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Confederation of Indian Industry

Technology Division

Plot # 7, II Floor, Regal House, Motilal Nehru Nagar,
Begumpet, Hyderabad - 500 016 A.P.

Tel: +91-40-277 65 837 Fax: +91-40-277 65 836

E-mail: ciihyd@aptdc.com www.aptdc.com

16.04.2008

K SUBODH KUMAR
Head APTDC & IPR

Dear Mr. V Ravi,

Manual of Patent Practice and Procedure

At the Outset, please accept my appreciation for the Initiative taken by your esteemed department in releasing the Manual for Patent Practice & Procedure. This is a welcome step and we look forward for successful implementation of the same.

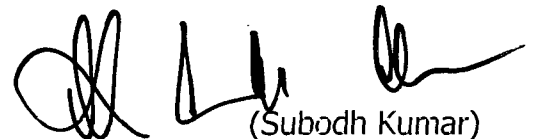
The IPR initiatives of CII is led by the CII National Committee of IP Owners which has representation from the Captains of more than 50 Industries who from diverse sectors like Engineering, Automotive, Information Technology, Biotechnology, Pharmaceuticals, FMCG, Electronics etc.

We have enumerated some of our recommendations on the Manual and we request your kind attention to consider the best practices and suggestions put forward by our members.

We are also in constant touch with our members to collect further feedback and will keep you posted on some of the important ones.

We wish you the very best in successful Implementation of the Manual of Patent Practice & Procedure.

Warm Regards,



(Subodh Kumar)

Encl : 1. Recommendations on Indian Manual of Patent Practice & Procedure 2. Case Study of Bilski Case pending before the Supreme Court of US.

Shri V. Ravi
Controller General of Patents, Designs & Trade Marks
Mumbai



RECOMMENDATIONS ON MANUAL OF PATENT PRACTISE AND PROCEDURE

APRIL 2008

Confederation of Indian Industry (CII)
Plot No. 249-F, Sector-18; Udyog Vihar,
Phase-IV, Gurgaon-122015, Haryana, India
Phone Direct : +91-124-4014075
Phone (Board) : +91-124-4014060 - 67
Fax : +91-124-4014057



ANNEXURE - A

General Comments:

1. Topics Addressed in 3rd Edition - This third edition addresses key aspects of the many varied topics in India patent law and practice. It is a Judicious choice to focus on comprehensive treatment of an initial set of topics such as those presently listed in the third edition. There will always be opportunity to methodically add new topics and revise existing topics through technical bulletins and future editions or revisions of the Manual as deemed fit by your esteemed office.
2. General Substantive Content We believe the central purpose of a practice Manual is to provide common guidance and instruction to examiners, practitioners, applicants, and the judiciary with regard to patent examination and practice in India. To the extent possible, such a Manual ideally contains up to date interpretation of applicable law, and outlines practice procedures with examples as appropriate. While the Manual is not the law, it will serve as a single source of guidance in interpreting and applying the law in accordance with legislative intent, board of appeal decisions, and judicial decisions. Wherever possible, we find it instructive if such a Manual contains specific citations to the authority underlying each statement or section.
3. Filing Dates & Electronic Filing A timely national filing date is essential for an Applicant to obtain a patent in any Country. One common practice among national patent offices, as well as the Patent Cooperation Treaty practice, is the ability to establish a filing date based on the time/date stamp of certain paper-mailing services. This traditional paper procedure has



also been taken one step further with secure electronic filing processes that establish a filing date at the press of an enter key. Such paper and/or electronic filing procedures are widely viewed as reliable, convenient, and cost effective. While financial and resource challenges exist for a patent office to implement and maintain such processes, we believe such processes are mutually beneficial for the Applicant and Patent Office alike. We thank you for considering the possibility of implementing such processes, and documenting them in the context of the present Manual. You may kindly call on our member companies if our participation in a pilot program would be helpful to work out the details of a paper-mailing or electronic filing system.

4. Published Availability From an applicant and practitioner perspective, it is helpful when a patent office makes print and electronic versions of a Manual available to the public. Printable copies by way of electronically available downloads are appreciated. Searchable electronic versions of a Manual of this size and complexity are also extremely valuable, as are hyperlinks interconnecting various references within the Manual, case law, codified law, and rules.

Chapter Comments:

1. Chapter II Preamble and Definitions
 - a. Section 2.3.8 - The definition of inventive step includes inventions having economic significance. While this is not stated as an absolute requirement, it seems not so irrelevant consideration. An invention lacking in technical advancement may have huge economic significance while an invention showing great technical advancement may not exhibit economic significance until years after the patent is granted.



2. Chapter III Patentable Subject Matter

- a. Section 3.2.1 Novelty is subject to . . . knowledge, oral or otherwise, available within any local or indigenous community in India or elsewhere before the date of filing patent application or date of priority . . . Additional clarity would be helpful as to what may be encompassed by an oral disclosure. In particular, it is important to know what type of evidence would have to be adduced for an oral disclosure to form part of the prior art, and how that disclosure would be documented.
- b. Section 3.11 Combining mosaics of prior art requires careful consideration when determining inventive step. In one of the examples provided in this section, it is stated in *Technograph v. Mills and Pockley* (1972 RPC 346 at p-355(L) that . . . when dealing with obviousness, unlike novelty, it is permissible out of relevant documents, but it must be mosaic which can be put together by an unimaginative man with no inventive capacity. Recall that Section 2(1)(a) of the Patents Act provides that "inventive step" means a feature of an invention that

involves technical advance as compared to the existing knowledge . . . and that makes the invention not obvious to a person skilled in the art. Thus, the test is not whether an unimaginative man would put bits and pieces of the prior art together in a mosaic fashion to form the



weighted, and how the evaluation might best proceed would be helpful. Further, it is not clear if the steps articulated in part B of this section are listed in the order they are to be exercised, or how these questions should be applied in the evaluation. It seems, for example, that step (d) titled Defining the technical problem to be solved as the object of the invention to achieve the result is among the threshold questions to first evaluate before an appropriate search and evaluation of closest prior art can be performed. Absent further guidance in this area, subjectivity and a flawed evaluation of inventive step could become problematic.

- d. Section 3.15.1 The definition of a person skilled in the art is clear, however the characteristics cited in the last three sentences of this section seem to go beyond what is relevant in identifying a person skilled in the art. We believe the only factors that should be evaluated in this definition are the technical characteristics relating to competence of a hypothetical person in an art.

3. Chapter IV Inventions Not Patentable

- a. Sections 4.11.5 through 7 - Section 3(k) of the Patents Act excludes the following from patentability: mathematical or business method or a computer program per se or algorithms. This tracks the European Patent Convention and the discussion in Section 4.11 of the Manual largely tracks practice in the European Patent Office. There are, however, certain statements that could benefit from further clarification.

First, Section 4.11.5 does state that applications related to computer inventions may broadly fall under the following categories: (a) Method/process: (b) Apparatus/system: (c) Computer program product. It is not clear, however,



as to the scope of each of those categories. For example, Section 4.11.6 states the following:

A claim directed to a technical process which process is carried out under the control of a programme (whether by means of hardware or software), cannot be regarded as relating to a computer programme as such. For example, a

method for processing seismic data, comprising the steps of collecting the time varying seismic detector output signals for a plurality of seismic sensors placed in a cable. Here the signals are collected from a definite recited structure and hence allowable.

Section 4.11.6 also states, however, that a Claim orienting towards a process/method should contain a hardware or machine limitation. We believe that the example of a method for processing seismic data is, for example, patentable subject matter because it effects a physical transformation of physical representations of data. It should be clarified that this is the type of hardware or machine limitation that Section 4.11.6 contemplates. As to the patentability of apparatus/systems, we agree with the statement in Section 4.11.7 that as a general rule, a novel solution to a problem relating to the internal operations of a computer, although comprising a program or subroutine, will necessarily involve technological features of the computer hardware or the manner in which it operates and hence may be patentable.

- b. Sections 4.11.8 We request the opportunity to comment further on this subject at a future time. In the mean time, please accept the attached copy of an Amicus Brief recently submitted by our esteemed member in response



to the related issues in the Bilski case presently pending before the United States Supreme Court.

4. Chapter VII Opposition Proceedings

- a. Comments applicable to all sections - The grounds for opposition and related procedures are clearly stated. The numerous examples appear to provide good direction for all parties involved including the examining Board of the Office.
- b. Section 7.1.1 & 7.2.1 The basis of opposition for pre-grant and post-grant oppositions can be that the invention is anticipated by traditional knowledge such as the oral knowledge of an indigenous community. While oral disclosures by indigenous peoples are most likely to affect patents in medical fields, we have some general concerns about how oral evidence is taken. There appears to be no procedural mechanisms in the Manual defining a verification and/or authentication proceeding of this oral knowledge. Further clarity is needed as to the verification and/or authentication process and the standard to be applied. Similar clarity of the verification process and standard to be applied is needed to evaluate prior public use if that is stated as a basis for opposition.
- c. Section 7.1.2 There appears to be no cutoff date for pre-grant opposition once an application is published. This may leave the process open to abuse against the Applicant as a harassment tactic with little to nothing at stake by the opposing party. For example, a third party could very cheaply file a endless series of oppositions that potentially leave the inventor/applicant exhausted and with significant procedural expenses. A clear cutoff for



pre-grant opposition is desirable, such as within a fixed number of months from the publication date.

- d. Section 7.2 (Rule 61) Prior art documents may be used to oppose an application or granted patent, and the procedures call for the authentication of these documents to the satisfaction of the Controller. However, no definition or guidance exists as to the standard to be applied to this authentication. Clarity on this issue is needed.

5. Chapter XVIII Working of Patents and Compulsory Licenses

- a. Comments applicable to all sections Compulsory license provisions under Indian patent law are understandable and are specifically allowed under the Paris Convention and the TRIPS Agreements. There are certain constraints under international law, however, on the grant of compulsory licenses that are intended to protect legitimate interests of the patent holder. In that connection, Chapter XVIII of the Manual leaves certain of the provisions unclear, which raises some concerns as to how compulsory licensing provisions would actually be applied in practice.

Chapter XVIII of the draft Manual does not provide a great deal of guidance as to what is meant by reasonably affordable price or worked in the territory of India. Both of these bases for the grant of a compulsory license are a source of concern. The first basis could give rise to a certain degree of price control. That is, that a determination would be made in the context of a compulsory licensing application that the price of a patented product is not affordable in the Indian market and that a third party is then enabled to legally



manufacture that product and sell it for a lower, presumably affordable price.

Further, Chapter XVIII does not clarify what is meant by worked in the territory of India. Generally, if an invention is worked if it is manufactured elsewhere and then made available to the public in India, it is generally not a problem. If however, the Working requirement is that the product has to not only be made available in India, but actually manufactured there, it would cause problems for companies that manufacture products in one or a small number of central locations for regional or world-wide distribution. In this connection, it should be recalled that Article 27(1) of the TRIPS Agreement provides that patents shall be available and patent rights enjoyable without discrimination as to . . . whether products are imported or locally produced.

Further discussion with the Government of India is desirable on this topic to clarify the intent and scope of these compulsory licensing provisions. In particular, clarification is needed on how the provisions will be applied to pricing, manufacturing, and distribution of patented products under conventional commercial arrangements.

No. 2007-1130

IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

IN RE BERNARD L. BILSKI AND RAND A. WARSAW,

Petitioners.

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

BRIEF OF *AMICI CURIAE* DELL INC.,
MICROSOFT CORPORATION, AND SYMANTEC CORPORATION
IN SUPPORT OF NEITHER PARTY

Carter G. Phillips
Jeffrey P. Kushan
SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, D.C. 20005
(202) 736-8000

Constantine L. Trela, Jr.
Richard A. Cederoth
SIDLEY AUSTIN LLP
One South Dearborn Street
Chicago, IL 60603
(312) 853-7000

Counsel for *Amici Curiae*

CERTIFICATE OF INTEREST

Counsel for *Amici Curiae* certifies that following in compliance with
Federal Circuit Rule 47.4:

1. The full name of every *amicus* represented by me is:

Dell Inc.
Microsoft Corporation
Symantec Corporation

2. The names of the real parties in interest represented by me are:

None.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the *amici curiae* represented by me are:

None.

4. ☐ There is no such corporation as listed in paragraph 3.

5. The names of all law firms and the partners or associates that

Constantine L. Trela, Jr.
Richard A. Cederoth
SIDLEY AUSTIN LLP
One South Dearborn Street
Chicago, IL 60603

Date: April 7, 2008.

Respectfully submitted,

Constantine L. Trela, Jr.
SIDLEY AUSTIN LLP
One South Dearborn Street
Chicago, IL 60603

Counsel for *Amici Curiae*

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STATEMENT OF INTEREST OF *AMICI CURIAE*

Amici Curiae Dell Inc., Microsoft Corporation, and Symantec

Corporation are leading computer, information technology, and software companies. Although their interests with respect to many legal questions diverge, *Amici* join in urging this Court to adopt a standard for determining whether process inventions satisfy 35 U.S.C. § 101, which will give meaning and effect to the statutory language and provide needed guidance to the Patent and Trademark Office, the lower courts, and the patent bar.

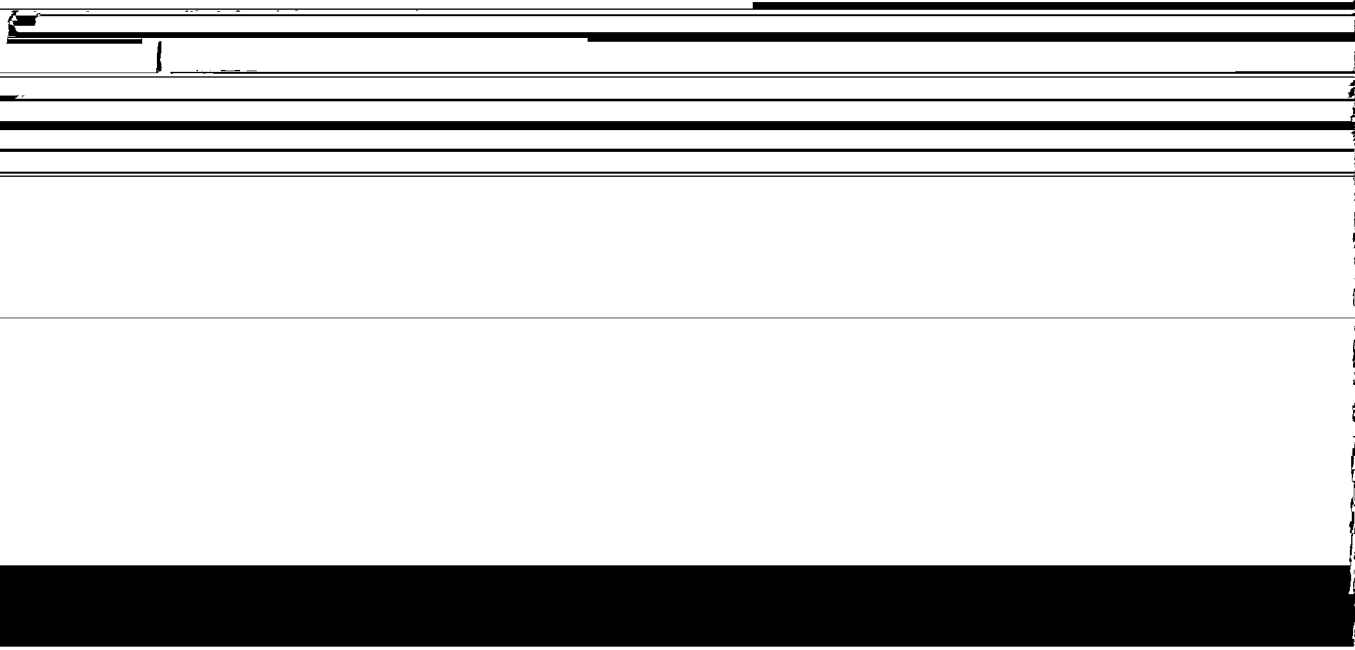
Amici both own process patents and are frequently defendants in suits alleging infringement of such patents owned by others. They thus have a profound interest in the standard that governs whether such patents claim patent-eligible subject matter. They also have an interest in the patent system as a whole and in the harm done to that system by the issuance of patents that claim nothing more than abstract concepts. By requiring that process inventions, like machines, manufactures, and compositions of matter, must be physical in nature and must produce a result that has specific practical utility — a result that is, in this Court’s words, “useful, concrete and tangible” — this Court can restore proper balance to the system and provide guidance to the courts, the PTO, the bar, and the public.

INTRODUCTION

method for managing the consumption risk costs of a commodity.” The claimed process neither requires the use of a machine or other apparatus, nor effects a transformation of physical subject matter into a different state or thing. The claimed process is, however, arguably useful, with practical, real-world applications. The question before the Court, then, is whether such a process, unbounded by any physical limitations but with practical utility, is a *patentable* process within the meaning of 35 U.S.C. § 101.

It is not. In the trilogy of *Benson*, *Flook*, and *Diehr*, the Supreme Court set out the principles that govern whether a process claim describes patent-eligible subject matter under Section 101. Those principles require that, to be eligible for patenting, a process must be more than merely an abstract idea or concept, even if it unquestionably is a useful abstract idea or concept. Rather, a

attempted an exhaustive articulation of how to demonstrate that a process claim defines non-abstract, patent-eligible subject matter, it also has never suggested that a physical foundation is unnecessary. This understanding of “process” as tied to something fundamentally physical in nature places process inventions on the same footing as the other Section 101 categories — machine, manufacture, composition



These principles are easily applied to the process claims at issue here, which can be construed to consist of nothing more than “mental steps” that neither effect a transformation of physical subject matter nor are tied to a specific apparatus. Such “mental steps,” divorced from any physical foundation, do not constitute a patentable process. In contrast, when a series of steps is tied to a particular apparatus or effects a transformation of physical subject matter, and produces a useful, concrete and tangible result, a patent-eligible invention under Section 101 has been claimed. As applied to software-related inventions, these

- A computer that has been programmed to implement particular software instructions is itself patent-eligible subject matter, *i.e.*, a machine. It has distinct physical properties relative to an unprogrammed, or differently programmed, computer.
- This does not mean that an unpatentable abstract idea can become patentable merely by reciting that a computer should be used. Although such a recital may satisfy Section 101, that is only the first step on the road to a patent. Concerns with respect to the patentability of claims that include only general references to a computer or other apparatus are properly addressed not by engrafting unwritten requirements onto Section 101, but rather by rigorously enforcing Sections 102, 103, and 112.

By making clear that patent-eligible processes must be physical, this Court can rationalize seemingly inconsistent precedent, subject process inventions to the same fundamental requirement that applies to machines, manufactures, and compositions of matter, and provide the PTO, the lower courts, and the public with a standard that will enable them to determine which inventions satisfy the Section 101 threshold, and which do not.

DISCUSSION

I. BASIC PRINCIPLES GOVERNING APPLICATION OF SECTION 101.

A. The Statute And Early Precedent.

The Constitution's Patent Clause empowers Congress to "promote the Progress of Science and the Useful Arts...." U.S. Const. Art. 1, § 8. Congress has implemented this grant in Section 101 by identifying certain subject matter, the

invention or discovery of which may merit a patent: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. The terms used in Section 101 have been used for over 200 years — since the beginning of the American patent system — to define the scope of patent-eligible subject matter. *See In re Chatfield*, 545 F.2d 152, 159 (CCPA 1976) (Rich, J., dissenting); 1 D. Chisum, *Patents* § 1.01 (1993).

Thus, the Patent Act of 1793 defined statutory subject matter as “any new and useful art, machine, manufacture or composition of matter, or any new or useful improvement [thereof].” Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318. Although “process” did not appear in the statute until 1952, it is settled that this change in language was not a change in substance, for the original statutory term, “art,” encompassed processes. *See Diamond v. Diehr*, 450 U.S. 175, 182 (1981). What qualified as a patent-eligible “art” or process is also settled. As the Supreme Court explained in *Diehr*, “the nature of a patentable process” had been “defin[ed]” over 100 years earlier: “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....” *Diehr*, 450 U.S. at 183, *quoting Cochrane v. Deener*, 94 U.S. 780, 787-88 (1877).

To be sure, Section 101’s description of patent-eligible subject matter is broad, intended by Congress to “include anything under the sun that is made by man.” S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952), *reprinted in* 1952 USCCAN 2394, 2399. But it is also unquestionably not without boundaries. *See Diehr*, 450 U.S. at 185 (“[E]very discovery is *not* embraced within the statutory terms.”) (emphasis added). Most fundamentally, patent-eligible subject matter cannot be abstract. Thus, as early as *Le Roy v. Tatham*, 55 U.S. 156 (1852), the Supreme Court explained that “[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.” *Id.* at 175. Since then, the principle that abstract ideas are unpatentable has repeatedly been confirmed. *See, e.g., Rubber-Tip Pencil Co. v. Howard*, 87 U.S. 498, 507 (1874) (“An idea of itself is not patentable”); *Diehr*, 450 U.S. at 185; *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (“The laws of nature, physical phenomena, and abstract ideas have been held not patentable.”); *Parker v. Flook*, 437 U.S. 584, 589 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

From the text of the statute and the Supreme Court’s consistent construction of that text, then, two prerequisites for patent-eligible subject matter can be discerned. First, a patent-eligible invention, whatever its form, is

fundamentally physical — a machine, manufacture, composition of matter, or

process (“an act, or a series of acts, performed upon the subject-matter to be transformed . . .,” *Cochrane*, 94 U.S. at 787-88). And, second, although a patent-eligible invention may not consist of an abstract idea, law of nature, or physical phenomenon, the *application* of an abstract idea, law of nature, or physical phenomenon to produce a new machine, manufacture, or composition of matter having a useful, concrete and tangible result may be patent-eligible.

B. These Fundamental Principles Continue to Apply in the Modern Electronic Age.

These principles, despite their age and their roots in the pre-electronic era, remain the touchstone for applying Section 101. The Supreme Court made this clear in *Diehr*, and its predecessors, *Benson* and *Flook*, all of which presented claims that involved, in one way or another, computer-related technology.¹ This Court, too, has recognized that *Benson*, *Flook*, and *Diehr* continue to provide the foundation for the Section 101 analysis, regardless of the technology or field of endeavor involved. *See, e.g., In re Alappat*, 33 F.3d 1526, 1543-44 (Fed. Cir. 1994) (*en banc*); *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998); *In re Comiskey*, 499 F.3d 1365, 1375-76

¹ More recently, although the Supreme Court has not squarely confronted Section 101, several Justices have made clear that the Court’s prior decisions continue to apply. *See Laboratory Corporation of America Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921, 2925-28 (2006) (Breyer, J. dissenting, joined by Stevens, J. and Souter, J.) (*citing Benson, et al.*).

(Fed. Cir. 2007); *In re Nuijten*, 500 F.3d 1346, 1363-64 (Fed. Cir. 2007). As an examination of the controlling precedent makes clear, that Section 101 foundation is physical.

1. *Gottschalk v. Benson*

The applicant in *Benson* sought to patent “a method of programming a general-purpose digital computer.” 409 U.S. at 65. The claims were not limited to any particular apparatus or end use, *id.* at 64, but their result — converting binary-coded decimals into pure binary numerals — was indisputably useful, *id.* at 65. The claims also described a “process,” as ordinarily understood. *See Flook*, 437 U.S. at 588-89 (*Benson* claims described a “process”).

They did not, however, describe a *patentable* process. The claims in *Benson* recited only “a generalized formulation for programs to solve mathematical problems of converting one form of numerical representation to another.” 409 U.S. at 65. Although “programs may be developed as specific applications” from “the generic formulation” of the claims, *id.*, *Benson*’s claims did not purport to do so. Rather, they were “abstract and sweeping,” *id.* at 68, and properly understood, sought “a patent on the algorithm itself.” *Id.* at 71-72.

In this sense, the *Benson* claims suffered from the same defect as Samuel Morse’s broad claim to any use of electromagnetism to produce signs for telegraphy, which the Court rejected in *O’Reilly v. Morse*, 50 U.S. 62 (1853). Just

as Morse's eighth claim sought to patent a fundamental principle without tying it to specific process steps or a specific apparatus, so too did the claims in *Benson* seek to patent an abstract idea, a mathematical algorithm. Morse, however, unlike Benson, also claimed specific physical process steps and an apparatus, which made his other claims patentable. *Id.* at 123. It was in this context that the Court in *Benson*, relying on its 19th Century precedents concerning "arts" or processes, explained that the "clue to patentability" of a process claim is that the process as claimed must be "tied to a particular machine or apparatus or must operate to change articles or materials to a 'different state or thing.'" 409 U.S. at 70-71. Although other such "clues" conceivably might exist, *id.* at 71, Benson's "abstract and sweeping" claims did not describe a patent-eligible process.

2. *Parker v. Flook*

The fundamental principles articulated in *Benson* were easily applied to the claims at issue in *Flook*. Those claims, according to the Supreme Court, provided only "a formula for computing an updated alarm limit," 437 U.S. at 586, a numerical parameter used in chemical processes. The Court assumed that the formula was useful, *id.* at 588, and it agreed that the claims literally described a "process," *id.* That "purely literal" definition, however, was not the definition contemplated by Section 101. *Id.*

In reaching this conclusion, the Supreme Court held, as it had in *Benson*, that a patent-eligible “process” is physical in nature — *i.e.*, “tied to a particular apparatus” or operating “to change materials to a ‘different state or thing.’” *Id.* at 589, *quoting Cochrane*, 94 U.S. at 787-88. Although the *Flook* claims referred to particular catalytic conversion processes, they provided no disclosure of those process steps. *Id.* at 586. As the Court explained in *Diehr*, the *Flook* claims “did not purport to explain how the variables used in the formula were to be selected,” 450 U.S. at 192 n.14, nor did they “contain any disclosure relating to the chemical processes at work, the monitoring of the process variables, or the means of setting off an alarm system.” *Id.* at 187. The *Flook* claims also were not tied to any particular apparatus, either for implementing the claimed method itself or for the underlying chemical processes. *See* 437 U.S. at 596-97. The claimed invention was, in short, nothing more than an improved method of mathematical calculation — *i.e.*, an abstract idea and not the kind of process covered by Section 101. *Id.* at 593-95.

3. *Diamond v. Diehr*

The claims in *Diehr* were, on a superficial level, very similar to those in *Flook*: they described the use of a mathematical formula to improve the operation of an industrial process. The relevant teaching of *Diehr* emerges from consideration of the *differences* between the *Flook* and *Diehr* claims.

The key difference is that, unlike the claims in *Flook* (and *Benson*), the claims in *Diehr* described a step-by-step process for converting one physical substance, uncured rubber, into another, precision-cured rubber. They did not merely claim, as in *Benson*, an algorithm for converting one form of number into another, 450 U.S. at 185-86, nor did they claim, as in *Flook*, “a formula for computing an updated alarm limit,” *id.* at 187, *quoting Flook*, 437 U.S. at 586. Although the *Benson* and *Flook* inventions both could be put to practical use as parts of patentable processes, the claims themselves did not describe such processes. The *Diehr* claims did:

That respondents’ claims involve the transformation of an article, in this case raw, uncured synthetic rubber, into a different state or thing cannot be disputed. The respondents’ claims describe in detail a step-by-step method for accomplishing such, beginning with the loading of a mold with raw, uncured rubber and ending with the eventual opening of the press at the conclusion of the cure. Industrial processes such as this are the types which have historically been eligible to receive the protection of our patent laws.

450 U.S. at 184.

The mere fact that the *Diehr* process made use of a mathematical formula, and a computer, did not change the patent-eligible nature of the claimed process. The Court explained that although a formula or fundamental principle is not patentable “in isolation,” “a novel and useful structure created with the aid” of that formula or principle satisfies the Section 101 threshold. *Id.* at 188, *quoting*

Mackay Radio & Telegraph Co. v. Radio Corp. of America, 306 U.S. 86, 94 (1939); *see also Diehr*, 450 U.S. at 192. The decisions in *Benson* and *Flook*, the Court explained, “stand for no more than these long-established principles.” *Id.* at 185. Accordingly, a process that employs particular machines or effects the transformation of physical subject matter to a different state or thing is a “useful structure,” and thus patent-eligible. *Id.* at 184, 192. And, although the Court again signaled, as it had in *Benson* and *Flook*, that “particular machines” or “transformation and reduction” may not be the only indicia of a patent-eligible process, *id.* at 192, the Court left no doubt that such a process is, like other Section 101 subject matter, physical in nature.

4. This Court’s Application of *Benson*, *Flook*, and *Diehr*.

This Court consistently has applied these principles since the decisions in *Benson*, *Flook*, and *Diehr*. This is evident, for example, in decisions rejecting claims to processes that consisted entirely of so-called “mental steps.” Thus, in *In re Schrader*, 22 F.3d 290 (Fed. Cir. 1994), this Court held unpatentable a “method constitut[ing] a novel way of conducting auctions” by allowing competitive bidding on a plurality of related items. *Id.* at 291. The fact that the process utilized machines was not determinative. Two of the alleged machines — a “display” in the front of the auction room and “a closed-circuit television system” for bidders in different cities — were not claimed, and the third — a “record” in

which bids could be entered — did not perform any particular function, and could

impermissibly claimed a series of “mental steps.”

Similarly, in *In re Warmerdam*, 33 F.3d 1354 (Fed. Cir. 1994), a process for controlling objects to avoid collisions was unpatentable because the claims described “nothing more than the manipulation of basic mathematical constructs, the paradigmatic ‘abstract idea.’” *Id.* at 1360. A machine was not required, *id.* at 1358,² nor did the process transform any physical subject matter. See also *In re Meyer*, 688 F.2d 789, 795-96 (CCPA 1982) (“a mental process that a

patent “the use of mental processes to resolve a legal dispute.” They were, like the claims in *Schrader*, “directed to an abstract idea itself rather than a statutory category” of patentable subject matter. *Id.*

The requirement that a patentable invention have a physical foundation is evident as well in this Court’s decisions approving claims that involved, in some fashion, mathematical algorithms, abstract concepts, or fundamental principles. In *Arrhythmia Res. Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053 (Fed. Cir. 1992), the Court considered a patent on a process and apparatus “for detecting and analyzing a specific heart activity signal....” *Id.* at 1058. The defendant argued that the claims were unpatentable because they embodied an abstract process or mathematical algorithm. The Court rejected that characterization because the claimed process physically transformed electrical signals generated by a particular apparatus. As the Court explained, the “claimed steps of ‘converting,’ ‘applying,’ ‘determining,’ and ‘comparing’ are physical process steps that transform one physical, electrical signal into another.” *Id.* at 1059. This process involving physical subject matter satisfied Section 101.

The Court has applied the same analysis to machine or apparatus claims. In *Alappat*, the applicant claimed a machine, a “rasterizer,” which employed circuits configured using mathematical algorithms to transform a waveform for display in an oscilloscope. The Court had little difficulty concluding

that an electrical apparatus configured to transform particular electronic signals into different signals was a “machine” under Section 101, and the fact that its circuits were configured using mathematical concepts did not remove it from Section 101’s coverage. 33 F.3d at 1544-45. Moreover, because the claimed machine produced a “useful, concrete, and tangible result,” it could not be said (as was true in *Benson*) that the claims effectively claimed only an abstract concept. It was patent-eligible subject matter under Section 101. *Id.* at 1544.

To the same effect is *State Street Bank*. The claims there described a machine, in means-plus-function form, and the specification disclosed the requisite structure. 149 F.3d at 1371. A “machine,” consisting of specific physical components, is Section 101 subject matter. *Id.* at 1372. It was true, as in *Alappat*, that the claimed machine made use of mathematical operations. *Id.* It was undisputed, however, that the machine produced, as in *Alappat*, a “useful, concrete, and tangible result.” *Id.* at 1375. The claimed invention, therefore, was not “merely abstract ideas constituting disembodied concepts or truths,” *id.* at 1373. It complied with Section 101.

* * *

The governing principles are clear. The range of patent-eligible subject matter is very broad, but it is not unlimited. Among other limitations, it does not include abstract concepts. To be patent-eligible under Section 101, an

invention — whether process, machine, manufacture, or composition of matter must be physical in nature; where a process is concerned, this means that the claimed steps must be tied to a particular apparatus or effect a transformation of physical subject matter. Moreover, to ensure that a claim to what appears to be patent-eligible subject matter is not in reality a claim to an abstract concept, the claimed invention must produce a “useful, concrete and tangible result.”

II. APPLICATION OF THE SECTION 101 PRINCIPLES.

Measured against these principles, the *Bilski* claims plainly do not describe patent-eligible subject matter. The claimed invention, although it may have some practical utility, encompasses an abstract concept. It is neither tied to a particular apparatus, nor does it transform physical subject matter. It is thus indistinguishable from the inventions in *Flook*, *Schrader*, *Comiskey*, and other cases which involved arguably useful concepts where the claims when properly construed were wholly lacking in physical substance.

This Court’s decision, however, will have significance far beyond *Bilski*’s claim to a method for managing risk, for the principles that govern what is patent-eligible subject matter under Section 101 apply to all inventions, regardless of form, and all technologies, regardless of field. In particular, this Court’s decision is likely to have direct application to information technology-related

inventions, including those implemented in software, combinations of software and hardware, firmware, and other current and future formats.

With respect to an invention implemented in software, a patentable claim must include physical limitations — *i.e.*, it must effect a physical transformation of subject matter or be tied to a particular apparatus. Software-implemented processes do just that in that they are tied to a specially programmed computing device and effect a transformation of physical matter, such as electrical or electromagnetic signals. Before software can be contained in and continuously performed by a computer, an actual *physical* embodiment of the software must be delivered by CD-ROM or some other means capable of interfacing with a computer. *See Microsoft Corp. v. AT&T Corp.*, 127 S. Ct. 1746, 1756 (2007). This is in contrast to the concept of software detached from any physical embodiment or activating medium, which, at that basic level, is merely a set of instructions. *Id.* The way in which this Court draws the line between that which is sufficiently physical and useful to satisfy Section 101 and that which is a mere abstract concept thus will have direct application to the Section 101 analysis of claims that involve computer software. *Amici* therefore propose the following approach.

A. The Requirement of Section 101 That a Patent-Eligible Invention Be Physical Is Satisfied by Computer Software-Implemented Processes and Programmed Computers Operating Pursuant To

Software Instructions.

That software-related inventions must have a physical foundation is the inescapable conclusion of *Benson*, *Flook*, and *Diehr*, and this Court's decisions in their wake. What that means at a practical level may be less clear, but *Amici* submit that the Supreme Court's analysis of computer-related process inventions and this Court's analysis of computer-related machine claims point to the answer.

As for process inventions, the "clues" to their patentability are well settled and directly applicable to software-implemented processes. At the most basic level, a classic industrial process, like the rubber-curing process in *Diehr*, that is implemented using computer software plainly "is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing)." 450 U.S. at 192. The use of a programmed computer in an otherwise patent-eligible process does not remove it from the coverage of Section 101. *Id.* at 187. Moreover, as this Court has made clear, the physical subject matter that undergoes a physical transformation can include electrical signals, electromagnetic signals, and the like. "[C]omputer-performed operations transform a particular input signal to a different output signal, in accordance with the internal structure of the computer as configured by electronic instructions." *Arrhythmia Research*, 958 F.2d at 1060. These operations

“convert[] one physical thing into another physical thing,” *In re Sherwood*, 613 F.2d 809, 819 (CCPA 1980), *i.e.*, they perform “a function which the patent laws were designed to protect.” *Diehr*, 450 U.S. at 192. *See also Nuijten*, 500 F.3d at 1355 (a “signal made of electrical or electromagnetic variances ... is physical and real.”); *id.* at 1356 (an electric or electromagnetic transmission “is man-made and physical — it exists in the real world and has tangible causes and effects”).³ So long as the product of these physical operations is not a mathematical abstraction, but rather is of “practical utility and specified application,” *Arrhythmia Research*, 958 F.2d at 1061 — which will typically be the case — the threshold requirements of Section 101 have been satisfied.

Consideration of the other “clue” to patentability — that a patent-eligible process be “tied to a particular machine or apparatus,” *Benson*, 409 U.S. at 70-71 — leads to the same conclusion. A computer operating pursuant to software instructions is “a particular machine or apparatus” — in the words of

³ That the subject matter on which a patentable process operates may include electrical and electromagnetic signals is a well-established principle, long predating computer-related technology. For example, Alexander Graham Bell’s process of transmitting speech employed electricity, “one of the forces of nature.... The art consists in so controlling the force as to make it accomplish the purpose,” which Bell did by “changing the intensity of a continuous electric current.” *The Telephone Cases*, 126 U.S. 1, 532 (1888). *See also Corning v. Burden*, 15 How. 252, 267-68 (1854) (a patentable process may employ “some element or power of nature”); *Nuijten*, 500 F.3d at 1368 (Linn, J. dissenting) (discussing approved process claim in *O’Reilly v. Morse*, which used electromagnetism).

Arrhythmia Research, its “internal structure” has been “configured by electronic instructions.” 958 F.2d at 1060. Programming “creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.” *Alappat*, 33 F.3d at 1545; *see also Aristocrat Techs. Australia Pty. Ltd. v. Intl. Game Tech.*, No. 2007-1419, slip op. at 8 (Fed. Cir. March 28, 2008).⁴ The fact that the program software, divorced from the computer or other physical medium, might be termed an algorithm or might incorporate mathematical concepts is irrelevant. All machines operate pursuant to algorithms, and computers are no different. Once the algorithm or software takes physical form as part of a computer (or other machine), Section 101 is satisfied, for “a computer ... is apparatus, not mathematics.” *Alappat*, 33 F.3d at 1545; *cf. Microsoft Corp. v. AT&T Corp.*, 127 S. Ct. at 1750 (machine within scope of patent’s apparatus claim is created when computer is programmed with software).

The relevant Section 101 principles thus come down to this where computer software-related inventions are concerned: (1) A software-implemented

⁴ This analysis rests on a solid technological foundation. When a program is installed on a computer, the program instructions change the machine’s physical structure by aligning pairs of bands of magnetically-charged particles on the hard disk, with each pair corresponding to a “1” or “0” of the object code and causing one of the processor’s internal switches to open or close. Ron White, *How Computers Work*, 144-45 (8th ed. 2006).

process is patent-eligible under Section 101 for two separate reasons — it effects a physical transformation of physical subject matter, *and* it is tied to a particular apparatus, the “special purpose” programmed computer; and (2) A programmed computer is itself patent-eligible subject matter under Section 101 because it is a new machine, having different physical properties relative to an unprogrammed or differently programmed computer.

B. The Court Should Make Clear That “Useful, Concrete and Tangible” Is Not An Independent Test Under Section 101.

Despite the clear precedent, it has been suggested that whether a process effects a physical transformation or is tied to a particular apparatus is beside the point, that the real test under Section 101 is simply whether a claimed process produces a “useful, concrete and tangible result.”⁵ *Amici* submit that this view rests on a misreading of this Court’s decisions and that the *en banc* Court should dispel this misconception.

The cases in which the “useful, concrete and tangible” phrase originated — *Alappat*, *State Street*, and *AT&T Corp. v. Excel Comms., Inc.*, 172 F.3d 1352 (Fed. Cir. 1999) — all involved claims with physical limitations that satisfied the essential requirement of Section 101 as articulated by the Supreme Court. As the Supreme Court also made clear, however, physical limitations do

⁵ See, e.g., Opening Brief of Appellants (March 12, 2007), at 10-11; Brief for *Amicus Curiae* AIPLA (April 30, 2007), at 13-15.

not necessarily satisfy Section 101, if the practical effect of allowing the claim, viewed as a whole, would be to grant patent rights on an abstract idea or fundamental principle. *See, e.g., Diehr*, 450 U.S. at 191; *Flook*, 437 U.S. at 590; *Benson*, 409 U.S. at 72-73. Thus, where a process claim incorporates an abstract idea or fundamental principle, Section 101 requires confirmation that the claim is not simply a dressed-up version of that idea or principle — that is, does the claimed process, viewed as a whole, have specific, practical utility? *See, e.g., Diehr*, 450 U.S. at 187. This Court’s “useful, concrete and tangible” formulation is a useful analytical tool to confirm that an invention that is sufficiently physical in nature is indeed patent-eligible under Section 101. It does not, however, function as a stand-alone test or alternative to the requirement that a patent-eligible invention have a physical foundation. *See Nuijten*, 500 F.3d at 1354 (*State Street* did *not* hold that the Section 101 inquiry is “subsumed into an overarching question about patentable utility.”).⁶

⁶ Confusion on this score has arisen, in part, because of the similarity of this inquiry to the independent Section 101 requirement that a claimed invention possess practical utility. *See Brenner v. Manson*, 383 U.S. 519, 528-29 (1966); *In re Fisher*, 421 F.3d 1365, 1371 (Fed. Cir. 2005) (patentable invention must have

“real world value”). As the Supreme Court held in *Brenner*, “a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.” 383 U.S. at 536. The practical utility requirement reflected in the “useful, concrete and tangible” inquiry operates to enforce this independent statutory requirement.

This is clear from *Alappat* and *State Street*, both of which first determined that the claims at issue presumptively described Section 101 subject matter — machines — and only then addressed the machines’ “useful, concrete and tangible” output. *See Alappat*, 33 F.3d at 1544; *State Street*, 149 F.3d at 1373. It is clear as well from the myriad cases in which claimed inventions that produced useful results were nevertheless held unpatentable under Section 101 because they were “abstract” — *i.e.*, non-physical. *See, e.g., Flook*, 437 U.S. at 590; *Benson*, 409 U.S. at 72-73; *Meyer*, 688 F.2d at 796; *Mauccorps*, 609 F.2d at 486; *Comiskey*, 499 F.3d at 1375-76. To the extent that confusion exists on this score, it may flow from *AT&T v. Excel* and its suggestion that physical limitations are irrelevant when process claims are at issue. 172 F.3d at 1358. But the claims there in fact included physical limitations, requiring “the use of computers and switches,” *id.* at 1355, and called for processing “through switching and recording mechanisms to create a signal useful for billing purposes,” *id.* at 1358. As this Court explained in *Comiskey*, the *Excel* process claims satisfied Section 101 “because they claimed practical applications *and* were tied to specific machines.” 499 F.3d at 1377 & n.14 (emphasis added). The question whether a process can be patented in the absence of physical limitations therefore was not presented in *Excel*, so any suggestion that such limitations are not required is not only contrary to controlling precedent, but also is *dictum*.

C. Concerns With Respect To Claims That Include Only General Recitations of Structure Are Properly Addressed Under Sections 102, 103, and 112, not Section 101.

The approach outlined above is subject to the criticism that its requirements can be easily circumvented, that an abstract series of steps can be converted into Section 101 subject matter merely by reciting, for example, that the steps should be implemented using a computer, and that a more stringent Section 101 standard is necessary. This criticism is not without substance, for it is indeed a simple matter to add “implemented by computer” to almost any otherwise abstract concept. The solution, however, lies not with Section 101 but with the other statutory requirements for patentability.

Section 101, as the Supreme Court reminded in *Diehr*, is only one doorway of several through which a claimed invention must pass on the way to a patent. It is “a general statement of the type of subject matter that is eligible for patent protection,” subject to the other requirements of the statute. 450 U.S. at 189. The bedrock principle that a court should not read into a statute limitations that Congress did not adopt is of particular relevance to Section 101, for both its text and its legislative history make clear that Congress intended a broad scope. *See Diehr*, 450 U.S. at 182; *Chakrabarty*, 447 U.S. at 315. Indeed, much of the confusion in this area can likely be traced to the understandable desire to block unwarranted patents at the very first statutory threshold.

Amici respectfully submit that preventing the issuance of unwarranted patents is best achieved not by adding to Section 101 requirements not found in that general statute, but rather by rigorously enforcing the more specific requirements of Sections 102, 103, and 112 — novelty, nonobviousness, definiteness, written description, and enablement.

This Court reached just this conclusion in *In re Comiskey*. Several of the claims at issue there recited steps that involved no apparatus and no transformation of physical subject matter, while others explicitly required the use of a computer or other apparatus. 499 F.3d at 1376-78. The Court held that the former merely reflected mental processes, *i.e.*, abstract concepts, and thus did not satisfy Section 101. *Id.* at 1378. The claims requiring the use of an apparatus, however, were different because “[w]hen an unpatentable mental process is combined with a machine, the combination may produce patentable subject matter.” *Id.* at 1379. The Court reached this conclusion even though these claims included only general language requiring the use of “the Internet, intranet, World Wide Web, ... or other communication means.” *Id.* at 1369-70. The Court noted that the “routine addition of modern electronics to an otherwise unpatentable invention typically creates a *prima facie* case of obviousness,” but determined that this was a Section 103, not Section 101, issue. *Id.* at 1380.

Section 112 is another tool for ensuring that claims that merely add general recitations of structure to otherwise unpatentable subject matter do not mature into issued patents. Indeed, this Court has particular experience in applying Section 112 to claims that call for the use of computer devices, particularly claims in means-plus-function or step-plus-function form. In such cases, “this court has consistently required that the structure described in the specification be more than simply a general purpose computer or microprocessor.” *Aristocrat Techs.*, slip op. at 7. Instead, Section 112 requires that such claims be supported by disclosure of specific structure or specific steps that will produce the claimed result, not merely by a general reference to a computer or microprocessor, as in *Comiskey*. See, e.g., *id.*, slip op. at 7-12; *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1249 (Fed. Cir. 2005); *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). If the specification fails to provide this disclosure, the claim is invalid. See *Aristocrat Techs.*, slip op. at 4, 7-16 (disclosure of “a standard microprocessor-based gaming machine with ‘appropriate programming’” is not sufficient); see also *Tehrani v. Hamilton Med., Inc.*, 331 F.3d 1355, 1362 (Fed. Cir. 2003); *WMS Gaming*, 184 F.3d at 1358.

Amici submit that concerns with overly broad or vague “machine-implemented” claims are best addressed by enforcing Section 112 as applied in these decisions, and Section 103 as suggested in *Comiskey*. To use Section 101 for

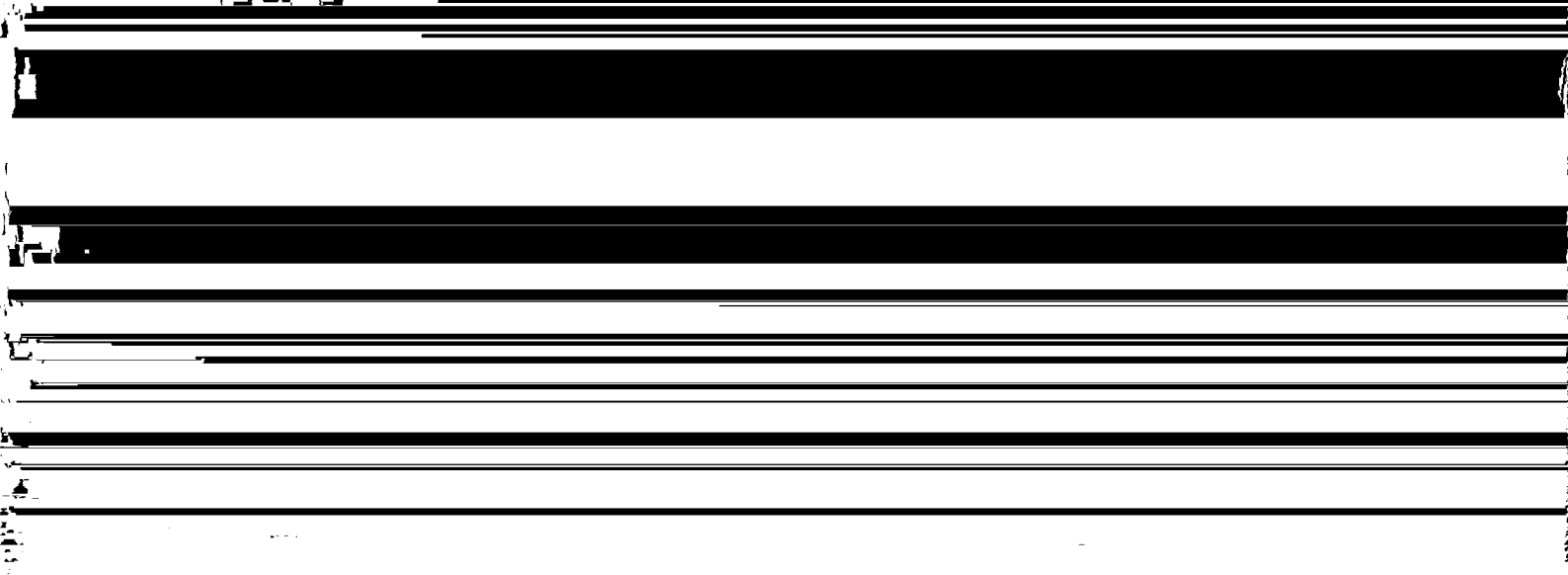
this purpose distorts its language and purpose, and produces uncertainty concerning its proper scope. Congress has provided the tools necessary to prevent abuse of the patent system, and those tools are, as the Supreme Court explained in *Diehr*, the “specific conditions for patentability” of Sections 102, 103, and 112. 450 U.S. at 189.

III. ANSWERS TO THE COURT’S SPECIFIC QUESTIONS.

Based on this analysis, *Amici*’s answers to the Court’s specific questions can be briefly stated:

1. *Whether Claim 1 of the Bilski application claims patent-eligible subject matter under Section 101?*: No. As “a method of managing the consumption risk costs associated with a commodity sold at a fixed price for a given period,” Claim 1’s process does not effect a transformation of physical subject matter, nor is it tied to a specific apparatus. Therefore, it falls outside the scope of Section 101.

2. *What standard should govern in determining whether a process is patent-eligible subject matter under Section 101?*: As *Benson*, *Flook*, and *Diehr* make clear, and as this Court observed in *Almy* and, most recently, *Cambridge*, a



3. a. *Whether the claimed subject matter is not patent-eligible*

because it constitutes an abstract idea or mental process?: It is not patent-eligible because it is not a process under Section 101 — it neither transforms physical subject matter, nor is it tied to a specific apparatus. A “process” that lacks such a physical foundation is an unpatentable abstract concept.

3. b. *When does a claim that contains both mental and physical steps*

create patent-eligible subject matter?: A process claim is eligible for patent protection when the claimed process as a whole physically transforms physical subject matter or is tied to specific machines, and the result of the process is useful, concrete and tangible.

4. *Whether a process must result in a physical transformation of*

an article or be tied to a machine to be patent-eligible subject matter under Section

101? Patent-eligible under Section 101 requires that a claimed invention be

5. *Whether it is appropriate to reconsider the State Street Bank and AT&T v. Excel decisions, and if so, whether those cases should be overruled in any respect?*: The outcome in both cases is consistent with the correct standard for patentability, so neither case need be overruled. Both cases, however, contain language that can be, and has been, read to relax patentability standards beyond what can be justified consistent with Supreme Court precedent — in particular, the “useful, concrete and tangible” result formulation. *State Street*, 149 F.3d at 1375-76; *Excel*, 172 F.3d at 1355. The *en banc* Court should make clear that this is not an independent patentability standard but rather is only a part of the Section 101 inquiry.

CONCLUSION

Amici Curiae respectfully submit that the Court should embrace the

following principles to determine whether process inventions qualify as patent-eligible subject matter under Section 101:

- A patent-eligible process must be physical in nature — *e.g.*, it must be tied to a specific apparatus or effect a physical transformation of physical subject matter.
- Physical subject matter includes electrical and electromagnetic signals.
- The result or product of such a physical process must be useful, concrete and tangible. However, such a result is not itself sufficient for patentability. A patent-eligible process must *both* be physical in nature and must produce a useful, concrete and tangible result.

Amici submit that this standard properly implements Section 101 as a broad, but not unlimited, patentability threshold, and will enable the PTO, the courts, and the bar to determine whether Section 101 has been satisfied in a particular case, whatever the form of the claimed invention, the technology employed, or the field of endeavor.

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Respectfully submitted,

Carter G. Phillips
Jeffrey P. Kushan
SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, D.C. 20005
(202) 736-8000

Constantine L. Trela, Jr.
Richard A. Cederroth
SIDLEY AUSTIN LLP
One South Dearborn Street
Chicago, IL 60603
(312) 853-7000

Counsel for *Amici Curiae*

**CERTIFICATE OF COMPLIANCE WITH
FRAP 29(d) AND 32(a)(7)(B)**

Counsel for *Amici* certifies that the body of this brief, beginning with the Statement of Interest of *Amici Curiae* on page 1 and ending with the last line of the “Conclusion” on page 30, contains 6,972 words, as measured by the word-processing system used to prepare this brief, in compliance with Federal Rules of Appellate Procedure 29(d) and 32(a)(7)(B).

Constantine L. Trela, Jr.
Counsel for *Amici Curiae*

CERTIFICATE OF SERVICE

I hereby certify that on the 7th day of April 2008, two copies of the foregoing Brief of *Amici Curiae* were served upon:

David C. Hanson
The Webb Law Firm
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219

Stephen Walsh
Office of the Solicitor
U.S. Patent & Trademark Office
P.O. Box 15667
Arlington, VA 22215

Denise W. DeFranco
Finnegan, Henderson, Farabow
55 Cambridge Parkway, 7th Floor
Cambridge, MA 02142

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Constantine L. Trela, Jr.
Counsel for *Amici Curiae*