes Section 101's analysis for patentable subject matter with Section 112's requirement that patentable inventions be "enabled"—that is, contain a "written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most

nearly connected, to make and use the same . . . ." 35 U.S.C. § 112. Much like Section 101, Section 112 safeguards the essential function of the patent system: the dissemination of real-world, practical human knowledge. Claims to abstract mathematical concepts (like claims to natural products or physical phenomena) violate this tenet, by failing to demonstrate that the inventor is adding to the storehouse of useful, practical human accomplishment.

In short, this Court's precedents properly establish the appropriate test for whether claims fall within the patentable subject matter requirement of Section 101: those claims which are drawn to the practical application of human ingenuity or of discoveries are eligible for patenting.

C. The Federal Circuit Has Improperly Converted a Flexible, Adaptable Approach Into a Hard-and-Fast Rule

There is no principled basis to categorically exclude a particular technology, such as a business method or a mathematical algorithm, from the "process" category. Unfortunately, the Federal Circuit's decision below creates just such a hard-and-fast rule. In essence, the Federal Circuit held that a process is unpatentable under Section 101 unless it is (1) tied to a particular machine or (2) transforms an article into another state or thing. *Bilski*, 545 F.3d at 961-2. Even if a process meets this test, it is nonetheless unpatentable if the machine or transformation is merely incidental pre- or post-solution activity or if the process would effectively preempt all use of an idea, natural phenomenon, mental process, or algorithm, even in a particular field of use. *Id.*

The Federal Circuit purported to draw this rigid rule from the Court's decisions in *Benson*, *Flook*, and *Diehr*, but it ignored the language noted above making clear that characteristics such as particular machines and physical transformations were relevant considerations—*not absolute requirements*—for patentable subject matter. In its zeal for constructing bright-line rules,[8] the Federal Circuit has missed the texture and nuance of this Court's opinions.

In so doing, the Federal Circuit's test raises a host of problems and questions that are not only unanswered, but probably unanswerable. Is a general purpose computer a "specific machine"? Does the movement of a physical object from one place to another "transform" that object or its environment? Does the collection and analysis of, for example, blood transform an object, or is it merely "insignificant pre-solution activity"? When is data "representative of a physical thing"? Many of these

---

8. This is not the first time this Court has reviewed the Federal Circuit's conversion of a flexible standard into a bright-line rule. In *KSR v. Teleflex*, 550 U.S. 398 (2007), this Court rejected the Federal Circuit's "teaching-suggestion-motivation" test as the exclusive test for obviousness. In *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118 (2007), this Court rejected the Federal Circuit's "reasonable apprehension of imminent suit" test as the exclusive test for declaratory judgment jurisdiction in patent cases. In *eBay, Inc. v. MercExchange LLC*, 547 U.S. 388 (2006), this Court rejected the Federal Circuit's rule that successful patentees are always entitled to injunctive relief in favor of a more flexible, four-factor test. And in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722 (2002), this Court rejected the Federal Circuit's absolute approach to prosecution history estoppel in favor of a more flexible approach.

questions reflect close cases involving the patentability of medical diagnostic processes, software, and putatively "non-technological" processes. But rather than evaluate those questions on their individual merits, as it has been wont to do in other areas of patent law, the Federal Circuit would willy-nilly apply a single, hard-and-fast rule cobbled together from out-of-context quotations and myopic renderings of this Court's opinions.

II. Arbitrarily Narrow Limits on Patentable Subject Matter Will Reduce Incentives to Produce Valuable Inventions

The core mission of the patent law is to create incentives for the production, disclosure, and commercialization of socially valuable inventions. The flexibility of the patentable subject matter requirement is particularly important given the rapidly changing nature of technology. This Court last considered the scope of patentable subject matter in 1981, based on inventions made nearly a decade earlier.[9] At the time those inventions were made, the biotechnology industry was in its infancy. There was no such thing as a personal computer or a cell phone, and the Internet was something used by only a few computer scientists at universities. Had the Court created an inflexible rule in 1981 governing the patentability of software or

9. This Court did decide the patentability of plants under Section 101 in *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124 (2002), but that case involved the interaction between that statute and another, not the scope of Section 101 *per se*. *Id.*, at 127. Even so, the Court opted for a broad definition of patentable subject matter. *Id.,* at 131, 145-46.

communications technologies, that rule could have had a range of unintended consequences, preventing the patenting of important new inventions in a wide range of fields. For example, *Benson* involved a claim to an abstract mathematical algorithm—which was thus unpatentable—but misreading of the opinion led many to a fundamental misapprehension that all software programs consisted of "abstract algorithms." Software does indeed consist of algorithms, but they are anything but abstract. Software programs accomplish specific results. And modern software patents mostly cover, not abstract mathematical concepts, but detailed engineering implementations of ideas that happen to be expressed in the language of mathematics. These implementations appear in many industries, from automotive to yarn making. Quite simply, innovation in industry must necessarily include innovation in applied processes. The patent application in *Benson* may have locked up all uses of an abstract idea, but it does not follow that all or even very many software patents pose a similar risk.

This Court has long recognized that Section 101's limitation on patentable subject matter plays a role in this mission, by placing beyond the realm of patentability certain limited classes of subject matter—classically described as "laws of nature, natural phenomena, and abstract ideas." *See*, *e.g.*, *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980); *Diamond v. Diehr*, 450 U.S. 175, 182 (1981). The worry is that to allow patentability for these "manifestations of . . . nature, free to all men and reserved exclusively to none," *Chakrabarty*, *supra*, at 309 (quoting *Funk Bros. Seed Co. v. Kalo Inoculants Co.*, 333 U.S. 127, 130 (1948)), would upset the delicate balance between patentees and the public.

At the same time, however, limitations on patentable subject matter are a blunt instrument, because they deny patentability to a range of subject matter regardless of how innovative it might be. Expanding these categorical denials of patentability beyond this well-established core of exceptions would work a harm of unpredictable magnitude on the incentives to innovate in the United States.

For this reason, bright-line tests that attempt to exclude specific types of technologies are problematic. There is no clear dividing line between "software" and "non-software" patents, or a computer system that implements a "business method" and one that implements some other type of process, or between "technological" and "non-technological" inventions. More importantly, new and nonobvious innovations do not occur only on one side of any of these lines. Any of these tests, proposed decades ago, would have missed important new and non-abstract inventions.

A. The Flexible Applied/Abstract Doctrine Promotes Innovation

This Court has recognized that allowing patenting of mathematical algorithms in the abstract would harm innovation by allowing patent-holders to "wholly preempt the mathematical formula," and thus encompass every conceivable use of a fundamental principle. *See*, *e.g.*, *Benson*, 409 U.S. 63, 71-72; *see also Diehr*, 450 U.S. at 188.

At the same time, the law recognizes that in many cases it will be the recognition and implementation of

the practical utility of an algorithm that is an innovation: the use of the Arrhenius equation to determine cure time in rubber, the use of basic geometric principles to guide the intensity of pixel display on a screen, or perhaps the use of accounting principles in an automated hub-and-spoke arrangement among mutual funds. *See Diehr*, 450 U.S. at 178-79; *In re Alappat*, 33 F.3d 1526, 1538-39 (Fed. Cir. 1994); *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1371-72 (Fed. Cir. 1998).

The right balance, then, is one that prevents the patenting of subject matter that, because of its abstract nature, properly belongs in the commons upon which future innovations can be built, "free to all men and reserved exclusively to none," but permits patenting inventions that build upon that commons to implement an idea, law of nature, or natural phenomena in a new and nonobvious practical application. This was, we think, exactly the balance struck by the Court (and, indeed, the Federal Circuit itself) before the Federal Circuit's recent misadventure in *Bilski*.

B. The Federal Circuit's Rule Will Harm Innovation

The Federal Circuit's conclusion in this case—that "processes" cannot be patented unless they involve an unmistakable physical or mechanical component—would alter the line between patentable and unpatentable subject matter from one that merely requires a practical application of an algorithm to one that requires some form of physical manifestation or transformation. We addressed the statutory and practical problems with

a physical transformation requirement above. Here, we address a different concern with the Federal Circuit's newly minted test—namely, the suggestion that not only must an invention include some physical embodiment or material transformation, but that the physical or material aspect of the claimed invention itself must be the "point of novelty" in the invention rather than an "insignificant" part of the invention. *Bilski*, 545 F.3d at 957.

Such an approach would return the law to the oft misunderstood dicta of *Parker v. Flook*, 437 U.S. 584 (1978), which was clarified a mere three years later by this Court in *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) ("Our recent holdings in *Gottschalk v. Benson* [] and *Parker v. Flook* … stand for no more than these long-established principles [that abstract ideas are not patentable]"). The Federal Circuit's approach would not merely exclude "mental" processes standing alone from patentability, but would effectively exclude even ideas or algorithms that have a definite practical application by requiring that the *physical embodiment*—not the idea or process itself—be new and nonobvious.

The problem with excluding new ideas from consideration in the novelty and nonobviousness inquiry is that doing so would exclude many of our most important inventions from patentability despite unmistakable statutory language to the contrary. Take, for example, new uses of existing chemicals. If a drug company discovers that an existing chemical can be used to treat depression by selectively inhibiting the uptake of serotonin in the human brain, the physical step that

follows—putting that chemical into pill form and prescribing it to patients—is straightforward and obvious. The real inventive work is in the discovery of the new use for the chemical.[10]

That discovery, standing alone, may be an abstract idea, or merely the identification of a natural phenomenon—but it would be unwise in the extreme to bar patentability for the practical application of this discovery to a new and useful end merely because that practical application was the result of a discovery. The pharmaceutical industry relies on patent protection to recoup the hundreds of millions of dollars it invests in developing and testing new drugs. *See* Pharmaceutical Research and Manufacturers of America, Why Do Prescription Drugs Cost So Much . . . , http://www.phrma.org/publications/publications/brochure/questions/. And pharmaceutical compositions—even those based on natural products—have been patentable for years. *See* 35 U.S.C. § 100(b) (stating that a "process" includes "a new use of a known process, machine, manufacture, composition of matter, or material").

Other examples involve DNA patents or computer programs. There are literally thousands of patents on isolated or chimeric human DNA sequences that serve an identified purpose. These gene sequences are not,

---

10. For example, note the history of minoxodil, which was originally marketed as a drug to treat high blood pressure, and is now better known for its success in treating hair loss (as *Rogaine*). *See* http://minoxidil.us/history.htm. *See also* U.S. Pat. No. 4,877,805 (Oct. 31, 1989) ("Methods for treating sundamaged human skin with retinoids") (new use of Retin-A).

of course, patentable as they exist in the human body, but they should be considered patentable when they are altered from their natural state in a way that achieves a practical result, such as moving that gene sequence into a new bacterium to change the behavior of that bacterium. *See Diamond v. Chakrabarty*, 447 U.S. 303 (1980); *see also Parke Davis & Co. v. H.K. Mulford & Co.*, 189 F. 95 (S.D.N.Y. 1911) (L. Hand, J.) ("[W]hile it is of course possible logically to call this a purification of the principle, it became for every practical purpose a new thing commercially and therapeutically. That was a good ground for a patent."). But it is not the isolation of the DNA sequence itself that makes the invention socially valuable; it is the identification of the function of the particular gene that is critical to the practical use of that sequence. Under the Federal Circuit's strained reading of *Flook*, though, courts would be forced to disregard the important discovery of the function of the gene, since it was a discovery of a natural principle, and could ask only whether the physical isolation of that particular gene was nonobvious given the isolation of thousands of similar genes in the past.

The same is true of software: the value of a new program is often not the transformation of a physical object such as a computer but the fact that information is processed differently by the new program or that the program generates new information as results. An invention that doubles the speed at which a computer starts up, for instance, does not necessarily transform anything physical, but it is a valuable improvement that makes it easier to use a computer. Yet again, under the Federal Circuit's inflexible test – one expressly rejected

in *Diehr*,[11] that would not matter—it is only the incidental change to the physical environment that would determine patentability of the new algorithm or program.

It is true that some would celebrate the effective elimination of software and DNA patents, and perhaps even the elimination of drug patents. But that decision should be made, if at all, by Congress. And we think it unlikely in the extreme that Congress would or should adopt such a restrictive view of patentable subject matter. Pharmaceutical and biotechnology patents are critical to encouraging innovation in those industries. And while there is more controversy over the net benefits of software patents, Congress has not seen fit to abolish or restrict them. Indeed, no one has introduced a bill doing so despite intensive Congressional consideration of patent reform over the past four years.

The risk of a limited conception of patentable subject matter is broader than the damage that might be done to existing industries that rely on patent protection.

---

11. Specifically, the Court stated:

> In determining the eligibility of respondents' claimed process for patent protection under § 101, their claims must be considered as a whole. 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.

450 U.S., at 188.

A broad eligibility requirement enables the patent system to respond flexibly to the development of new technologies. *See Chakrabarty*, 447 U.S. at 316 ("A rule that unanticipated inventions are without protection would conflict with the core concept of the patent law that anticipation undermines patentability. . . . Congress employed broad general language in drafting § 101 precisely because such inventions are often unforeseeable."). If patentable subject matter is restricted to nonobvious *physical embodiments*, some new and as-yet-unforeseen field of invention may not qualify for patent protection. A rule that applies modern understandings of what constitutes technology to new fields of endeavor deprives patent law of the flexibility it needs to provide effective protection to new technologies.

We respectfully suggest, therefore, that the proper approach to patentable subject matter is articulated in this Court's decisions in *Diamond v. Diehr* and *Diamond v. Chakrabarty*, not the Federal Circuit's overly narrow reading of *Parker v. Flook* – a reading rejected by this Court. The question of whether an invention is patentable subject matter should be answered by looking at the claimed invention as a whole, not by dissecting it into its parts and disregarding some of those parts.

The Federal Circuit paid lip service to this principle, announcing that it would not require that the physical implementation as opposed to the invention as a whole be the novel and nonobvious feature of the invention. But it then undermined that principle by reading *Diehr* and *Flook* incorrectly to reach the conclusion that

physical activity must be "significant." This Court did point out in *Diehr*, 450 U.S. at 191-92, that an applicant could not avoid the abstract ideas limitation by adding a trivial physical embodiment to a claim covering an abstract idea. But the point of that test, properly understood, is to prevent strategic behavior from undermining the limitation on patenting abstract ideas. The Federal Circuit erred by reifying that practical limit into a requirement that there must always be a physical transformation or mechanical implementation of an invention that is itself "significant." The right question is whether the claim as a whole is being used as a vehicle to lock up the unpatentable principle, not whether the particular application of that principle being patented is or is not physical or "significant."

III. Existing Patent Doctrines Can Deal With the Problems Bad Patent Applications Create

We acknowledge that there are problems with software and so-called "business method" patents. The Patent Office has doubtless issued many patents it should not have, the uncertainties of claim construction and other doctrines may allow plaintiffs to overclaim even valid patents, and aspects of damages rules may lead some to seek to capture more than the economic value of their invention. But existing patent doctrines of novelty, obviousness, enablement, claim construction, and remedies are better suited to address bad patents and the problems they create.

A. The Patent Act Provides the Tools to Bar Bad Patents

There are very few, if any, questionable patents—including the Bilski application—that might be barred on subject matter grounds that could not also be barred by other patentability criteria. The Board of Patent Appeals and Interferences (BPAI) recognized this point in this case, rejecting the patent on subject matter grounds, and only subject matter grounds, to ensure that the Federal Circuit would actually see an appeal on such grounds. *See Ex parte Bilski*, Appeal No. 2002-2257 (Sept. 26, 2006). For that reason, a holding that Bilski's application claims patentable subject matter would not necessarily mean that the invention at issue is patentable. In fact, we strongly suspect that Bilski's application could easily be rejected on novelty and nonobviousness grounds.

In general, there are many options for barring bad patents, including improperly issued "business methods" patents and "mental steps" claims:

(1) Novelty and Obviousness. One recurring criticism, especially for software and business methods patents, has been that the Patent Office has granted claims for old and obvious methods. This is not a problem of subject matter but of application; after this Court's recent decision in *KSR*, it is much easier for lower courts to reject or invalidate specious claims. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). Additionally, the Patent Office has more strictly applied patentability criteria and the grant rate in the "business method"

class has fallen dramatically. *See* Mark A. Lemley & Bhaven Sampat, *Is the Patent Office a Rubber Stamp?*, 58 Emory L.J. 181 (2008) (finding that only 15% of applications in Class 705, business methods, had been approved 7½ years after filing).

Another concern with business method patents is that they protect methods that are widely practiced, but undiscoverable by patent examiners in order to use as "prior art" to reject patents.[12] This, too, is not an issue of subject matter; patent law has never barred patents because others have used methods secretly. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F. 2d 1540, 1550 (Fed. Cir. 1983). Instead, it reflects a concern, not that existing rules are inadequate, but that they are not always applied in the Patent Office with enough care. In fact, as examiners have gained more experience with such patents and with searching public databases for information about them, they have rejected more patents. *See* Mark A. Lemley & Bhaven Sampat, *supra*.

Indeed, complaints about examiner difficulty in finding publicly disclosed methods in patents and similar prior art are quite ironic, for they are in part a product of pre-*Diehr* uncertainty about software patents. The perceived inability to patent software-related inventions drove such inventions "underground" into trade secrecy or into disguise as non-software inventions, making them more difficult to find and apply to invalidate

---

12. Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 Berkeley Tech. L.J. 577, 589 (1999).

patents today. That was a mistake that should not be repeated—the business methods applications of the past decade or more, whether issued as patents or not, will provide a wealth of publicly available prior art for future filings. Forcing companies to keep such methods secret or disguise them as other technologies will only further deplete the prior art pool.

(2) Utility. Part of the Section 101 analysis includes determining whether a claimed invention has utility. See 35 U.S.C. § 101 ("Whoever invents or discovers any new and *useful* process . . . .") (emphasis added). The traditional test for utility is "practical," not "technological" utility. Practical utility requirements serve to bar otherwise abstract ideas and algorithms. For example, a standalone mathematical algorithm would not be patentable because it does not have practical utility, even if the algorithm is a process under Section 101. While such an algorithm may allow for new, faster, or more accurate computation of real world effects, it does not "do" anything unless coupled to some useful process or device, and practical utility requires some contribution beyond the possibility of calculation. *See In re Schrader*, 22 F.3d 290, 295 (Fed. Cir. 1994) (some sort of practical effect is required, even if not a physical transformation).

(3) Specification and Claiming. A primary concern with any effort to deny patentability to claims that are solely composed of "mental steps" is that human intervention fails the definiteness, written description, and enablement tests under 35 U.S.C. § 112, because—as a species of "abstract ideas"—they allow for claims that are far broader than the applicant has disclosed.

Indeed, we showed earlier how this Court has historically used the enablement standard of Section 112 to determine whether a claimed invention is an "abstract idea." By limiting a patentee to what he has actually taught one of ordinary skill in the art to make and use, the enablement doctrine prevents just the sort of sweeping claims to abstract ideas with which this Court's Section 101 cases have been concerned. Indeed, the claim invalidated in *Morse* was suspect in large part due to lack of enablement. 56 U.S., at 112-21.

In this regard, we think it is essentially impossible to draw a principled boundary around claims that are completely "mental." By contrast, a rule that permits patenting so long as the mental step is one that is claimed only in connection with a practical application of the idea—which requires that a claim be enabled by the patent's disclosure—avoids such a problem.

B. Other Doctrines Limit the Harm from Weak Patents

To the extent that the traditional statutory patentability criteria do not weed out bad patents, recent changes in the law will reduce the harm caused by those weak patents. For example, in *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118 (2007), this Court loosened the standards for declaratory judgment of patent invalidity, making it easier for potential defendants to seek to invalidate patents. Similarly, the Federal Circuit's recent determination in *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc), that willful infringement requires objective recklessness reduces the risks associated with reviewing patents in any given subject area. As such, *Seagate* will allow potential defendants to read

patents and decide whether to design around or challenge weak patents rather than simply close their eyes to the existence of weak patents.

Finally, in *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006), this Court held that lower courts have discretion to deny injunctive relief in accordance with the principles of equity. District courts can use this discretion to deny injunctions in cases in which the owner of a valid patent seeks to "hold up" a defendant by threatening to shut down a large, multi-component product because of infringement of a small piece of that product.[13]

In sum, the courts have a combination of statutory and doctrinal tools available to reject, invalidate, or narrow patents that might otherwise be considered problematic. Congress is actively considering further changes to the patent system designed to improve the scrutiny of patent applications and reduce abuse of bad patents. Those tools are far better suited toward limiting the social harm from inappropriate claims than any "subject matter" test will ever be. And they pose less risk of categorically denying important new inventions the benefits of patent protection. As such, these other doctrines should be used whenever possible in lieu of difficult-to-enforce subject matter bars. *See* Kristen Osenga, *Ants, Elephant Guns, and Statutory Subject Matter*, 39 Ariz. St. L.J. 1087 (2007); Michael Risch, *Everything is Patentable*, 75 Tenn. L. Rev. 591, 606-7 (2008); Christopher Todd Abernethy, Note, *Cruel Hand of Bilski: Culminating the Shortsighted Crusade for Marginalization of the 'Process' Patent*, available at http://papers.ssrn.com/sol3/ papers.cfm?abstract_ id=1420205.

13. These reforms do not end the problem of holdup, of course, though they reduce it.

IV. Bilski's Application Fails This Court's Applied/ Abstract Test

Using this Court's applied/abstract dichotomy, we believe the *Bilski* application is unpatentable as an abstract idea. *Bilski*, 545 F.3d at 1015 (Rader, J. dissenting). The representative claim 1[14] relates to an abstract concept: a method of hedging by identifying parties with differing risk profiles. Importantly, the claim is not for a practical application of hedging; rather, it is so broadly enumerated as to be a general principle that is non-enabled. For example, the claim purports to cover every method of identifying the risk profiles for buyers and sellers of different types of commodities, while the patent fails to describe or enable such a broad claim.

---

14. Claim 1 reads:

> A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of: (a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer; (b) identifying market participants for said commodity having a counter-risk position to said consumers; and (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

J.A. 19-20.

The Bilski application is remarkably similar to that of *Morse*. The application describes and enables a very specific application regarding energy that is affected by weather. The application discloses, among other things, gathering data about the previous 20 years worth of transactions and weather; simulating the payoffs and profits from historical transactions and hypothetical weather levels, repeating the process until the simulations yield acceptable profits, and steps to buy and sell options to hedge against risk. J.A. 16-19.

Like the "system of signs" claim upheld in *Morse*, this disclosure might well support a claim relating to the particular application described, assuming that other patentability criteria are met. But it does not justify granting a patent on all forms of hedging risk, just as Morse's pioneering invention did not justify his claim to all electromagnetic communication.

Like the claims of Morse's patent that this Court upheld as patentable, the Bilski claim could be made practical in a number of ways—namely, by limiting it to an enabled invention either by claiming more specific means to carry out the method or by more narrowly claiming the steps of the method.[15] Yet, contrary to the Federal Circuit's position, none of these paths to patentability turns on the claiming of a machine or transformation of matter.

---

15. Even so limited, it is likely that the Bilski application is unpatentable because it purports to cover technology already known or obvious to those of skill in the art.

CONCLUSION

The patent statutes were wisely drafted with an expansive vision of patentable subject matter. Efforts to graft judicially created limitations onto that expansive scope in the past have proven fruitless and indeed counterproductive. This Court should not impose a requirement that patentable inventions require a machine or the physical transformation of some material. It should instead maintain the rule that patents are available for "anything under the sun made by man," including discoveries of ideas, laws of nature, or natural phenomena so long as they are implemented in a practical application. In short, the test should be as it has been: where an idea is claimed *as applied*, it is eligible for patentability, but if it is claimed merely *in the abstract* it is not.

Respectfully submitted,

Michael Risch
West Virginia University
College of Law
P.O. Box 6130
Morgantown, WV 26506

R. Polk Wagner
University of Pennsylvania
Law School
3400 Chestnut Street
Philadelphia, PA 19104

Mark A. Lemley
Counsel of Record
Stanford Law School
559 Nathan Abbott Way
Stanford, CA 94305
(650) 723-4605

Ted Sichelman
University of San Diego
Law School
5998 Alcalá Park
San Diego, CA 92110

Attorneys for Amici Curiae

APPENDIX

List of Signatories[1]

Professor John R. Allison
McCombs Graduate School of Business
University of Texas at Austin

Professor Dan L. Burk
Chancellor's Professor of Law
University of California, Irvine School of Law

Professor Daniel R. Cahoy
Smeal College of Business
Penn State University

Professor Michael A. Carrier
Rutgers Law School-Camden

Professor Christopher A. Cotropia
University of Richmond School of Law

Professor Emir Aly Crowne-Mohammed
University of Windsor Law School

Professor Stacey L. Dogan
Boston University School of Law

Professor Thomas G. Field, Jr.
Franklin Pierce Law Center

---

1. Institutions listed for identification purposes only.

Professor Richard S. Gruner
John Marshall Law School

Professor Chris Holman
UMKC School of Law

Professor Mark A. Lemley
William H. Neukom Professor
Stanford Law School

Professor Michael J. Madison
University of Pittsburgh School of Law

Professor Joseph S. Miller
Lewis & Clark Law School

Professor Stephen McJohn
Suffolk University Law School

Professor Kristen Osenga
University of Richmond School of Law

Professor Lee Petherbridge
Loyola Law School – Los Angeles

Professor Michael Risch
West Virginia University College of Law

Professor Kurt M. Saunders
College of Economics and Business
California State University - Northridge

Professor Ted Sichelman
University of San Diego Law School

Professor R. Polk Wagner
University of Pennsylvania Law School