

STILL “ANYTHING UNDER THE SUN”? PATENT ELIGIBILITY AFTER *BILSKI*

GIUSEPPE COLANGELO*

Everyone who is involved in patent law awaited the US Supreme Court decision in Bilski. For the first time ever, the case is related to a pure type of business method, not tied to any device and not resulting in a tangible product. Therefore Bilski is the perfect candidate for a landmark case and a turning point in US patent law.

TABLE OF CONTENTS

I. INTRODUCTION: REASONS FOR AWAITING <i>BILSKI</i>	1
II. BACKGROUND.....	5
A. FEDERAL CIRCUIT'S DECISION.....	6
B. TRYING TO CLOSE PANDORA'S BOX: THE "MACHINE-OR-TRANSFORMATION" TEST.....	9
III. SUPREME COURT'S DECISION.....	14
A. JUSTICE STEVENS' LEGACY.....	16
IV. THE EUROPEAN PERSPECTIVE.....	18
V. CONCLUSIONS.....	22

I. INTRODUCTION: REASONS FOR AWAITING *BILSKI*

Everyone who is involved in patent law awaited the US Supreme Court decision in *Bilski*. For at least one reason: for the first time ever the case is related to a pure type of business method, that is, not tied to any device and not resulting in a tangible product. Therefore *Bilski* is the perfect candidate for a landmark case and a turning point in US patent law: the Supreme Court was expected to rule on the patent eligibility of business methods.

In recent years, similar patents have stirred heated debate. Many experts and commentators have expressed concern - and one is even scared¹ - about business method patents, casting doubt on whether their social benefits outweigh the social costs and arguing that they stifle, rather than encourage, innovation due to the impediments to cumulative innovation and the drag of prosecution and litigation costs. The most frequently-voiced criticisms of business method patents hold them responsible for having significantly contributed to the patent flood and the risk of anticommons:² business methods have been indicted for the increasing trend toward obtaining patents and for the emergence of questionable patents, some of the main reasons why many commentators urge a patent system reform.³

This is another reason to look carefully at *Bilski*: although the case is related to a business method, the questions put forward affect innovation in many other types of technology because the decision turns on the interpretation of Section 101 of the Patent Act, which describes the subject matter eligible for patent protection, and specifically on the eligibility of a process.⁴

Under Section 101, four independent categories of invention or discovery are eligible for protection: 'processes', 'machines', 'manufactures', and

* University of Basilicata, giuseppe.colangelo@unibas.it.

¹ S.M. McJohn, *Scary Patents*, 7 Nw. J. Tech. & Intell. Prop. 343 (2009): "There are plenty of scary patents out there. Especially with subject matter like software and business methods, patents of uncertain scope and validity cast a shadow over innovation in new technologies."

² R.A. Posner, *Do We Have Too Many Intellectual Property Rights?*, 9 Marq. Intell. Prop. L. Rev. 173, 184 (2005): "When a firm now contemplates making a new product or adopting a new method of doing business, it confronts a much larger array of existing patents than in the old days -- a veritable thicket of patents. What this means is that firms incur additional expenses in negotiating for patent licenses."

³ For a summary of the critics, see J.R. Allison - E.H. Tiller, *The Business Method Patent Myth*, 18 Berkeley Tech. L.J. 987 (2003). See also R.C. Dreyfuss, *Are Business Method Patents Bad for Business?* 16 Santa Clara Computer & High Tech. L.J. 263 (2000).

⁴ See Brief of American Intellectual Property Law Association in support of neither party, *Bilski v. Kappos*, No. 08-964, available at http://www.aipla.org/Content/ContentGroups/Issues_and_Advocacy/Amicus_Briefs1/20097/AIPLABilskiBriefFiled-08-06-09.pdf: the issue is not limited to business method patents but "affects every "process" in every technology, including both existing technologies and those yet to be discovered".

‘compositions of matter’.⁵ Patent eligibility performs a gatekeeping function: the Section 101 inquiry is only a threshold test and patent-eligible inventions are not automatically entitled to protection. Any claimed invention must go through another stage before patent rights are awarded by the Patent Office and must satisfy the conditions and requirements of novelty, non-obviousness, and disclosure.⁶

Business methods generally fall under the term ‘process’, which is defined by Section 100(b) as: “process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material”. The Supreme Court’s precedents provide three exceptions to §101’s eligibility principles (laws of nature, physical phenomena, and abstract ideas) that, although not required by the text, are consistent with the notion that a patentable process must be “new and useful”.

The broad terms used in Section 101 reflect the permissive approach to subject-matter patent eligibility taken by Congress. Nevertheless, while industrial age inventions fell easily into at least one of the statutory categories, those of the information age complicate the analysis and blur the boundaries of these categories. The coming of computer technology raised new questions about patent eligibility, forcing courts to reassess the meaning of the judicial exceptions and to find out how they might apply to software and computer-implemented business methods: whether and to what extent these

⁵ Patent Act, § 101: “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 therefore, subject to the conditions and requirements of this title.”

⁶ For this reason someone suggests this concern over patentable subject matter is misplaced: to clarify the jurisprudence of patentable subject matter it would be useful to implement a single rule under which any invention that satisfies the Patent Act’s requirements of category, utility, novelty, non-obviousness, and specification is patentable, without need to consider subject matter restrictions. See M. Risch, *Everything Is Patentable*, 75 Tenn. L. Rev. 591, 597-598 (2008): “patentable subject matter uncertainties in Supreme Court jurisprudence stem from a failure of the particular invention to qualify for a patent on other grounds. ... Virtually all of the important historical patentable subject matter cases may be explained by applying each of the other requirements for patentability. When viewed through this lens, subject matter concerns are at bottom patentability concerns”. However, even excluding the patentable subject matter uncertainties, patent rights have a high degree of uncertainty both as to the validity and scope of rights: see M. Lemley – C. Shapiro, *Probabilistic Patents*, 19 J. Econ. Perspectives 75 (2005).

inventions cover applied technology rather than abstract ideas has proven controversial.

Three relevant decisions issued by the Court dealt with the eligibility of processes. In *Benson*, the Court denied patent protection to a method of converting binary-coded decimal numbers into pure binary format.⁷ Ruling that the program was not patentable subject matter, the Court underlined that the claim was not limited to any particular art or technology, to any particular apparatus or to any particular end use: thus, “the patent would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself”⁸.

Six years later, the same outcome arose from *Flook*:⁹ the application at issue claimed the use of a mathematical algorithm to calculate an alarm limit that would indicate abnormal conditions during a chemical conversion process. Rejecting the claim, the Court stated that the process was “unpatentable under §101, not because it contains a mathematical algorithm as one component, but because once that algorithm is assumed to be within the prior art, the application, considered as a whole, contains no patentable invention”.¹⁰ Although *Flook*’s invention was more than the algorithm itself, the Court held that “conventional or obvious” post-solution steps were insufficient to distinguish the case from *Benson* and transform an unpatentable formula into an eligible process.¹¹

Then came *Diehr*.¹² The applicants claimed a method for curing synthetic rubber using the Arrhenius algorithm to calculate when to open the press and remove the cured, molded rubber. Notwithstanding its preceding decisions in *Benson* and *Flook*, the Court - Justice Stevens dissenting - considered the invention patentable, holding that the applicants did not seek to patent a mathematical formula, but that they sought patent protection for a process: this outcome was “not altered by the fact that in several steps of the process a mathematical equation and a programmed digital computer [were] used”.¹³

⁷ *Gottschalk v. Benson*, 409 U.S. 63 (1972).

⁸ *Id.* at 72.

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

¹⁰ *Id.* at 594.

¹¹ *Id.* at 590.

¹² *Diamond v. Diehr*, 450 U.S. 175 (1981).

¹³ *Id.* at 185.

According to the Court, “an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection”.¹⁴

Diehr was the last Supreme Court case to address the issue of software patentability and was the starting point of a policy change in favor of expanding the scope of patentable subject matter: it happened on the grounds of a presumed legislative intent expressed through the phrase “anything under the sun made by man” used, one year before, by the Court in *Diamond v. Chakrabarty*¹⁵ and also picked up in *Diehr*.¹⁶

The landscape changed definitively in 1998 due to a decision that officially expanded the scope of patentable subject matter to include business methods. In *State Street Bank & Trust* the Court of Appeals for the Federal Circuit made the explicit statement that business methods should be subject to the same standard of patent eligibility as any other process or method.¹⁷ a process, in order to be patentable, must merely produce “a useful, concrete and tangible result”.¹⁸ This new standard was strengthened by the subsequent *AT&T* decision¹⁹.

State Street and *AT&T* opened the floodgates and marked the beginning of a dramatic increase in the number of patents issued: the patent office was overwhelmed by a legal tsunami of applications claiming any sort of method. In this case-law scenario, US courts addressed the *Bilski* issue.

II. BACKGROUND

The claim is for a method of hedging risk in the field of commodities trading. Bernard *Bilski* and Rand Warsaw filed an application seeking patent

¹⁴ Id. at 187.

¹⁵ 447 U.S. 303, 309 (1980).

¹⁶ 450 U.S. 175, 182 (1981).

¹⁷ *State Street Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999). The issue in the case was whether computer software performing the mathematical accounting steps was patentable subject matter.

¹⁸ Id. at 1373: “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 - a final share price.”

¹⁹ *AT&T Corp. v. Exel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999).

protection for an invention concerning a method to be utilized by commodity providers for managing consumption risk associated with the sale of commodities for a given period. The steps in the process comprise (a) initiating a series of transactions between a commodity provider and commodity consumer, (b) identifying market participants for the commodity with a counter-risk position to consumers, and (c) initiating a series of transactions between the provider and market participants at a fixed rate.²⁰

The patent examiner rejected the application, explaining that it “is not implemented on a specific apparatus and merely manipulates [an] abstract idea and solves a purely mathematical problem without any limitation to a practical application, therefore, the invention is not directed at the technological arts”. Furthermore, the patent claims were not limited to operation on a computer, and, accordingly, were not limited to any specific apparatus.

The Board of Patent Appeals and Interferences affirmed but reached its conclusion on the different grounds that the petitioners’ application i) did not involve any patent-eligible transformation, ii) attempted to pre-empt any and every possible way of performing the steps of the claimed process, by a human or any kind of machine, or by any combination thereof and thus was directed to an abstract idea ineligible for patent protection, and iii) did not produce a “useful, concrete and tangible” result. The Board rejected both the “technological arts” test as unsupported by case law and the requirement of a specific apparatus for performing the process steps because a claim need not recite a specific apparatus as long as “there is a transformation of physical subject matter from one state to another”.

Bilski appealed to the Federal Circuit.

A. FEDERAL CIRCUIT’S DECISION

The United States Court of Appeals for the Federal Circuit heard the case *en banc* and affirmed.²¹

The true issue before the Federal Circuit was whether applicants were seeking to claim a fundamental principle or a mental process: the underlying legal question was what test or set of criteria governs the determination by the

²⁰ See U.S. Patent Application Serial No. 08/833,892 (filed Apr. 10, 1997).

²¹ In re *Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

Patent and Trademark Office or courts as to whether a claim to a process is patentable under Section 101 or, conversely, is drawn to unpatentable subject matter because it claims only a fundamental principle.²²

To determine whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself, the court established the following test: a claimed process is surely patent-eligible under § 101 if (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.²³

The Federal Circuit held this test to be the sole test to determine the eligibility of process claims under Section 101: “a claimed process involving a fundamental principle that uses a particular machine or apparatus would not pre-empt uses of the principle that do not also use the specified machine or apparatus in the manner claimed. And a claimed process that transforms a particular article to a specified different state or thing by applying a fundamental principle would not pre-empt the use of the principle to transform any other article, to transform the same article but in a manner not covered by the claim, or to do anything other than transform the specified article.”²⁴

Stating that the “machine-or-transformation test” is the governing test for determining patent eligibility, the court emphasized that it is in accordance with the Supreme Court’s decisions, citing *Benson*, *Diehr*, *Flook* and *Cochrane*.²⁵

²² J.F. Duffy, *Rules and Standards on the Forefront of Patentability*, 51 Wm. & Mary L. Rev 609, 611 – 612 (2009). In legal doctrine, the conflict between certainty and creativity plays out within the familiar jurisprudential debate between rules and standards. Clear rules can provide the certainty that encourages investment both in obtaining and developing the rights, but standards can provide the flexibility to accommodate the new and unpredictable wonders of human ingenuity. The stakes of this traditional debate are highest for the doctrine of patentable subject matter, which governs the fundamental boundaries of the patent law’s domain. ... [In *Bilski*] The Federal Circuit identified that its overarching goal was to “clarify the standards applicable in determining whether a claimed method constitutes a statutory ‘process’ under § 101.” Because clarification was the goal, it is unsurprising that the Federal Circuit attempted to articulate a definite rule to govern this area of law, and the court plainly understood that it was choosing to attempt a more rule-based approach in this area of law.

²³ *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008).

²⁴ *Id.*

²⁵ *Cochrane v. Dener*, 94 U.S. 780 (1876).

Chief Judge Michel placed particular weight on *Diehr*, given that it was the last time the Court addressed the issue, and picked up from that decision one of the guiding principles of its ruling: “The Court in *Diehr* thus drew a distinction between those claims that “seek to pre-empt the use of” a fundamental principle, on the one hand, and claims that seek only to foreclose others from using a particular ‘application’ of that fundamental principle, on the other”.²⁶

To clarify its "machine-or-transformation" test the court described it as a two-branched inquiry: an applicant may show that a process claim satisfies Section 101 by showing either that the claim is tied to a particular machine or that the claim transforms an article.²⁷

As corollaries of this formulation, the court also stressed that: i) mere field-of-use limitations are generally insufficient to render an otherwise ineligible process claim patent-eligible, ii) the use of a specific machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility, iii) the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity.²⁸

Finally, under these principles, the court applied the "machine-or-transformation" test to *Bilski's* claims. Since the applicants' process was not linked to a particular machine and did not transform any article to a different state or thing,²⁹ the court held that *Bilski's* claims entirely failed the test and were not drawn to patent-eligible subject matter.

Achieving this outcome, the Federal Circuit faced and discarded prior § 101 tests.

²⁶ In re *Bilski*, 545 F.3d 943, 953 (Fed. Cir. 2008).

²⁷ Id. at 961.

²⁸ Id. at 957, 961-962.

²⁹ Id. at 963: “Purported transformations or manipulations simply of public or private legal obligations or relationships, business risks, or other such abstractions cannot meet the test because they are not physical objects or substances, and they are not representative of physical objects or substances”.

The first of these is known as the “Freeman-Walter-Abele” test and is composed of two steps:³⁰ determining whether the claim recites an algorithm within the meaning of *Benson*, then determining whether that algorithm is applied in any manner to physical elements or process steps. The court rejected this test - thus following *State Street* - but also refused to adopt the “useful, concrete, and tangible result” test - thus overruling *State Street* - considering it as an insufficient inquiry to determine whether a claim is patent-eligible under Section 101.³¹ Furthermore the court rejected both the “technological arts” test - considering it unclear because the meanings of the terms ‘technological arts’ and ‘technology’ are both ambiguous and ever-changing³² and the “physical steps” test, stating that “even a claim that recites “physical steps” but neither recites a particular machine or apparatus, nor transforms any article into a different state or thing, is not drawn to patent-eligible subject matter. Conversely, a claim that purportedly lacks any “physical steps” but is still tied to a machine or achieves an eligible transformation passes muster under Section 101”.³³

B. TRYING TO CLOSE PANDORA’S BOX: THE “MACHINE-OR-TRANSFORMATION” TEST

Rejecting many of the prior standards used to define patentable subject matter and overruling its prior holding in *State Street*, the Federal Circuit sought to answer once and for all whether, and to what extent, business methods may be patented and to articulate a definitive test that governs the patentability of all processes.³⁴ The Federal Circuit tried to close the Pandora’s box opened by

³⁰ The name comes from the three decisions that formulated the test: *In re Freeman*, 573 F.2d 1237 (CCPA 1978); *In re Walter*, 618 F.2d 758 (CCPA 1980); and *In re Abele*, 684 F.2d 902 (CCPA 1982).

³¹ *In re Bilski*, 545 F.3d 943, 959 (Fed. Cir. 2008).

³² *Id.* at 960.

³³ *Id.* at 961.

³⁴ R.A. McFarlane – R.G. Litts, *Business Methods and Patentable Subject Matter Following In re Bilski: Is “Anything Under the Sun Made by Man” Really Patentable?*, 26 Santa Clara Computer & High Tech. L.J. 35 (2010). See also Duffy, *cit.*, at 652-653: “the en banc court’s curb on patentable subject matter might not represent hostility to innovations in such newly-emerging technological fields ... Rather, the *en banc* court’s restriction might have been grounded in the legitimate concern that the language of business and information technologies has not yet developed sufficiently to support property rights absent some connection to older and more developed fields of engineering. Nevertheless, the overarching lesson from the history of patentable subject matter is very clear: no field of

State Street without excluding business methods as patentable subject matter: the court reaffirmed *State Street's* conclusion that business method claims are subject to the same legal requirements for patentability as are applied to any other process or method.³⁵

The ruling was not a unanimous one and the 9-3 voting reflected both different opinions inside the court and criticisms raised outside the court.³⁶ Criticisms are based on different reasonings.

In her dissenting opinion, Judge Newman attacked the majority ruling on two grounds: adherence to precedent and incentives to innovation. Noting that the court's exclusion of specified process inventions from access to the patent system is achieved by redefining the word 'process' in the patent statute, she stated that this redefinition is contrary to statute, contrary to precedent, and a negation of the constitutional mandate. Furthermore, she stressed how its impact on the future, as well as on the thousands of patents already granted, is unknown: "not only past expectations, but future hopes, are disrupted by uncertainty as to application of the new restrictions on patent eligibility".

Judge Rader shared with Judge Newman the starting argument and blamed the majority for relying "on dicta taken out of context from numerous Supreme Court opinions dealing with the technology of the past". Further, he suggested that the new test will raise more questions than it answers, such as "What form or amount of "transformation" suffices? When is a "representative" of a physical object sufficiently linked to that object to satisfy

engineering or applied science has long remained outside the boundaries of patentable subject matter. As engineering and applied science develops new fields that are not tied to physical articles, physical machines, and physical sciences, the *Bilski* en banc court's rule can be expected to follow the path toward obsolescence that no prior rule of patentable subject matter has escaped".

³⁵ In re *Bilski*, 545 F.3d 943, 961 (Fed. Cir. 2008).

³⁶ For a summary, see A. Devlin – N. Sukhatme, *Self-Realizing Inventions and the Utilitarian Foundation of Patent Law*, 51 Wm. & Mary L. Rev. 897 (2009); R.D. Donoghue – M.A. Grill, *In re Bilski: A Midpoint in the Evolution of Business Method?*, 7 Nw. J. Tech. & Intell. Prop. 316 (2009); M. Filmar, *A Critique of In Re Bilski*, 20 DePaul J. Art Tech. & Intell. Prop. L. 11 (2009); M. Moore, *In re Bilski and the "Machine-or-Transformation" Test: Receding Boundaries for Patent-Eligible Subject Matter*, 2010 Duke L. & Tech. Rev. 5; A. Patrick, *Patent Eligibility and Computer-Related Processes: A Critique of In re Bilski and the Machine-or-Transformation Test*, 14 Va. J.L. & Tech. 181 (2009); W.M. Schuster, *Predictability and Patentable Processes: the Federal Circuit's In re Bilski Decision and its Effects on the Incentive to Invent*, 11 Colum. Sci. & Tech. L. Rev. 1 (2009).

the transformation test? ... What link to a machine is sufficient to invoke the “or machine” prong? Are the ‘specific’ machines of Benson required, or can a general purpose computer qualify?”

In summary, according to Judge Rader, the Federal Circuit in *Bilski* invented “circuitous and unnecessary tests. It should have merely noted that Bilski attempts to patent an abstract idea. Nothing more was needed. ... reading section 101 as it is written will not permit a flurry of frivolous and useless inventions”.

Moreover, the concern about the impact on future innovation, as well as about other potential difficulties in endorsing the new test, is acknowledged by the majority opinion, whereas the court recognized “that future developments in technology and the sciences may present difficult challenges to the machine-or-transformation test, just as the widespread use of computers and the advent of the Internet has begun to challenge it in the past decade. Thus, we recognize that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies. And we certainly do not rule out the possibility that this court may in the future refine or augment the test or how it is applied”.³⁷

Providing historical support, Judge Dyk wrote a concurring opinion - joined by Judge Linn - to respond to the claim raised by Judges Newman and Rader that the majority’s ruling was not grounded in the statute, but rather usurped the legislative role. According to Dyk, it was the dissenters who were attempting to rewrite the Patent Act, expanding patentable subject matter far beyond what is allowed by the statute: nothing in the legislative history of the 1952 Act suggests that Congress intended to enlarge the category of patentable subject matter to include patents such as the method Bilski attempted to claim. Furthermore, “the need to accommodate technological change in no way suggests that the judiciary is charged with rewriting the statute to include methods for organizing human activity that do not involve manufactures, machines, or compositions of matter”.

But surprisingly the most persuasive concurring argument is drawn by the third dissenter, Judge Mayer. Whether Judge Rader deemed that the court’s new test for eligibility does not answer the most fundamental question “why would the expansive language of section 101 preclude protection of

³⁷ In re *Bilski*, 545 F.3d 943, 956 (Fed. Cir. 2008).

innovation simply because it is not transformational or properly linked to a machine? ... Why should some categories of invention deserve no protection?”, the answer came from the separate dissenting opinion written by Judge Mayer.

He argued that business method patents have been justified, in significant measure, by a misapprehension of the phrase “anything under the sun that is made by man” and of the legislative history of the 1952 Patent Act: “the legislative history oft-cited to support business method patents undercuts, rather than supports, the notion that Congress intended to extend the scope of section 101 to encompass such methods”.

Mayer’s opinion is a *j’accuse* against *State Street* and the eligibility of business method patents. Business method patents do not promote the “useful arts” because they are not directed to any technological or scientific innovation, and although they may use technology - such as computers - to accomplish desired results, the innovative aspect of the claimed methods is an entrepreneurial rather than a technological one. Further, instead of providing incentives to competitors to develop improved business techniques, business method patents remove building blocks of commercial innovation from the public domain.

Simply stated, in Mayer’s view, *State Street* “has launched a legal tsunami, inundating the patent office with applications seeking protection for common business practices”, and should be overruled.

Therefore, Mayer’s dissent toward the majority’s opinion rested on the proper standard for patentability: instead of a “technological arts” test, the court’s proposed test will do little to stem the growth of patents on non-technological methods and ideas because it can be too easily circumvented and is exceedingly difficult to apply.

The voices of criticism expressed inside the Federal Circuit which resounded in the debate grew outside the court. Some *amici curiae* and commentators argued that there is no support in the Supreme Court’s precedents that the Court intended the machine-or-transformation test to be the sole test governing §101 analyses.³⁸

³⁸ See Brief of American Intellectual Property Law Association in support of neither party, *cit.*: “The Federal Circuit majority based its conclusion on four prior decisions of this Court

A group of law and economics professors accused the Federal Circuit of having created a static rule via its new test and thus having improperly converted a flexible, adaptable approach into a hard-and-fast rule.³⁹ Moreover, they suggested that the solution to the problem of bad patents in the software and business method fields is not the creation of new dogmatic rules against patentability, but the application of existing patent doctrines of novelty, obviousness, enablement, claim construction and remedies.⁴⁰ According to their analysis, there are few questionable patents that might be barred on subject matter grounds that could not also be barred by other patentability criteria: looking at *Bilski*'s application, they argued that it could easily be rejected on novelty and non-obviousness grounds and judged as an abstract idea.

and primarily upon misinterpretation - and misapplication - of a single statement (made *in dicta*) in *Gottshalk v. Benson*, 409 U.S. 63, 70 (1972), 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.” See also Brief of 20 law and business Professors in support of neither party, available at http://papers.ssrn.com/so3/papers.cfm?abstract_id=1485043; and R.D. Donoghue – M.A. Grill, *cit.*, at 323-324, highlighting that what distinguishes *Bilski* from the cited cases is that, while they support the machine-or-transformation test, “none explicitly establishes it as *the* test.”

³⁹ See Brief of 20 law and business Professors in support of neither party, *cit.* On the same reasoning, see also Brief of American Intellectual Property Law Association in support of neither party, *cit.*: “The Federal Circuit’s quest for “bright-line” tests to help ease the administrative burdens of the Patent Office is worthy, but to fashion a new and rigid eligibility test to be applied at the very doorstep of the Office is inappropriate. ... Restricting eligibility to *only* those processes that are either tied to a specific machine or that transform a material, however, minimizes incentives for development of future, and potentially very valuable, technologies.”

⁴⁰ Brief of 20 law and business Professors in support of neither party, *cit.*: “Recent decisions, including *KSR*, *eBay*, and *Seagate*, give the courts many of the tools they need to both weed out bad patents and limit the use of patents to hold up an industry. ... the courts have a combination of statutory and doctrinal tools available to reject, invalidate, or narrow patents that might otherwise be considered problematic.” See also Brief of American Intellectual Property Law Association in support of neither party, *cit.*; and T.F. Cotter, *A Burkean Perspective on Patent Eligibility, Part II: Reflections on the (Counter) Revolution in Patent Law*, 11 Minn. J.L. Sci. & Tech. 365, 371-373 (2010): “In many respects the Supreme Court’s jurisprudence from the past four years has (in my view) provided a necessary corrective to that ever-expanding system” [citing *eBay*, 547 U.S. 388 (2006); *KSR*, 550 U.S. 398 (2007); *Microsoft v. AT&T*, 550 U.S. 437 (2007); *MedImmune*, 549 U.S. 118 (2007); and *Quanta*, 553 U.S. ___ (2008)].

Finally, on different grounds others suggested that the phrase “anything under the sun made by man” from patent legislative history does not indicate legislative intent to expand the scope of patentable subject matter to business methods.⁴¹

III. SUPREME COURT’S DECISION

The Supreme Court agreed to review the Federal Circuit’s ruling and granted the writ of *certiorari* petitioned by Bilski and Warsaw. On June 28, 2010, the Court ruled unanimously.⁴² Justice Kennedy delivered the opinion of the Court.

The Court found the claims in the patent application at issue not patent-eligible under Section 101 because they were abstract ideas rather than because they did not qualify as patentable methods. The Court stated that the machine-or-transformation test is only “a useful and important clue or investigative tool”, rather than the sole test to determine the eligibility of process claims: citing its ruling in *Diehr*, “the Court is unaware of any ‘ordinary, contemporary, common meaning’ of the definitional terms ‘process, art or method’ that would require these terms to be tied to a machine or to transform an article”.

In this respect, as well as regarding other aspects such as the concern about the impact on innovation and the patent eligibility of business methods, the Court decided to follow the arguments used by Judges Newman and Rader in their dissenting opinions.

⁴¹ See Brief of Professors Menell and Meurer as *amici curiae* in support of respondent, available at http://www.abanet.org/publiced/preview/briefs/pdfs/09-10/08-964_RespondentAmCu2Profs.pdf. A different opinion is expressed by the brief of 20 law and business professors in support of neither party, *cit.*: “There is no principled basis to categorically exclude a particular technology, such as a business method or a mathematical algorithm, from the “process” category.” See also Devlin – Sukhatme, *cit.*, at 939: “Business methods, computer programs, and other methods should not be denied patent protection merely because they are more “abstract” than other inventions. Rather, patent protection should be denied only if such a reward were not necessary to induce the creation and dissemination of the method. In other words, the relevant inquiry of whether a method should be patentable should be framed in economic terms, under an incentive to invent rationale.”

⁴² *Bilski v. Kappos*, 561 U.S. ____ (2010).

First, the Court stated that the Federal Circuit incorrectly concluded that the Supreme Court had endorsed the machine-or-transformation test as the exclusive test. On this reasoning the Supreme Court voted unanimously. In any case, Justice Breyer - joined by Justice Scalia - writing a concurring opinion underlined “that, in re-emphasizing that the “machine-or-transformation” test is not necessarily the *sole* test of patentability, the Court intends neither to de-emphasize the test’s usefulness nor to suggest that many patentable processes lie beyond its reach”.

Further, supporting the previous statement, the Court added that the machine-or-transformation test would create uncertainty to the patentability of emerging technologies because, in the course of applying it, “courts may pose questions of such intricacy and refinement that they risk obscuring the larger object of securing patents for valuable inventions without transgressing the public domain”. Doing so, Justice Kennedy highlighted differences between the usefulness of the proposed test in the industrial age and in the information age. On this section and in particular on the deference to new technologies, Justice Scalia did not join in with the opinion delivered by the Court.

The Court split over the issue related to the eligibility of business methods as patentable subject matter. The majority’s opinion written by Justice Kenney held that business method patents are not categorically excluded from the ordinary meaning of method under patent law: “The term “method,” which is within §100(b)’s definition of “process”, at least as a textual matter and before consulting other limitations in the Patent Act and this Court’s precedents, may include at least some methods of doing business”.

Moreover, in the majority’s view, the argument that business methods are categorically outside Section 101’s scope is undermined by the fact that federal law explicitly contemplates the existence of at least some business method patents: by allowing the defense under Section 273 “the statute itself acknowledges that there may be business method patents”.⁴³

⁴³ Under Section 273, if a patent-holder claims infringement based on “a method in [a] patent,” the alleged infringer can assert a defense of prior use; for purposes of this defense, “method” is defined as “a method of doing or conducting business.”

On this topic the majority prevailed by a vote of only 5-4: on the one side, Justices Kennedy, Roberts, Thomas, Alito, and Scalia; on the other, Justices Stevens, Ginsburg, Breyer, and Sotomayor.

Acknowledging the widespread concern about business method patents in terms of their impressive flood and poor quality, the Court turned to an argument made by several *amici curiae*, that is, rather than adopting categorical rules that might have wide-ranging and unforeseen impacts, the courts have a combination of statutory and doctrinal tools available and which are better-suited to handling bad patents. In this regard Justice Kennedy reminded the Court's precedents of the unpatentability of abstract ideas, the statutory requirements' limitations (novelty, non-obviousness, and disclosure), and his own history of criticising business method patents expressed by his support of the ruling and the solution proposed in *eBay v. MercExchange*. On this "limiting principle" section Justice Scalia expressed the only dissenting opinion.

A. JUSTICE STEVENS' LEGACY

As well as Judge Mayer's dissenting opinion in the Federal Circuit's decision, Justice Stevens' concurring opinion faced the core issue. Even if the question presented in *Bilski* was whether the machine-or-transformation test is the exclusive test for evaluating what constitutes a patentable process under Section 101, the battlefield is about the patentability of business methods.

According to Stevens, *Bilski's* application was unpatentable not only because it claimed an abstract idea: "The *wiser course* would have been to hold that the petitioners' method is not a "process" because it describes only a general method of engaging in business transactions - and business methods are not patentable".⁴⁴

On this topic Justice Stevens' reasoning was far distant from that of the majority. Therefore, we will remember his concurring opinion as a truly dissenting one. Indeed, Stevens "strongly" disagreed. In a substantive opinion - 47 pages, three times the length of that of the majority - Stevens, joined by three other justices, said explicitly that business methods are not patentable.

⁴⁴ Emphasis added.

In light of his upcoming retirement, Stevens’ opinion sounds like a legacy with a specific warning, that is, the need “to restore patent law to its historical and constitutional moorings”.

As well as Judge Dyk’s concurrence in the Federal Circuit’s opinion, Stevens reviewed the history of both English and American patent law, highlighting strong evidence –including the correct understanding of the often cited phrase “anything under the sun” – that a method of doing business does not constitute a process under §101: “Since at least the days of Assyrian merchants, people have devised better and better ways to conduct business. Yet it appears that neither the Patent Clause, nor early patent law, nor the current §101 contemplated, or was publicly understood to mean, that such innovations are patentable. ... the historical clues converge on one conclusion: A business method is not a ‘process’”.

After arguing that “the [Court’s] opinion is less than pellucid in more than one respect”, Stevens pointed in particular at the majority’s reliance on the “ordinary, contemporary, common meaning” of the term ‘process’: Stevens deemed this approach to be a serious interpretive error able to render §101 “almost comical” whereas instead it has always been clear that, as used in §101, the term does not refer to a process in the ordinary sense of the word.

Neither majority’s holding was right in finding in the text of Section 273 a statutory acknowledgement of business method patents: that was just a defensive reaction to the concern about the supposed *State Street’s* recognition of business method patents and “the 1999 Congress would never have enacted §273 if it had foreseen that this Court would rely on the provision as a basis for concluding that business methods are patentable”.

In the last part of his opinion, Stevens, supported by the academic literature, illustrated the economic reasons why business methods should not be patent-eligible: “I find it hard to believe that many of our entrepreneurs forewent business innovation because they could not claim a patent on their new methods. ... In any event, even if patents on business methods were useful for encouraging innovation and disclosure, it would still be questionable whether they would, on balance, facilitate or impede the progress of American business.”

Due to their breadth, their omnipresence in the society, and their potential vagueness, business method patents are more likely to stifle progress than to

promote it. Business innovation generally does not entail both the same kinds of risk and the same costs in terms of time, research, and development as does more traditional, technological innovation. Neither do business method patents encourage public disclosure. Therefore they generally do not require the same kind of reward. On the contrary, in many cases, rather than promoting progress, patents on business methods smother further innovation by acting like a block on the top of the pyramid.

IV. THE EUROPEAN PERSPECTIVE

Having realized that in *Bilski* the Supreme Court reopened the door for the patentability of business methods replying to the Federal Circuit's restrictive attempt, it is important to understand whether there is a convergence with European law and court rulings.⁴⁵

Article 52, paragraph 1, of the European Patent Convention (EPC) describes patentable inventions as those, in all fields of technology, which are susceptible to industrial application, which are new and which involve an inventive step. The phrase "in all fields of technology" was added in 2000 by the Act revising the original text of the European Patent Convention of 1973. According to the European Patent Office (EPO), the new wording of Article 52(1) "plainly expressed that patent protection is reserved for creations in the technical field. In order to be patentable, the subject-matter claimed must therefore have a "technical character" or, to be more precise, involve a "technical teaching", i.e. an instruction addressed to a skilled person as to how to solve a particular technical problem using particular technical means".⁴⁶

Further, Article 52, paragraph 2, lett. c, expressly states that "schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers" shall not be regarded as inventions, while the following paragraph 3 specifies that the provisions of paragraph 2 shall exclude patentability of the subject-matter referred to in that provision only to

⁴⁵ For a comparative analysis of doctrines of patentable subject matter in American and European patent law, see K.W. Willoughby, *How Much Does Technology Really Matter in Patent Law?*, 18 Federal Circuit Bar Journal 63 (2008).

⁴⁶ European Patent Office, *Revision of the European Patent Convention (EPC 2000) Synoptic Presentation of EPC 1973/2000 – Part I: The Articles*, EPO Official Journal, Spec. Ed. 4 (2007), available at http://archive.epo.org/epo/pubs/oj007/08_07/special_edition_4_epc_2000_synoptic.pdf.

the extent to which a patent application relates to that subject-matter “as such”.

Therefore, in Europe, in light of EPC, the subject matter of a patent must contain a technical teaching addressed at solving a technical problem and certain classes of non-physical inventions (e.g., software technology and business methods) are explicitly forbidden as such.

The EPO Boards of Appeal case law relating to the field of computer software confirms the technical effects approach, even if lawyers, judges, and examiners still engage in the understanding of where to draw the dividing line between applications relating to programs for computers as such, which are excluded from patentability, and applications relating to patentable technical solutions.

In *Vicom*, the Board of Appeal stated that even if the idea underlying an invention may be considered to reside in a mathematical method, a claim directed to a technical process in which the method is used does not seek protection for the mathematical method as such⁴⁷: thus, both a claim directed to a technical process, which process is carried out under the control of a program (whether by means of hardware or software), and a claim which can be considered as being directed to a computer set up to operate in accordance with a specified program (whether by means of hardware or software) for controlling or carrying out a technical process, cannot be regarded as relating to a computer program as such.

Further, according to *Sohei*’s decision, an invention comprising functional features implemented by software (computer programs) is not excluded from patentability under Article 52(2)(c) and (3) EPC if technical considerations concerning particulars of the solution of the problem the invention solves are required in order to carry out that same invention.⁴⁸

⁴⁷ EPO Boards of Appeal, 15 July 1986, case T-208/84, *In re Vicom*, EPO O.J. 14 (1987).

⁴⁸ EPO Boards of Appeal, 31 May 1994, case T-769/92, *In re Sohei*, EPO O.J. 525 (1995). See Willoughby, *cf.*, at 95-96: “the EPO’s Boards developed the general principle that inventions that were otherwise un-patentable “as such” under EPC Art. 52(2)(c) and Art. 52(3) due to being “non-technical” could be patentable if they contributed to a technical process or if technical considerations (beyond those specific to the claims) were required to implement the invention. The EPO’s contribution approach presumes that an artefact is only “technical” (i.e., a technology) if it is a physical machine, or perhaps just simply physical.”

Furthermore, in *International Business Machines*, the Board of Appeal held that a computer program product is not excluded from patentability under Article 52(2) and (3) EPC if, when it is run on a computer, it produces a further technical effect which goes beyond the “normal” physical interactions between program (software) and computer (hardware).⁴⁹

On the definition of further technical effect, in *International Business Machines*, there was no reference to the state of the art. Thus, according to this decision it may be determined whether a claim to a computer program is excluded from patentability by Articles 52(2) and (3) EPC independent of the prior art; that is, the identified further technical effect need not be new. By taking the position that the identified further technical effect need not be new, the Board consciously abandoned the so-called “contribution approach” which had been applied in the earlier case law.⁵⁰

This approach, as formulated in the following *Hitachi* and *Microsoft* cases, has been characterized as the “any technical means” approach.

According to *Hitachi*, method steps consisting of modifications to a business scheme and aimed at circumventing a technical problem rather than solving it by technical means cannot contribute to the technical character of the subject-matter claimed.⁵¹

In *Microsoft*, the Board of Appeal stated that a computer-readable medium was a technical product and thus had technical character:⁵² the claim category of a computer-implemented method is distinguished from that of a computer program; even though a method, in particular a method of operating a computer, may be put into practice with the help of a computer program, a

⁴⁹ EPO Boards of Appeal, 1 July 1998, case T-1173/97, *in re International Business Machines Corporation*, EPO O.J. 609 (1999).

⁵⁰ This is the opinion expressed by the Enlarged Board of Appeal in the case G-3/08, 12 May 2010, not published in EPO O.J. yet. See § 10.5: “[*International Business Machines*] also drew the consequence from its abandonment of the “contribution approach” that, “determining the technical contribution an invention achieves with respect to the prior art is therefore more appropriate for the purpose of examining novelty and inventive step than for deciding on possible exclusion under Article 52(2) and (3).”

⁵¹ EPO Boards of Appeal, 21 April 2004, case T-258/03, *in re Hitachi*, EPO O.J. 575 (2004).

⁵² EPO Boards of Appeal, 23 February 2006, case T-424/03, *in re Microsoft*, not published in EPO O.J..

claim relating to such a method does not claim a computer program in the category of a computer program.

Taking the cue from the previous decisions and aiming to clarify supposed divergence in the case law (in particular between *International Business Machines* and *Microsoft*) about the patentability criteria of computer implemented inventions, on 22 October 2008 the President of the European Patent Office referred a set of questions to the Enlarged Board of Appeal.⁵³

In the referral it is argued that according to *Microsoft* only a claim of the form “computer program for method x” could possibly be excluded from patentability as a computer program as such, whereas claims of the form “computer implemented method x” or “computer program product storing executable code for method x” would not be excluded (irrespective of the nature of the method x). While *International Business Machines* is said to place the emphasis on the function of the computer program rather than on the manner in which it is claimed, for example as a computer program product or a computer-implemented method.⁵⁴

⁵³ The questions were the following: (1) Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?; (2, A) Can a claim in the area of computer programs avoid exclusion under Article 52(2)(C) and (3) merely by explicitly mentioning the use of a computer or a computer-readable data storage medium?; (2, B) If question 2(A) is answered in the negative, is a further technical effect necessary to avoid exclusion, said effect going beyond those effects inherent in the use of a computer or data storage medium to respectively execute or store a computer program?; (3, A) Must a claimed feature cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim?; (3, B) If question 3(A) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?; (3, C) If question 3(A) is answered in the negative, can features contribute to the technical character of the claim if the only effects to which they contribute are independent of any particular hardware that may be used?; (4, A) Does the activity of programming a computer necessarily involve technical considerations?; (4, B) If Question 4(A) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?; (4, C) If question 4(A) is answered in the negative, can features resulting from programming contribute to the technical character of a claim only when they contribute to a further technical effect when the program is executed?

⁵⁴ *International Business Machines* declared “the Board is of the opinion that with regard to the exclusions under Article 52(2) and (3) EPC, it does not make any difference whether a computer program is claimed by itself or as a record on a carrier”, whereas *Microsoft* stated

Even if the referral was ruled inadmissible and therefore no statement was taken on the merits, with the opinion G-3/08 issued on 12 May 2010 the Enlarged Board of Appeal held that sufficient guidance is provided in existing case law on the patentability of software. Recognising that the case law in new legal and technical fields does not always develop in linear fashion, and that earlier approaches may be abandoned or modified, the Enlarged Board found that, even if *Microsoft* deviated from a view expressed in *International Business Machines* concerning whether a claim to a program on a computer-readable medium necessarily avoids exclusion from patentability under Article 52(2) EPC, this was a legitimate development of the case law and there was no divergence.

In summary, looking at the European patent law and case rulings, although there still is no clear dividing line between applications relating to programs for computers as such and applications relating to patentable technical solutions, we can draw some significant conclusions. Firstly, that software technology and business methods are explicitly forbidden as such. Secondly, that the general condition for a claimed invention not to be excluded from patentability is considered to be that the claimed subject-matter has a technical character.

“Further technical effect” is the expression which is generally used: this requirement feels like the Federal Circuit’s “machine-or-transformation” test and the Enlarged Board of Appeal, in its latest opinion discussed above, confirmed talking about a considerable convergence in recent court rulings and citing, among others, the Federal Circuit’s decision in *Bilski*.

V. CONCLUSIONS

The matters of fact and of law at issue suggested that *Bilski* was the perfect candidate for a landmark case and a turning point in US patent law. After the Supreme Court’s decision, we can look at *Bilski* as a missed opportunity.

All the Justices agreed that the scope of patentable subject matter is broad, but not endless. On the subsequent and main question - how big is the door

“the subject-matter of claim 5 has technical character since it relates to a computer-readable medium, i.e. a technical product involving a carrier.”

and how wide open is it?–⁵⁵ the answer of the Court’s majority seems inconsistent with the previous statement.

As well as the Federal Circuit, the Supreme Court simply reaffirmed that abstract ideas and algorithms are not patentable, refusing to consider business methods categorically excluded from the patentable subject matter. But while the Federal Circuit attempted to draw a deadline by using the machine-or-transformation test, the Supreme Court rejected the proposed test as the exclusive one that governs the patentability of all processes without indicating a way to avoid the risk that anything under the sun is patentable. Moreover, as noted by Justice Stevens, the Court’s suggestion that any series of steps that is not itself an abstract idea or law of nature may constitute a ‘process’ within the meaning of §101, did not provide a satisfactory account of what constitutes an unpatentable abstract idea, and did not even explain whether it was using the machine-or-transformation criteria in *Bilski*.

All the concerns related to the flood of business methods and their impact on competition and innovation - that is, how to handle the trade-off between protecting inventors and not granting monopolies over procedures that others would discover by independent, creative application of general principles - are still on the table: Justice Kennedy said explicitly that “nothing in this opinion should be read to take a position on where that balance ought to be struck”.

The final outcome is disappointing from a comparative point of view too. In Europe, business methods are explicitly forbidden as such and for being patentable they need to meet the requirement of further technical effect (a standard that is close to the Federal Circuit’s “machine-or-transformation” test).

The outcome is even more disappointing if one considers that system too lax. It is useful to quote the words used by Judge Mayer in his dissenting opinion in the Federal Circuit case: criticising the Circuit’s decision to not exclude the patentability of business methods, he said “the majority’s “measured approach” to the section 101 analysis will do little to restore public confidence in the patent system or stem the growth of patents on business methods and other non-technological ideas”. If the machine-or-transformation test would

⁵⁵ R.D. Donoghue, *cit.*, at 327.

do little, we have more than a reason to cast doubts about what we can expect without a durable and clear patentability test.⁵⁶

Business method patentability survived by a vote of 5-4 and the Supreme Court failed to draw up a limiting standard to the continued viability of business method patents, one of the prime sources of the patentability 'thicket'. The door is still open and it will remain wide open. This is the decisive shortcoming of the Court's decision.

⁵⁶ About the history of failed patentability rules and the need for durability in patentability rules, see Duffy, *cit.*, at 613-614: "the inventors and their attorneys will want to know (and indeed, to make investments, they may need to know) how durable any new test promulgated by the Supreme Court is likely to be. ... clarity without durability has limited value for a system in which long term investment in tomorrow's innovations is supposed to be fostered through property rights lasting for two decades. For such a system, a clear but transient rule may be inferior to a standard that is less clear and less predictable in application, but more durable."