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United States Court of Appeals

for the

Federal Circuit

IN RE BERNARD L. BILSKI and RAND A. WARSAW

Appeal from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences

BRIEF OF *AMICUS CURIAE* REGULATORY DATACORP, INC. IN SUPPORT OF NEITHER PARTY

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CERTIFICATE OF INTEREST

Counsel for *Amicus Curiae* Regulatory DataCorp, Inc. certifies the following:

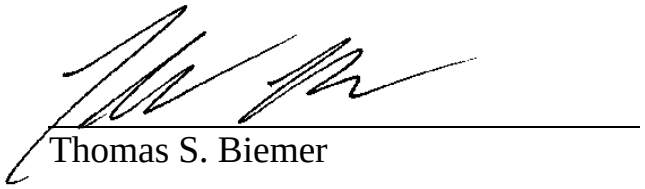
1. The full names of every party or *amicus* represented by us are: Regulatory DataCorp, Inc.

2. The names of the real parties in interest represented by us are: See 1 above.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of any of the parties represented by us are: Goldman, Sachs & Co., and Bain Capital, LLC.

4. ? There is no such corporation listed in paragraph 3.

5. The name of all law firms and the partners or associates that appear for any of the parties represented by us in the trial court or are expected to appear in this Court are: (a) Thomas S. Biemer, Steven I. Wallach, and Philip J. Foret of Dilworth Paxson LLP, and (b) John F. Duffy of Fried, Frank, Harris, Shriver & Jacobson LLP.



Thomas S. Biemer

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STATEMENT OF INTEREST OF *AMICUS CURIAE*

> The idea of a private citizen funding military research off the government books was unusual in [Alfred] Loomis's time but would surely be a scandal today. Loomis filed valuable radar patents on the results . . . . [W]ithout Loomis, the technology advances that helped win [World War II] might never have happened.
>
> An equivalent feat today would be a dot-com billionaire locking himself and dozens of bright programmers in a garage on Woodside Road in Silicon Valley to write code that would profile and identify would-be terrorists. Outside the bounds of cautious politicians or turf-minded agencies, he would access private and public databases to track terror suspects – *and then patent the technique*.
>
> – L. Gordon Crovitz, *Doing Battle in the Lab – and Off the Books*, Wall St. J., July 25, 2002, at D10 (book review) (emphasis added).

Eighteen months before this compelling account of how the patent system benefited the nation's security in the days of Alfred Loomis and this clarion call for it to do so again today, Goldman, Sachs & Co. filed its first patent application on sophisticated computer technology designed to detect suspicious financial transactions, including terrorist-financing schemes. In fact, in the same month as Crovitz penned these words, twenty-one of the world's leading financial services firms – including commercial banks, broker-dealers, investment banks, and consumer finance firms – launched Regulatory DataCorp, Inc. (RDC) under an exclusive license to this technology.[1]

[1] *E.g.*, U.S. Patent No. 7,181,428 (filed Jan. 30, 2001); U.S. Patent Appln. Pub. No. 20050044037 (filed Sept. 15, 2004) (issue fee paid). Goldman

RDC's singular mission is to develop and implement a centralized platform which provides sophisticated data-aggregation services to combat global threats posed by money laundering, fraud, corruption, terrorist financing, organized crime, and other suspicious activities. RDC's systems and services are designed to identify suspicious transactions that must be reported to the authorities. In addition, RDC's processes help firms determine the risk-relevance of, and resulting actions required for, certain parties attempting to engage in transactions via the international banking and financial system.

Discussions about creating RDC began in 1999. The need for RDC's services was crystallized by the October 2001 passage of the USA PATRIOT Act, which expands the authority of the Secretary of the Treasury to regulate U.S. financial institutions' activities, particularly concerning relations with foreign individuals and entities. The PATRIOT Act, one of several new federal initiatives,[2] left it to the private sector to develop and deploy solutions that enable institutions to "connect the dots" and to determine appropriate safeguards. RDC was the private sector's pro-active response and commenced operations in July 2002.

Sachs has licensed over 20 U.S. patents and published patent applications to RDC.

[2] Exec. Order No. 13,224, 66 Fed. Reg. 186 (Sept. 25, 2001).

To help determine the risk-relevance of certain financial transactions, RDC implemented several proprietary systems and processes, including its flagship Global Regulatory Information Database (GRID[SM]). This patented, risk-management technology provides real-time collection of in-depth, risk-relevant data aggregated from over 15,000 public sources. GRID currently contains approximately 2.8 million names, many of whom are "politically exposed persons."[3]

RDC's systems and processes aid in determining an institution's regulatory-required steps in response to the type of threat posed. For example, a firm may have to file a suspicious activity report,[4] notify clients about suspected fraudulent activities,[5] and even interdict money wired from internal treasury systems.[6] An

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[3] *See* U.S. Patent No. 7,181,428 at [57] (filed Jan. 30, 2001) (Computer-implemented methods to generate a risk quotient based upon a weighted algorithm applied to certain criteria).

[4] Approximately 600,000 suspicious activity reports are filed annually with the government. *See* Nathan Vardi, *Cash is King*, Forbes, Apr. 7, 2008 at 38.

[5] *E.g.*, U.S. Patent Appln. Pub. No. 20060004719 (filed Sept. 15, 2004) (Computer-implemented methods to collect, analyze, and report fraudulent activity).

[6] *See* U.S. Patent Appln. Pub. No. 20040193532 (filed Feb. 10, 2007) (Computer-implemented interdiction system for detecting and reporting insider trading activities with capabilities to block execution of financial transactions).

institution's failure to observe warning signs and implement appropriate controls can have severe consequences. In 2005, Riggs Bank pleaded guilty to a criminal violation of the Bank Secrecy Act for its failure to report suspicious transactions with politically exposed persons.[7]

But why patents for RDC? The GRID database and RDC's related processes are predicated on *publicly available* information. RDC's modeling and detection processes are designed to help prevent suspect transactions from otherwise hiding in plain sight.[8] Specifically, the risks RDC guards against are not credit risks – i.e., whether an institution will be repaid for extending services – but instead regulatory, legal, and reputational risks.[9] In other words, institutions must protect their operations from being used to further suspicious, illicit, and perhaps illegal

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[7] *See* http://www.usdoj.gov/tax/usaopress/2005/txdv050530.html. The Department of Justice's press release highlighted that banks and financial institutions "have an obligation under the law to report suspicious financial transactions that indicate evidence of money laundering or other illegal activity."

[8] Vardi, *supra* note 4 at 36.

[9] Corporate gift matching of employee donations can expose companies to risks of terrorist financing via their employees charitable contributions. *See* Testimony of Steven Emerson at 19, *Terrorism Financing & U.S. Financial Institutions* (Mar. 11, 2003), available at http://financial services.house.gov/ media/pdf/031103se.pdf.

activity - particularly when such information may already be publicly available and, in theory, "knowable" at the time.

Since RDC does not credit-score or keep personal information for credit determinations, it is vitally important that RDC have specific and demonstrable process transparency. Otherwise, "black-box" concerns would pervade its operations. But process transparency should not, and fortunately does not currently, come at the expense of surrendering proprietary rights to innovations.

Patents are therefore a perfect fit for RDC. Without patents, RDC would be unable to attract further investment and continue to develop and implement technologies to stay ahead of the endless creativity of those conducting illicit transactions. As cash disappears and digital currency becomes ubiquitous,[10] firms must be permitted to develop – and ultimately patent-protect – their inventions.

As a beneficiary and supplier of private-sector innovation in the spirit of Alfred Loomis, RDC has an earnest interest in this case. It would be an unfortunate irony if transactional surveillance – sufficiently important, definite, and practical to trigger regulatory-required responses – is considered outside the "useful arts" and unworthy of patent protection. The very fact of RDC's founding, and indeed its continued operation and attraction of investment, provides a powerful example of

[10] Vardi, *supra* note 4 at 36.

the need for a patent system that is flexible enough to protect emerging technologies in a dynamic and high-stakes environment – just as Congress intended.

SUMMARY OF ARGUMENT

Since the first Congress, the U.S. patent system has served as an engine for pushing back the frontiers of science and industry. The theory underlying the system is both straightforward and the reason for its success – by providing rewards for innovation, the law encourages innovation. In recognition of the theory and the history, Congress has wisely and consistently adopted a broad definition of patentable subject matter that allows new and emerging disciplines and industries to benefit from the patent system. For example, computer-implemented systems and processes and financial-service innovations are now routinely the subject of patent applications. The U.S. patent system even has a role in improving national security by advancing examination of applications that contribute to countering terrorism.[11]

While access to the patent system is broad, it is not unlimited. The Supreme Court has recognized three judicially created exceptions: physical phenomena, laws of nature, and abstract ideas. Each exception is based on the fundamental

[11] 37 C.F.R. § 1.102(c)(2)(iii) (2007).

premise that only an inventor's specific contribution to the useful arts should be entitled to a patent. Applying the exceptions to specific patents has not always been easy. Consequently, the courts have identified a series of tests designed to separate true innovation from mere abstractions, physical phenomena, or laws of nature. But none of the tests is designed to be dispositive. Rather, they are indicators and safe harbors that have been recognized by the courts in wrestling with the subject-matter issue.

Where new technology and innovations are involved, the existing tests have not always yielded clear answers. This uncertainty has led some to call for a bright-line rule that will answer the subject-matter question once and for all. The temptation for certitude is understandable, but badly misguided. Both Congress and the courts have avoided a one-size-fits-all philosophy for assessing patentability. Rather, Congress intentionally crafted broad language for access to the patent system and the courts have avoided rigid, formalistic tests. This court should resist the temptation for formalism and instead continue to follow the course that has led to a vibrant, dynamic patent system, namely a broad view of patentability circumscribed only by the three recognized, judicially created exceptions.

ARGUMENT

I. "Process" in § 101 Encompasses Any Process, Art, or Method Falling Outside the Judicially Imposed Prohibitions on Patenting Laws of Nature, Physical Phenomena, and Abstract Ideas

The scope of "process" in § 101 should be determined by both:

(1) the express definitions provided in the statute, using the ordinary contemporary meaning of the statutory terms; *and*

(2) the judicial limitations on the scope of patentable subject matter found in caselaw.

Though the judicial limitations are frequently the crucial step, the analysis should nevertheless begin with the words of the statute.

Congress has provided in § 100(b) an express definition of the word "process": "The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."[12] This definition originated in the Patent Act of 1952, when the word "process" was substituted for "art" in the four categories of patentable subject matter found in §101 of the Act. (Those categories – art, machine, manufacture, and composition of matter – trace back to the Patent Act of 1793 and have

[12] 35 U.S.C. § 100(b) (2008).

remained a part of U.S. patent law essentially unchanged for two centuries.) Two points are worth noting about the definition.

First, Congress included within the definition of process the word "art," the broad term that had previously existed in every U.S. patent statute since 1793. Thus, as the Supreme Court noted in *Diehr*, the substitution of "process" for "art" in § 101 "did not change" the traditional analysis for determining whether a claim is eligible for patent protection.[13] The words "process," "method," and "art" had all appeared before 1952 in patents and patent caselaw. For purposes of the 1952 Patent Act, each term should be viewed at least as broadly as the others and as carrying forward Congress's traditionally liberal policy toward patentable subject matter.[14]

Second, Congress expressly stated that "a new use" of a known process, machine, manufacture, composition of matter, or material is a patentable process. This portion of § 100(b) disavows early nineteenth-century authority suggesting that so-called double uses – e.g., finding new uses for old machines – were not patentable subject matter. This portion of the statute is also important because it provides an undeniable textual basis for sustaining the patentability of novel

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13 *Diamond v. Diehr*, 450 U.S. 175, 184 (1981).

14 *See id*. at 182 ("[A] process . . . was considered a form of 'art' as that term was used in the 1793 Act.").

computer programs that run on existing general-purpose computers. A new computer program – e.g., a program that ferrets out illicit financial transactions or detects suspicious patterns concerning financial structuring – provides a new way of using an existing machine and thus fits comfortably within the express definition of "process" included in the statute by Congress.

The text of § 100(b) therefore provides an explicit basis for an important point on which we agree with the government's position: A "machine-based process" generally falls within patentable subject matter as defined by Congress.[15] We also agree with the government that, under the statute as drafted by Congress, "there is no such thing as a categorical business method exception to the patent system" and that technological innovations should not "go unprotected simply because they operate in the commercial environment."[16]

Though the government is correct on those points, two aspects of its position are cause for concern. First, the government appears to be arguing in favor of a narrow, formalistic definition of "process." Congress had the opportunity to provide such a narrow definition in enacting the statute and wisely chose not to do so. Similarly, Congress has had many opportunities to reconsider its definition and

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15 Gov't Supp. Br. at 26-27.

16 *Id*. at 32.

consistently refused to narrow it. The Supreme Court has also repeatedly declined to limit the word "process" in the precise manner suggested by the government here. Second, while the government is generally correct that utility patents are designed to further progress in the useful arts, it is inaccurate to suggest that manufacturing processes and other applications of the physical sciences exhaust the useful arts. As one example, the government ignores that design patents also promote the useful arts. And although the government is correct that patentable-subject-matter analysis may include considering the degree to which the claimed subject matter is "technological," it errs by failing to acknowledge that, in the modern era, fields such as business, finance, and applied economics *are* technological.

Since Bilski's claims are within the literal meaning of "process," the correct analysis turns on this court's determining whether the claimed subject matter is outside § 101 because it constitutes a "law of nature, physical phenomenon or abstract idea."[17] The Supreme Court's analysis in this area has always been flexible and open to considering a variety of factors in making the ultimate judgment on patentable subject matter. Drawing rigid, formalistic lines would defy Supreme

[17] *Diehr*, 450 U.S. at 185.

Court precedent and would be inconsistent with the policies and congressional intent undergirding the Patent Act.

A. The Government Defines "Process" Too Narrowly

The government appears to be advancing a myopic view of "process," which it defines narrowly to include only those processes that are tied to a particular machine or that transform an article to a different state or thing. The Supreme Court has expressly considered this very argument and has repeatedly declined to define a § 101 process so narrowly.

In *Benson*, while noting that this narrow definition had been "argued" before it, the Court clearly stated that it was not so holding.[18] The Court reiterated this position in *Flook*.[19] Although the government repeatedly quotes *Flook* to support its argument that a § 101 process must be either "tied to a particular apparatus or operated to change materials to a 'different state or thing,'"[20] the government neglects to quote the entirety of the relevant sentence from *Flook*, which reads: "*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

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18 *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972).

19 *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978).

20 Gov't Br. at 3, 7 n.3 (quoting *Flook*).

operated to change materials to a 'different state or thing.'"[21] The Court made quite clear that it was declining to endorse this "argument." It introduced that sentence with a reference to the definition of "process" supplied by Congress in § 100(b) and with the accurate observation that "[t]he statutory definition of 'process' is broad."[22] After noting the "argument" for a narrow and formalistic definition of process, the Court followed *Benson* and "assume[d] that a valid process patent may issue even if it does not meet one of these qualifications of our earlier precedents."[23]

Finally, in *Diehr*, the Court once again stated that "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines.'"[24] The word "clue" is important. The presence of a physical transformation is generally a sufficient factor in determining patentable subject matter, but it is not a necessary one.

The Supreme Court in *Benson*, *Flook*, and *Diehr* thus avoided establishing formalistic boundaries or bright-line tests to limit the definition of "process" for

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21 *Flook*, 437 U.S. at 588 n.9 (emphasis added).

22 *Id*.

23 *Id.*

24 *Diehr*, 450 U.S. at 183 (emphasis added) (quoting *Benson*, 409 U.S. at 70).

purposes of § 101. Three independently compelling reasons justify continuing this flexible and cautious approach.

First, Congress itself could have supplied a bright-line test of "process" in the statute, but did not do so. Section 100(b) could be far more concise if it were edited to read: "The term 'process' means process involving a machine, manufacture, composition of matter, or material." But Congress instead chose to define "process" by reference to itself and two other words: art and method. All three words have broad ordinary meanings. More specifically, Congress eschewed any notion that a process must "involve" another class of subject matter in § 101 or anything else.

While it is certainly true that Supreme Court precedent "'forecloses a purely literal reading of § 101,'"[25] the breadth of the language chosen by Congress remains highly relevant. Although courts sometimes impose judicial glosses on the literal language of a statute, such glosses should be imposed cautiously and limited to particular cases where the application of the language of the statute would seem not to advance the underlying policies of the legislation.[26] To do more – to impose

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[25] Gov't Br. at 6 (quoting *Flook*, 437 U.S. at 589).

[26] *See Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980) (in construing § 101 "unless otherwise defined, words will be interpreted as taking their ordinary, contemporary common meaning."); *see also Griffen v. Oceanic Contractors, Inc.*, 458 U.S. 564, 571 (1982) (noting that only "in rare

a bright-line test to serve a policy of simplicity – undercuts Congress's policy choice not to impose distinct demarcations.[27]

Second, a cautious approach eschewing categorical rules is well grounded in history, experience, and pragmatism. For well more than a century, the scope of patentable subject matter has been widely recognized as a "very difficult question,"[28] on which "[t]he opinions of professional men are far from being settled."[29] Prior attempts to draw formalistic lines in the area have not been notably successful. For example, the nineteenth-century law on patentable subject matter tended to stress the unpatentability of principles, but the courts were not especially crisp in defining the distinction. As Professor Robinson lamented in 1890: "No

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cases" should courts adopt "a restricted rather than a literal or usual meaning of [statutory] words"); J.G. Sutherland, *Statutes and Statutory Construction* § 249 at 329 (1891) (stating traditional doctrine that, when a court does restrict general words, "it is the duty of the court to put no greater restriction than [the context and subject matter] necessarily impose").

[27] This overriding principle has been expressly adopted by the Supreme Court: "[I]n dealing with the patent laws, we have more than once cautioned that 'courts should not read into the patent laws limitations and conditions which the legislature has not expressed.'" *Diehr*, 450 U.S. at 182 (quoting *Chakrabarty*, 447 U.S. at 308).

[28] George Ticknor Curtis, *A Treatise on the Law of Patents* § 124, at 140 (4th ed. 1873).

[29] S.H.H., *Patenting a Principle*, 7 (n.s.) Am. L. Reg. & U. Penn. L. Rev. 129 (1868).

proposition has been more frequently or positively stated by the courts than that a principle is not a patentable invention, and yet with almost equal positiveness and frequency they have declared that the subject-matter covered by a patent is the principle of the invention."[30]

Failures of categorical distinctions have not been limited to the United States. The European Patent Convention, as written in 1973, included an express limitation barring the issuance of patents on "programs for computers" to the extent that the patent application related to "such subject-matter . . . as such."[31] Although some viewed that provision as intended to foreclose patenting software-related inventions, the European Patent Office has certainly not enforced the limitation as a bright-line distinction. Thus, in *Computer Program Product/IBM*, the EPO allowed claims expressly drawn to a "computer program product" that was defined to encompass "software code portions for performing" a method "for resource recovery in a computer system."[32]

In the United States, recognizing the historic difficulty of establishing categorical exclusions from patentability, the Supreme Court has exercised marked

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30 William C. Robinson, 1 *The Law of Patents* § 134, 190-191 (1890).

31 Art. 52(2), *Convention on the Grant of European Patents* (1973).

32 *Computer Program Product/IBM*, T 1173/97 (EPO Board of Appeals, Jul. 1, 1998).

restraint. The Court has held unpatentable broad, abstract, or vague claims, but has also qualified such holdings where patent applicants have drawn claims to concrete contributions – the traditional hallmarks of promoting progress in the useful arts. Compare *O'Reilly v. Morse*, 56 U.S. 62 (1854) (holding invalid Morse's claim to any use of "electric or galvanic current" for printing characters at a distance on the ground that "the discovery of a principle in natural philosophy or physical science, is not patentable") with *The Telephone Cases*, 126 U.S. 1 (1888) (sustaining Bell's patent claim to any use of "electrical undulations" for transmitting vocal sounds even though recognizing that the claim was not limited to "the particular means employed"); *Flook*, 437 U.S. 584 (invalidating a vague claim for computing an "alarm limit" in a known petrochemical process), with *Diehr*, 450 U.S. 175 (sustaining claims for computing the curing time in a process for rubber molding).

Importantly, the Court has avoided making pronouncements on patentable subject matter where other grounds for resolving the case exist. Thus, in *Dann v. Johnston*, the Court declined to rule on whether a computerized method for maintaining bank records constituted patentable subject matter, even though the government devoted the vast bulk of its briefing to that issue.[33] Similarly, in *LabCorp v. Metabolite Labs.*, the Court avoided ruling on concepts of patentable

[33] *Dann v. Johnston*, 425 U.S. 219, 229 (1976).

subject matter that are "not easy to define"[34] where the issue was not appropriately litigated in the lower courts. The Court's consistent history of restraint concerning exclusions to patentable subject matter is a wise and proven approach to this difficult area.

The third and final reason for continuing the traditional approach is well articulated in *Chakrabarty*, where the Court observed that "[t]he subject-matter provisions of the patent law have been cast in broad terms to fulfill the constitutional and statutory goal of promoting 'the Progress of Science and the useful Arts.'"[35] The path of progress in the useful arts is "often unforeseeable."[36] Such unforeseeability not only encompasses how existing fields will improve but also which new fields will gain the rigor, precision, definiteness, cumulative learning, and other attributes shared by the applied scientific fields that fall within the core of patentable subject matter. Thus, a broad and flexible approach is needed and that is the approach taken by Congress and by the Supreme Court.

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[34] *Laboratory Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921, 2926 (2006) (Breyer, J., dissenting).

[35] *Chakrabarty*, 447 U.S. at 315.

[36] *Id*. at 316; *see also Benson*, 409 U.S. at 71 (recognizing that courts should not "freeze process patents to old technologies, leaving no room for the revelations of the new, onrushing technology").

B. Advances in Business, Finance, and Other Fields of Applied Economics Promote Progress of the Useful Arts

The government argues that the patent system is "directed to protecting technological innovations" and that "the technological focus of the Patent Act and the Patent Clause informs the outer limits of subject matter eligibility under section 101."[37] Yet nowhere does the government provide a definition of "technology" or "technological arts."[38]

Technological means "of, relating to, or characterized by technology."[39] Technology, in turn, means "the practical application of knowledge in a particular area,"[40] "a manner of accomplishing a task especially using technical processes,

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37 Gov't Supp. Br. at 10.

38 Furthermore, the word "technological" is in neither the statute nor the Constitution. We have discussed the scope of "technological" because the word was emphasized in the government's brief, and yet the type of business methods at issue in this case are clearly within the concept of technological even under a narrow definition. We note, however, that if "technological arts" is given a narrow construction, then the constitutional concept of "useful Arts" is certainly broader. Congress exercised its authority under the Constitution to authorize patents for ornamental designs – an art that falls within the "useful arts" but that probably falls outside a narrow definition of "technological arts."

39 *Webster's Third New International Dictionary* 2348 (1963); *Merriam-Webster's Collegiate Dictionary* 1206 (10th ed. 2001).

40 *Id*.

methods, or knowledge,"[41] "the science of the application of knowledge to practical purposes,"[42] "the application of scientific knowledge to practical purposes in a particular field,"[43] or a "technical method of achieving a practical purpose."[44] Finally, technical means "having special usu[ally] practical knowledge, especially of a mechanical or scientific subject," or "of or relating to a practical subject organized on scientific principles."[45]

Thus, for purposes of considering patentable subject matter, a fair definition of technological is "characterized by the practical application of knowledge in a particular field."[46] Under this definition, innovations in business, finance, and other applied economic fields plainly qualify as "technological."

More narrowly, technological could be construed to refer only to practical applications of scientific knowledge or knowledge "organized on scientific

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41 *Id*.

42 *Webster's Third*, *supra*, at 2348.

43 *Id*.

44 *Id*.

45 *Id*.

46 This definition is most consistent with the Greek origins of the word, which is a combination of *technikos*, meaning "art, skillful, practical," *Webster's Third*, *supra*, 2348, and *logos*, meaning "word, reason, speech, account," *id*. at 1331.

principles." Even so, modern innovations in business, finance, and the like fit easily within that definition because they represent practical applications of economic science. An abundance of indicators demonstrate the scientific nature of modern economics and the technological nature of economic and financial innovations. Economists themselves now view their field as constituting a "mathematical science" with closer affinity to physics and engineering than to liberal arts like English literature.[47] Thus, the winners of the Nobel Prize for "Economic Sciences," established in 1968, are selected by the Royal Swedish Academy of Sciences, the same body responsible for selecting the Nobel Prizes in Chemistry and Physics.[48] By contrast the Nobel Prize for Literature is selected by the Swedish Academy, which describes itself as a "cultural institution."[49]

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47 *See*, *e.g.*, Giorgio Israel, *How Economics Became a Mathematical Science*, 114 ECON. J. F. 369 (2004).

48 *See*, *e.g.*, The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, http://nobelprize.org/nobel_prizes/economics/ (noting creation of economics prize); Nomination and Selection of the Laureates in Economics, http://nobelprize.org/nomination/economics/process.html (setting forth selection process).

49 *See* The Swedish Academy, http://www.svenskaakademien.se/Templates/StartPage2.aspx? PageID=ca2da03d-4623-48a1-9b01-7f450c1b59c7 (the Academy's English-version homepage). The Nobel Prize for Peace is selected by a special committee appointed by the Norwegian parliament. Nomination and Selection of the Nobel Peace Prize Laureates, http://nobelprize.org/nomination/peace/process.html.

Similarly, the British Royal Society – which has traditionally limited its members to scientists – in 2004 conferred fellowship on its first economist.[50] And what is frequently considered one of the best graduate departments of economics in this country is housed in the Massachusetts Institute of *Technology*.[51] These are merely a few of the many clear indicators that modern economics, finance, and similar fields are plainly technological even within a narrow definition of that term.

The government's emphasis of the word "technological" could support its position only if the concept were limited to the physical sciences, but the word is not so limited. Similarly, the government's position is undermined by the traditional distinction between the "polite arts" and the "useful arts."[52] This distinction is typically explained as being between arts "designed to please" and arts "designed to satisfy human wants."[53] Simply put, the modern technological

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50 *See* Nine Staff Named New Fellows of the Royal Society, http://www.admin.cam.ac.uk/news/dp/2004060102 (June 2, 2004) (announcing election of Partha Dasgupta).

51 *See, e.g.*, *America's Best Graduate Schools 2008: Economics*, *U.S. News & World Rep.* 2008, available at http://gradschools.usnews.rankingsandreviews.com/usnews/edu/grad/rankings/phdhum/brief/ecorank_brief.php.

52 *See* Gov't Supp. Br. at 11 n.4 (citing W. Kenrick, *An Address to the Artists and Manufacturers of Great Britain* (1774)).

53 Samuel P. Newman, *A Practical System of Rhetoric* 53 (1827). *See also* David Hume, *Essays, Moral, Political, and Literary* I.XIV:29 (1777) (noting in his essay "On the Rise and Progress of the Arts and Sciences"

processes of business, finance, and applied economics are not polite. They seek not to please but to satisfy human wants for less risk, more security, better financial returns, and better investment of resources.

This distinction explains why, even in the nineteenth century, patents were issued on such "business methods" as processes for conducting lotteries.[54] Where business techniques become amenable to the rigorous methods of technology and science (including the science of mathematics), they are quite clearly patentable.

A good contrast is provided by considering methods akin to those described by Dale Carnegie.[55] Even if they are supposedly good ways of succeeding in

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that the "polite arts" are best developed in monarchies where individuals must make themselves "*agreeable*" through "wit, complaisance, or civility," while in republics individual must make themselves "*useful*, by industry, capacity, or knowledge"); David Spadafora, *The Idea of Progress in Eighteenth-Century Britain* 33 (1990) (reviewing the historical sources and concluding that "the polite arts were considered to have pleasure for their goal" and that the useful arts included some fields such as navigation that were also considered liberal arts).

54 *See, e.g.*, U.S. Patent No. 1700 (issued July 18, 1840) (patent to Joseph Vannini on an "Improvement in the Mathematical Operation of Drawing Lottery-Schemes"); *see also* D. R. Bellhouse, *The Genoese Lottery*, 6 Stat. Sci. 141 (1991) (tracing the development of lottery technology in part through American patent records).

55 Dale Carnegie, *How to Win Friends and Influence People* (1936).

business, such "business methods" would not be patentable; they are too imprecise, indefinite, and abstract for the patent statute to be rationally applied. Where, however, sophisticated algorithms are applied to complex financial systems – like tracking would-be terrorists – such patents clearly fall within any definition of technological.

II. Bilski's Claimed Method, Though Literally a "Process," Must Be Analyzed to Determine Whether a Judicial Limitation Applies (Question 1)

The correct analysis requires a judgment about whether Bilski's claimed method constitutes an abstract idea, physical phenomenon, or principle of nature. Because the claim is properly categorized as a "method" for managing a certain type of risk, it falls within the literal language of a process as defined by Congress in § 100(b). But such subject matter may be excluded from § 101 through the judicially imposed limitations. No bright-line verbal formulation has ever been successful in capturing all the factors that animate the judicial limitations on § 101, but several factors have been viewed as important in the analysis.

While we take no position on whether Bilski's claim constitutes patentable subject matter, we do note several factors that should be important in analyzing the claim. First, the claim concerns a method of hedging financial risk. As discussed above, finance and economics are properly viewed as fields of science and applied science. As the Court noted in *Chakrabarty*, "the inventions most benefiting

mankind are those that 'push back the frontiers of chemistry, physics, and the like.'"[56] Because modern economic science and its applications are very much "like" physics and chemistry, this factor strongly cuts in favor of patentability. Second, unlike the situation in *Benson*, the claimed method here does not consist wholly of mental steps.[57] While the claim does include one step that could be performed mentally ("identifying market participants"), it includes two others that require "initiating a series of transactions" among multiple parties. Those steps require physical communications between the parties and cannot be performed as mere mental steps. The presence of a single mental step does not count against patentability because the claims must be considered as a whole.[58]

Counterbalanced against these positive factors are some factors rather unfavorable to Bilski's claim. The broad and generally worded claim bears significant resemblance to claim 8 of the Morse patent, which the Supreme Court held "too broad, and not warranted by law."[59] The Court recognized that Morse

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56 *Chakrabarty*, 447 U.S. at 316.

57 Compare *Benson*, 409 U.S. at 67 (noting the entire claimed process could be done without a computer).

58 *Diehr*, 450 U.S. at 188-89 ("In determining the eligibility of respondent's claimed process for patent protection under § 101, their claims must be considered as a whole.")

59 *Morse*, 56 U.S. at 113.

had been able, "by a new combination of known powers, of which electro-magnetism is one, to discover a method by which intelligible marks or signs may be printed at a distance."[60] Morse was not permitted to claim all methods by which the known force of electro-magnetism could be used to print signs at a distance, for such a broad claim would constitute an abstract idea or natural principle. Like Morse, Bilski's claim appears broad enough to cover any system of hedging risk through a balanced set of transactions, even though the hedging of risk by contract is a known, fundamental principle of economics.

Another factor weighing against the claim comes from the decision in *Rubber-Tip Pencil v. Howard*, where the Court held that a pencil combined with a rubber cap was merely an "idea," which of itself is not patentable.[61] The Court noted there that the invention was a straightforward application of principles that "[e]verybody knew."[62] So too in this case, Bilski's method is apparently a straightforward application of hedging principles that everyone knows. More than a half-century ago, economists and business professionals understood that long-term futures contracts could help merchants achieve positions in which "the loss or

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60 *Id*. at 117.

61 *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. 498, 507 (1874).

62 *Id*.

profit on the actual transaction is balanced by the profit or loss on the futures transaction. *Such is the theory of hedging.*"[63] By comparison, a specific hedging strategy employed in a new and useful way to solve a particular problem would be patentable subject matter. Stated plainly, where a hedging strategy pushes back the frontiers of finance, there is no principled reason for treating such a claim differently for subject-matter purposes than a claim that pushes back the frontiers of chemistry or physics.

The determination of whether this particular claim passes muster is not so important. What is important is that this court properly weighs the positive and negative features of the claim and eschews attempting to draw a formalistic line to foreclose patentability.

III. The Literal Language of the Statute Is Properly Narrowed Only Where Claimed Subject Matter Constitutes an Abstract Idea, Physical Phenomenon, or Principle of Nature (Question 2)

As discussed in Section I, *supra*, a two-part analysis should be used, first examining the express definitions provided in the statute, using the ordinary meaning of the statutory terms, and then considering the judicial limitations on the scope of patentable subject matter as the only narrowing factors. As discussed

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63 Ronald White, *Statistical Aspects of Future Trading on a Commodity Exchange*, 99 J. Roy. Stat. Soc'y 297, 315 (1936).

more fully in Section VI, *infra*, this two-step analysis is consistent with this court's and the Supreme Court's precedent.

IV. Bilski's Claimed Method Recites Both Mental and Physical Steps, and Therefore May Be Patentable (Question 3)

As discussed in Section II, *supra*, Bilski's claims include one step that could be performed mentally ("identifying market participants") and two others requiring "initiating a series of transactions" that require physical communications between multiple parties. The presence of mental steps along with physical steps does not negate patentability. Rather, the claims should be reviewed as a whole to determine if they pass muster under the two-step analysis.[64]

V. For a Method or Process to Be Patentable, Physical Transformation and Ties to a Machine Are Generally Sufficient Conditions, But Not Necessary Ones (Question 4)

As discussed in Section I.A, *supra,* where a process results in a physical transformation of an article or is tied to a machine, this is generally sufficient to demonstrate patentability under § 101. But the Supreme Court has never held that the absence of either of those factors is dispositive, and this court should avoid creating a rigid standard that will impede the progress of the useful arts.

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[64] *See Diehr*, 450 U.S. at 188-89.

VI. Neither *State Street* nor *AT&T* Should Be Overruled, Because They Are Faithful to the Language of the Statute and They Are Consistent with Supreme Court Decisions (Question 5)

The *State Street* and *AT&T* decisions stem from this court's previous en banc ruling in *Alappat*, which is well grounded in Supreme Court precedent. Specifically, *Alappat* followed the two-step analysis that correctly follows from *Diehr*, *Flook*, and *Benson*. The *Alappat* court first determined that the claim at issue was directed to "a machine, namely, a rasterizer."[65] Second, the court recognized that even though the subject matter claimed did fit literally within one of the broad categories in § 101, such compliance with the statute "does not quite end the analysis" because the literal language of the statute has been narrowed by judicial decisions. After carefully analyzing the judicial limitations, the court correctly concluded that the claimed subject matter was "not a disembodied mathematical concept which may be characterized as an 'abstract idea,' but rather a specific machine to produce a useful, concrete, and tangible result."[66]

Just as *Alappat* correctly applied a two-step analysis, so too did *State Street*. The *State Street* court determined that the relevant claim, "properly construed, claims a machine, namely, a data processing system for managing a [particular]

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65 *In re Alappat*, 33 F.3d 1526, 1541(Fed. Cir. 1994).

66 *Id*. at 1544.

financial services configuration."[67] Once again, the court recognized that the broad literal language of the statute did not end the analysis and properly turned to the judicially imposed limitations. *State Street* then applied the decision in *Alappat* and concluded "that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete, and tangible result.'"[68]

State Street applied the framework established in *Alappat*, and both decisions followed the Supreme Court caselaw in the area, which has always eschewed bright-line exclusions that might foreclose patentability in whole areas of onrushing technology. Instead, the court identified an important and recurring set of circumstances that are indicative of patentability: Machines producing useful, concrete, and tangible results are patentable subject matter. Yet even in articulating this test, this court relied on flexible language, and it did not attempt to address all possible circumstances that might present patentable-subject-matter questions.

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67 *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F. 3d 1368, 1372 (Fed. Cir. 1998).

68 *Id*. at 1373.

While holding in *State Street* that Signature Financial's data-processing system fit within § 101, this court also properly laid to rest the "business method exception."[69] But for the lingering doubt provided by that "ill-conceived" notion, the decision should not have been unexpected. Having concluded en banc in *Alappat* that a programmed general-purpose computer becomes a special-purpose computer, and hence a machine clearly within the four categories of § 101, it followed that the special-purpose computer that implements the invention at issue in *State Street* is also a § 101 machine.

This illustrates a key aspect of our patent laws: patent-eligibility is not determined by the particular function, use, or industry to which an invention pertains.[70] This is particularly true in the case of special-purpose computers where it should matter not whether the invention is conceived by IBM or Microsoft – what we usually think of as technology companies – or Google, Goldman Sachs, or RDC – what we are increasingly recognizing as such.[71] Simply stated, practical and

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69 *Id*.

70 *See Alappat*, 33 F.3d at 1582 (Rader, J. concurring) (stating that "Section 101 does not suggest that patent protection extends to some subcategories of processes or machines and not to others. The Act simply does not extend coverage to some new and useful inventions and deny it to others.")

71 Stephen Wunker and George Pohle, *Built for Innovation* (Nov. 12, 2007), available at, http://members.forbes.com/forbes/2007/1112/137.html.

specific technology for the financial and banking industry, such as a new and useful manner to detect potential shielding of financial transactions and money flows from regulatory scrutiny should be patentable to the same extent as technology applied in a new and useful manner to cure rubber.

After addressing apparatus claims in *State Street*, this court addressed method claims in *AT&T*. Again beginning with the first-step analysis concerning the four § 101 categories – concluding that the telecommunications-system-implemented method claims concerned a "process"[72] – this court continued with the second-step analysis concerning the judicially created subject-matter exceptions – concluding that the claims were directed to transforming data using a machine to produce a useful, concrete, and tangible result.[73] As with *Alappat* and *State Street*, the decision in *AT&T* is consistent with Supreme Court precedent.

There is thus no reason to overturn *State Street* or *AT&T*. Those decisions are consistent with the en banc decision in *Alappat* and with Supreme Court caselaw and follow the appropriate two-step analysis for considering whether claims directed to machine-implemented systems and processes are patent-eligible.

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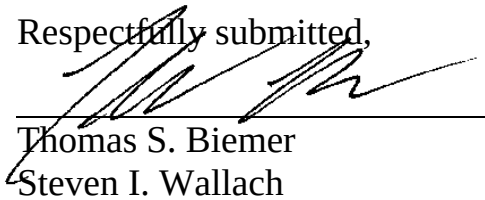
[72] *AT&T Corp. v. Excel Communications, Inc.*, 172 F. 3d. 1352, 1355 (Fed. Cir. 1999).

[73] *Id*. at 1358.

CONCLUSION

This case presents a stark choice that has occasionally surfaced when determining patentable subject matter: continue to apply a flexible approach consistent with the statute and Supreme Court jurisprudence or adopt a novel bright-line exclusion that attempts to impose simple, formalistic boundaries on patenting human inventiveness. Because innovation is by definition a dynamic process, courts have historically resisted the temptation to apply a static, formalistic test to exclude subject matter from patentability. This court should continue to resist that temptation and should continue, as even the government urges, not to discriminate against innovations merely because they arise in the financial or banking industries. The benefits of that approach reward innovation in detecting nefarious financial transactions, in bringing greater transparency and necessary regulatory scrutiny to money flows and, more generally, in developing new financial technologies that achieve previously unattainable economic benefits.

Respectfully submitted,



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Thomas S. Biemer

Dated: April 7, 2008

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2007-1130
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April 7, 2008