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**Should Only Technical Inventions Be Patentable, Following
the European Example?**

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By Reinier B. Bakels *

I. INTRODUCTION

¶1 Business method patents have been granted in the United States on a large scale since 1998. In that year, the *State Street* decision held that the alleged business method exception did not exist—and actually never existed.¹ According to the *State Street* decision, business method patent applications² were only rejected because they did not meet the general statutory requirements (notably novelty, non-obviousness, and a proper enabling description), or because they were too “abstract” according to well-established case law.³

¶2 Even though the *State Street* decision did not purport to change the law, it caused a strong increase in the number of business method patent applications.⁴ The United States Patent and Trademark Office (USPTO) was not properly prepared for this flood, which led to serious patent quality problems.⁵ Some commentators believe that the USPTO has meanwhile mastered these problems⁶ and that the quality of business method patents has reached at least the same level as the quality of patents in other fields.⁷ But this may only indicate that patent quality in general is a matter of concern.⁸

¶3 Nonetheless, again and again doubts are raised whether business methods should be patentable because they are so different from traditional inventions.⁹ In order to prevent,

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¹ *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1375–77 (Fed. Cir. 1998). See also *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1356 (Fed. Cir. 1999).

² *E.g.*, *Hotel Sec. Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir. 1908) (a patent for “‘cash-registering and account-checking’ designed to prevent frauds and speculation by waiters and cashiers in hotels and restaurants”).

³ *Le Roy v. Tatham*, 55 U.S. 156 (1853).

⁴ John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 991 (2003).

⁵ See, *e.g.*, Robert Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577 (1999); Michael J. Meurer, *Business Method Patents and Patent Floods*, 8 WASH. U. J.L. & POL'Y 309 (2002).

⁶ See, *e.g.*, Allison & Tiller, *supra* note 4.

⁷ Starling David Hunter III, *Have Business Method Patents Gotten a Bum Rap? Some Empirical Evidence* (MIT Sloan Sch. of Mgmt., Working Paper No. 4326-03, 2003), available at <http://ssrn.com/abstract=424081>.

⁸ John R. Allison & Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 BERKELEY TECH. L.J. 729 (2006). See generally ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* (2004).

⁹ See, *e.g.*, Rochelle Cooper Dreyfuss, *Are Business Method Patents Bad for Business?*, 16 SANTA CLARA COMPUTER & HIGH TECH. L.J. 263 (2000); Leo J. Raskind, *The State Street Bank Decision: The Bad Business of Unlimited Patent Protection for Methods of Doing Business*, 10 FORDHAM INTELL. PROP.

or at least restrict, business method patenting, some have suggested that only technical inventions should be patentable. However, courts have consistently rejected such a requirement with the argument that Congress would have envisaged a broad patent law. Thus, only a limited number of judicially-created exceptions have been recognized, and there is no place for additional restrictions (like a technology requirement). Still, even the Supreme Court is not blind to problems such as “[t]he potential vagueness and suspect validity of some of these [business method] patents.”¹⁰

¶14 Several writers have wondered whether the more restrictive European patent law could perhaps serve as an example for American patent law.¹¹ This article focuses on the question of whether patents in the United States should only be granted for technology, following the European example.¹²

II. SHOULD PATENTS ONLY BE GRANTED FOR TECHNOLOGY?

¶15 Even though courts have decided that there is no reason to consider business method patents different from other patents, these patents have definitely expanded patent law into a fundamentally different realm.¹³ The recent *Bilski* case shows that these patents are as controversial as ever.¹⁴ By limiting patentable subject-matter to technology, business method patents would be eliminated.

¶16 We can look to Europe for an example of a patent regime that explicitly requires a “technical contribution.” Does it lead to a reliable delimitation of patentable subject-matter, without excluding subject matter for which patent protection is appropriate, in a way that is sufficiently clear?

¶17 Before we answer that question, we will first review the traditional viewpoints on a technology requirement in American patent law.

A. *The American Perception*

¶18 A legal argument for the adoption of a technology requirement in American patent law is based on the constitutional provision: “The Congress shall have Power to promote the Progress of Science and useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries.”¹⁵ Courts have explained that the expression “useful arts” in modern language is synonymous with “technological arts.”¹⁶ That does not mean, however, that patent applications in the United States are rejected due to a lack

MEDIA & ENT. L.J. 61 (1999).

¹⁰ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

¹¹ See, e.g., Laura R. Ford, *Alchemy and Patentability: Technology, “Useful Arts,” and the Chimerical Mind-Machine*, 42 CAL. W. L. REV. 49 (2005); Robert E. Thomas & Larry A. DiMatteo, *Harmonizing the International Law of Business Method and Software Patents: Following Europe’s Lead*, 16 TEX. INTELL. PROP. L.J. 1 (2007).

¹² Cf. David J. Kappos et al., *A Technological Contribution Requirement for Patentable Subject Matter: Supreme Court Precedent and Policy*, 6 NW. J. TECH. & INTELL. PROP. 152 (2008), <http://www.law.northwestern.edu/journals/njtip/v6/n2/1/>.

¹³ John R. Thomas, *The Patenting of Liberal Professions*, 40 B.C. L. REV. 1139 (1999).

¹⁴ *In re Bilski*, No. 2007-1130, 2008 WL 4757110 (Fed. Cir. 2008).

¹⁵ U.S. CONST. art. I, § 8, cl. 8.

¹⁶ See, e.g., *Diamond v. Diehr*, 450 U.S. 175 (1981); *In re Bergy*, 596 F.2d 952 (C.C.P.A. 1979); *In re Toma*, 575 F.2d 872 (C.C.P.A. 1978); *In re Waldbaum*, 559 F.2d 611 (C.C.P.A. 1972); *In re Musgrave*, 431 F.2d 882 (C.C.P.A. 1970).

of technical character. American courts have repeatedly indicated that a distinct technical character test is inappropriate. Inventions have occasionally been identified as in the "technological" or "useful" arts, but only in answer to *mental steps* rejections.¹⁷

¶9 For decades, patent applications that would have been rejected in Europe due to a lack of technical character were rejected in American courts on the basis of a mathematical algorithm exception,¹⁸ but this exception always had limits, and eventually it was superseded by a very general "practical utility" requirement late last century.¹⁹ However, this "practical utility" requirement appeared hardly a limitation after *State Street*. The result was a flood of business method patents around the last turn of the century. In reaction, a need was felt again to limit patent law to technology. In 2001, this technology requirement was recognized in an "unpublished"²⁰ Board of Patent Appeals and Interferences (BPAI) decision.²¹ A few years later, however, the same BPAI panel decided in *Lundgren* that a patent application for a management method—a business method devoid of any technical character, requiring no computer—is patentable because it has "practical utility." Dissenting judges made extensive investigations, in vain, to argue that this unusual patent application should have been rejected because there was no technical content.²²

¶10 Recent cases show that judges are questioning whether "practical utility" is the proper test for patentable subject-matter.²³ Last year, in the *Comiskey* decision, a "method and system for mandatory arbitration involving legal documents" was classified as an unpatentable "mental process."²⁴ The same day, in the *Nuijten* decision, a patent for a technical invention was rejected because a "signal" would not fit any of the four § 101 categories.²⁵ These cases are particularly remarkable because the "mental steps exception" as an independent criterion was rejected a long time ago,²⁶ and because the § 101 categories²⁷ were always said to require the broadest possible interpretation.²⁸

¹⁷ See, e.g., *Toma*, 575 F.2d 872.

¹⁸ See, e.g., Stephen A. Becker, *Drafting Patent Applications on Computer-Implemented Inventions*, 4 HARV. J.L. & TECH. 237 (1991).

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

²⁰ While the decision actually has been published, it is still marked as "unpublished"; because this is a term with a specific meaning in American law. See generally Tony Mauro, *Supreme Court Votes to Allow Citation to Unpublished Opinions in Federal Courts*, LEGAL TIMES, Apr. 16, 2006, available at <http://www.law.com/jsp/article.jsp?id=900005548639>.

²¹ *Ex parte* Clement W. Bowman, 61 U.S.P.Q.2d 1669 (2001) (appeal number 1999-0583 in front of the Board of Patent Appeals and Interferences for patent application 08/418,152).

²² *Ex parte* Lundgren, 76 U.S.P.Q.2d 1385, 2005 Pat. App. LEXIS 34, at *12 (2005) (Smith, J., dissenting) (appeal number 2003-2088 in front of the Board of Patent Appeals and Interferences for patent application 08/093,516).

²³ Scott D. Locke & William D. Schmidt, *Business Method Patents: The Challenge of Coping with an Ever Changing Standard of Patentability*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1079 (2008).

²⁴ *In re* Comiskey, 499 F.3d 1365, 1379 (Fed. Cir. 2007).

²⁵ *In re* Nuijten, 500 F.3d 1346, 1348 (Fed. Cir. 2007).

²⁶ *In re* Prater & Wei, 415 F.2d 1393 (C.C.P.A. 1969).

²⁷ The four categories listed in 35 U.S.C. § 101 are: process, machine, manufacture, and composition of matter.

²⁸ *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980) (noting that Congress "plainly contemplated that the patent laws would be given wide scope").

B. European Patent Law

¶11 The European Patent Office (EPO) only grants patents for inventions that make a *technical contribution*.²⁹ In order to evaluate this rule, three questions must be answered: does the rule have a proper statutory basis, does the rule lead to an unambiguous result, and are the limits set by the rule really meaningful?

¶12 Until recently, the European Patent Convention (EPC) did not contain an explicit technology requirement, but only an enumeration of subject matter that is not patent-eligible *as such*,³⁰ including scientific theories, business methods and software.³¹ The EPO observed that all listed subject matter is abstract and/or lacks a technical character, and it draws the questionable conclusion that this subject matter still can be patented as long as it is technical.³² In sum, the EPO concludes that “as such” is the opposite of “technical.” In support of this vision, reference is made to a “self-evident” tradition, by default of an explicit statutory rule requiring a technical character. And it is sometimes argued that the frequent use of the word “technical” in patent legislation is an indication that framers of the EPC intended only technology to be patented. In particular, the requirement of the Implementing Regulations to the EPC³³ to “define the matter for which protection is sought in terms of the technical features of the invention”³⁴ and to “disclose the invention . . . in such terms that the technical problem . . . can be understood”³⁵ in a patent application is seen as an argument for a technology requirement. Needless to say, this is a questionable argument, as a British court noted aptly when it qualified this argument as “a counsel of desperation to use what is little more than a procedural rule in place of major substantive provisions of the Convention.”³⁶

¶13 In December 2007, a clause was added to the EPC stating that patents are granted “in all fields of technology.”³⁷ According to the explanatory document for this treaty

²⁹ LEGAL RESEARCH SERVICE FOR THE BOARDS OF APPEAL, EUROPEAN PATENT OFFICE, CASE LAW OF THE BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE 1–19 (Albert Ballester Rodès et al. eds., 2006), available at <http://www.epo.org/patents/appeals/case-law.html>.

³⁰ Article 52(3) of the EPC explicitly says that the exclusions listed in Article 52(2) EPC only apply to the listed subject-matter “as such.” European Patent Convention art. 52, Oct. 5, 1973, 1065 U.N.T.S. 199 (as amended Nov. 29 2001), available at <http://www.epo.org/patents/law/legal-texts/epc.html> [hereinafter EPC], (“Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.”).

³¹ *Id.* (Article 52(2) is the counterpart to 35 U.S.C. § 101).

³² Case T-0953/94, *Georges v. Pettit* (Technical Board of Appeal of the EPO 1996), available at <http://legal.european-patent-office.org/dg3/pdf/t940953eu1.pdf> (admitting that this observation should be taken “cum grano salis”).

³³ EUROPEAN PATENT OFFICE, *Implementing Regulations to the Convention on the Grant of European Patents*, in EUROPEAN PATENT CONVENTION 209–429 (2006), available at <http://www.epo.org/patents/law/legal-texts/epc.html> (the provisions in these Regulations are designated as “rules”—these rules are usually referenced in EPO case law as “Rule nnn EPC,” where nnn is the number).

³⁴ Rule 43 EPC, *supra* note 33 (Rule 29 under EPC 1973).

³⁵ Rule 42 EPC, *supra* note 33 (Rule 27 under EPC 1973).

³⁶ *In re Patent Applications GB 0226884.3 and 0419317.3 by CFPH L.L.C.*, 2005 EWHC 1589 Pat, ¶ 78 n.28 (2005), available at <http://www.bailii.org/ew/cases/EWHC/Patents/2005/1589.html>.

³⁷ EPC, *supra* note 30, art. 52(1). This change is one of the many changes that were agreed at a Diplomatic Conference in 2000. These changes only went in force late 2007, as the EPC is not an EU regulation, but a separate international treaty that must be ratified by a sufficient number of member states before entering into force.

change, this clause would codify the technology requirement.³⁸ The wording is identical to a clause in a provision of the Agreement on Trade-Related Aspects of Intellectual Property Rights (“TRIPS” Agreement).³⁹ The TRIPS provision, however, disallows exclusion or discrimination of any field of technology.⁴⁰ By copying this clause literally into the EPC, the TRIPS requirements seem to be met, but the EPC intent is quite the opposite: to discriminate against inventions outside the domain of technology, such as business methods.⁴¹

¶14 If indeed patents should only be granted for “technology,” a precise legal definition of this concept is apparently indispensable. Still, it is often said that such a definition is redundant because everybody would in practice be able to recognize “technology” intuitively, even though it may be difficult to define the concept in words. And it is often argued that the technology concept in European patent law is another concept subject to the adage: “I know it when I see it.”⁴² On closer review, however, intuition fails to delimit technology. For instance, software is usually considered undoubtedly “technical,” but in patent law a complicated, and not always convincing, distinction is made between technical and non-technical software.⁴³

¶15 The EPC’s exclusion of business methods only to the extent to which the patent or patent application relates to a business method “as such,” arguably allows business methods *not* “as such” to be patented. In the EPO conception that “as such” is the opposite of “technical” (as explained above), this provision implies that the EPC does not prohibit technical business methods to be patented.⁴⁴ Apparently a restriction to technology does not achieve a categorical exclusion of business methods. Are patents for technical business methods acceptable because they relate to technology, or are they just as undesirable as any other business method patents? Here, we face the problem of the vagueness of the “business method patent” concept.⁴⁵

³⁸ Basic Proposal for the Revision of the European Patent Convention 43, Munich, Oct. 13, 2000, available at <http://www.epo.org/patents/law/legal-texts/epc2000/diplomatic-conference-nov2000.html> (follow the “MR/2/00” link next to the “Basic proposal for the revision of the EPC” text).

³⁹ Agreement on Trade-Related Aspects of Intellectual Property, art. 27(1), Dec. 15, 1993, 33 I.L.M. 81, 1869 U.N.T.S. 299, available at http://www.wto.org/English/docs_e/legal_e/27-trips.pdf.

⁴⁰ Joseph Straus, *Implications of the TRIPs Agreement in the Field of Patent Law*, in FROM GATT TO TRIPS: THE AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS 160 (Friedrich-Karl Beier & Gerhard Schricker eds., 1996).

⁴¹ During the negotiations for a future Substantive Patent Law Treaty under the auspices of WIPO, this difference in interpretation appeared a major road-block for world-wide patent law harmonisation. World Intellectual Property Organization, Standing Committee on the Law of Patents: Seventh Session, *Report*, ¶¶ 160, 171, SCP/7/8 (Nov. 25, 2002), available at http://www.wipo.int/edocs/mdocs/scp/en/scp_7/scp_7_8.pdf (“The [U.S.] Delegation was of the view that, if the SCP could not agree on the goal of harmonization and best practices, then the entire purpose of the discussions may be called into question.” The U.S. delegation even threatened to leave the conference if this issue was not resolved in a satisfactory manner.).

⁴² *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring) (referring to the “obscenity” concept and the Court’s attempt to “define what may be indefinable”).

⁴³ EUROPEAN PATENT OFFICE, *supra* note 29, at 1–14.

⁴⁴ *Id.* at 15–18.

⁴⁵ *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1377 (Fed. Cir. 1998) (“Office personnel have had difficulty in properly treating claims directed to methods of doing business. Claims should not be categorized as methods of doing business. Instead such claims should be treated like any other process claims.”).

¶16 The framers of the original EPC deliberately refrained from giving a legal definition of “technology” because technology is constantly evolving, and because the very purpose of patent law is to protect novel technology. A fixed definition would therefore impair the flexibility in respect to future developments.⁴⁶ But a variable “technology” concept is also inherently unfit for use in a legal criterion. Since it is obviously not the intent of patent law that the patent office honors all “market demand” of applicants, a more restrictive “meta-rule” would be needed to determine the contents of the legal technology concept at a given point in time. However, there is no such rule.

¶17 Finally, the application of the technology concept requires an answer to the question of whether the invention as a whole must be technical or whether specifically the novel aspects of the invention must be technical. It is a principal rule of patent law that inventions should always be assessed as a whole. On the other hand, it seems unacceptable that an invention having only non-technical novel aspects can be “made” technical by adding a technical component that by itself is not novel. Under the latter rule, a business method would be technical even if it is only implemented on a conventional computer in a straightforward manner. The EPO apparently solves this dilemma by paying lip service a whole-contents approach, but also requiring the invention to distinguish itself sufficiently from the state of the art⁴⁷ *in a technical sense*.⁴⁸ At first blush, this approach is perhaps more appealing, but in actuality, the difference is only cosmetic⁴⁹ because this rule still requires the technical aspect of the invention to be novel. The rejected proposal for a European Directive for “computer-implemented inventions” also followed this confusing approach.⁵⁰

¶18 European jurisprudence still has been unable to make a choice between these two approaches that fundamentally can not coexist. Both approaches are equally persuasive if the words are carefully chosen, so apparently courts are free to choose whatever approach best advances the desired policy effect. A dissection works out restrictively, while a whole-contents approach has an expansive effect.⁵¹

⁴⁶ Gert Kolle, *The Patentable Invention in the European Patent Convention*, 5 INT’L REV. OF INTELL. PROP. & COMPETITION L. 140, 145 (1974). See also Justine Pila, *Article 52(2) of the Convention on the Grant of European Patents: What Did the Framers Intend? A Study of the Travaux Préparatoires*, 36 INT’L REV. OF INTELL. PROP. & COMPETITION L. 755 (2005).

⁴⁷ This interpretation may be based on the fact that the (equally authentic) French and German text of the non-obviousness provision in the EPC (Art. 54) refer to the “état de la technique” and the “Stand der Technik” respectively.

⁴⁸ Case T-1173/97, *IBM Computer Program Product I*, 22 OFFICIAL JOURNAL OF THE EPO 609 (1999) (Boards of Appeal of the EPO 1998); Case T-931/95, *Pension Benefit Systems*, 24 OFFICIAL JOURNAL OF THE EPO 441 (2001) (Boards of Appeal of the EPO 2000).

⁴⁹ Wilfried Anders, *The Patentability of Computer Programs and Business Methods: Recent Decisions of the Federal Court of Justice and the Federal Patent Court*, 24 OFFICIAL JOURNAL OF THE EPO 130, 140 (2nd special ed. 2001), available at http://www.european-patent-office.org/epo/pubs/oj001/06_01/06_spe1.pdf (“Sceptics argue that this has no bearing on the patentability of computer programs. . . . Even if this is true, shifting the focus of the problem is a big step forward, bringing clarity and credibility.”).

⁵⁰ Commission of the European Communities, *Proposal for a Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions* (Feb. 20, 2002), available at http://eur-lex.europa.eu/LexUriServ/site/en/com/2002/com2002_0092en01.pdf.

⁵¹ RALPH NACK, *DIE PATENTIERBARE ERFINDUNG UNTER DEN SICH WANDELNDEN BEDINGUNGEN VON WISSENSCHAFT UND TECHNOLOGIE [THE PATENTABLE INVENTION UNDER THE CHANGING CONDITIONS OF SCIENCE AND TECHNOLOGY]* 118–189 (2002) (F.R.G.) (arguing that the courts *could not* apply a whole-contents approach *if and when* they did not want to uphold a certain software patents, for whatever reason).

¶19 Both because of the vagueness of the legal technology concept and the whole-or-part dilemma, European law about the assessment of the technical content of inventions is extremely complex. It is therefore often hard to predict whether a particular patent application will be honored.⁵² This legal certainty problem should be given proper attention, distinct from the policy question of whether patents should be allowed outside the technology domain.

¶20 Most important is, of course, the question of whether a technology requirement is meaningful at all. Are technology patents desirable and non-technical patents undesirable, generally speaking? It seems virtually impossible to answer that question, not just because of the above definition problems, but above all, because it presupposes the feasibility of an *a priori* distinction of “desirable” and “undesirable” patents.

¶21 In sum, we must conclude that the statutory basis to limit patent law to technology is questionable, the rules confusing, and the effectiveness unclear—because there is no clear purpose. Exclusion of non-technical inventions is an indirect method to achieve a purpose. But, what actually is that purpose?

III. A NEW VISION ON THE DELIMITATION OF PATENTABLE SUBJECT MATTER

¶22 If “technology” is not a good criterion to distinguish patentable subject matter from non-patentable subject matter, what criterion should we use? There are at least two starting points to answer this question: the *structure* of patent law and the *objectives* of patent law.

A. Reasoning from the Structure of Patent Law

¶23 The *contents* of patent rights are logically connected with the possible *objects* of patent rights. A patent right is in essence a right for the *application* (the object) of certain *knowledge* (the content).⁵³ So, patents are about knowledge fit for application. And, the applications should be known, named, and elaborated, because the law should not allow patents to cover more than has actually been invented.⁵⁴ In other words, a patent is not a “hunting license.”⁵⁵ There is a statutory obligation to describe an invention in a patent application such that it enables any relevant person skilled in the art to apply the invention,⁵⁶ and it should not require “undue experimentation.”⁵⁷

See also KNUT BLIND ET AL., SOFTWARE-PATENTE. EINE EMPIRISCHE ANALYSE AUS ÖKONOMISCHER UND JURISTISCHER PERSPEKTIVE [SOFTWARE PATENTS. AN EMPIRICAL ANALYSIS FROM AN ECONOMIC AND LEGAL PERSPECTIVE], para. 57 (2003) (F.R.G) (including a graph showing a strong periodical variation in the application of the whole-contents approach by German courts from 1975–2001).

⁵² Felix Rummler, *Computer Program Inventions Before the German Courts—A Review*, 36 INT’L REV. OF INTEL. PROP. & COMPETITION L. 225, 234 (2005) (complaining that EPO practice is “imperfect and often unpredictable”).

⁵³ For the purpose of this argument, it is irrelevant that the statute uses the word “invention” as well for the product resulting from the applications of the inventive concept, and that the patent owner usually only obtains the right to prohibit others from using his invention. *See, e.g.*, Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 28, *supra* note 39; 35 U.S.C. § 154(a)(1).

⁵⁴ *See, e.g.*, O’Reilly v. Morse, 56 U.S. 62 (1854).

⁵⁵ *Brenner v. Manson*, 383 U.S. 519, 536 (1966).

⁵⁶ 35 U.S.C. § 112.

⁵⁷ USPTO MANUAL OF PATENT EXAMINING PROCEDURE, § 2164.01(a) (8th ed., rev. 7 2008).

¶24 Consequently, some knowledge, however useful, can not be patented, and this shows that the content of a patent right limits the object of patent law. But that should not come as a surprise. Researchers involved in fundamental science get a monthly salary, rather than a share in the eventual revenue generated from their contributions.⁵⁸ And, the position of attorneys is similar in that they are paid only once—their fee may depend on the outcome of a case, but they usually do not claim a share of the benefit their clients eventually enjoy from the knowledge they provide. These examples illustrate that if someone produces knowledge, the general rule is that there is direct compensation for the effort. The exception—effectively proving the rule—is the kind of ownership of knowledge provided by patent law, lasting potentially for twenty years.

¶25 Since the content of a patent right thus limits the object of patent law, the question remains whether a choice of different contents may allow different objects. The characteristic of a patent is that the owner is granted nearly absolute control on the application of his or her invention (during the patent term). Thus “intellectual property” is virtually equated to real property, in that sense. But, is there really a need to allow the patent holder to deny others the use of an invention? Knowledge is after all a “non-rivalrous good.”⁵⁹ Would it not be sufficient to allow the patent owner to ask for reasonable compensation? The Supreme Court recently decided that an injunction should not automatically be issued based on a finding of patent infringement.⁶⁰ Suggestions have also been made for a modified patent law that does not allow patent holders to block the use of their inventions, while still guaranteeing an appropriate remuneration.⁶¹ For the time being, such proposals have mostly academic value. Mainstream thinking considers patents a kind of “property” that is just as inviolable as real property, so that the patent owner indeed deserves full control.⁶²

B. Reasoning from the Objectives of Patent Law

¶26 The objectives of patent law provide another starting point. It is important to note at the outset that economists and lawyers each have their own view on the purposes of patent law. Economists invariably assume that patents serve to allow their owners to recoup the research and development cost of inventions by internalizing the externalities⁶³ of those inventions, i.e., by allowing such measures that the profits of

⁵⁸ FRIEDRICH-KARL BEIER & JOSEPH STRAUS, DER SCHUTZ WISSENSCHAFTLICHER FORSCHUNGSERGEBNISSE: WUGLEICH EINE WÜRDIGUNG DES GENÈVE VERTRAGES ÜBER DIE INTERNATIONALE EINTRAGUNG WISSENSCHAFTLICHER ENTDECKUNGEN [THE PROTECTION OF THE RESULTS OF SCIENTIFIC RESEARCH: WITH AN OPINION ABOUT THE GENEVA TREATY ON THE INTERNATIONAL RECORDING OF SCIENTIFIC DISCOVERIES] (1982) (F.R.G).

⁵⁹ PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, ECONOMICS 37 (18th ed. 2005).

⁶⁰ eBay v. MercExchange, 547 U.S. 388 (2006).

⁶¹ EUROPEAN PATENT OFFICE, SCENARIOS FOR THE FUTURE 95 (2007), available at <http://www.epo.org/topics/patent-system/scenarios-for-the-future.html>.

⁶² ILKKA RAHNASTO, INTELLECTUAL PROPERTY RIGHTS, EXTERNAL EFFECTS AND ANTI-TRUST LAW 49–59 (2003) (explaining that intellectual property rights are increasingly considered as genuine property rather than artificial rights created for economic reasons only); Robert P. Merges, *The Economic Impact of Intellectual Property Rights: An Overview and Guide*, 19 J. CULT. ECON. 103, 110 (1995) (“The presumption now is that anything nominally creative should receive legal protection. . . . [T]hese rights are extended on the basis of an incomplete theory, often a rhetorically charged version of a primitive labor theory.”).

⁶³ SAMUELSON & NORDHAUS, *supra* note 59, at 36 (“Externalities occur when firms or people impose

inventions accrue to the inventor. Numerous economic publications investigate the optimum “height,” “breadth,” and “length”⁶⁴ of patents, so that costs are recovered, but not much more, as that would not be socially efficient.⁶⁵

¶27 Nonetheless, these assumptions cannot be generally true. The results of fundamental research, however costly, cannot be patented; this is true in the American patent regime⁶⁶ as well as the European regime.⁶⁷ In contrast, there are no objections against patenting coincidental or “flash of genius” inventions.⁶⁸ This is actually codified in an American statute: “[p]atentability shall not be negated by the manner in which the invention was made.”⁶⁹ The justification of patents as a reward has been rejected by American courts as well as legal academics.⁷⁰ In fact, all traditional patent justification theories are debatable.⁷¹

¶28 In conclusion, the existence of costs is neither a necessary nor a sufficient condition to grant patents. I am aware that this observation is a radical departure from conventional wisdom among economists. However, a different perception would inevitably lead to the conclusion that all business methods should be patentable.

¶29 If patents do not serve a cost-recovery purpose, what is their purpose? Often patents are said to create a “monopoly.” While, strictly speaking, this is incorrect because there are often “substitutes,”⁷² the purpose of patents is still to attain a certain exclusivity—a limitation of free competition. Thus, patent law is directly opposed to the common perception that restrictions for a free market should be avoided in order to provide incentives for suppliers to deliver the best quality for the lowest price.

¶30 However, virtual “perfect competition” eventually reduces profits to zero.⁷³ Therefore, firms will try to differentiate themselves on the market. That leads to “monopolistic competition,”⁷⁴ a form of competition that provides a better balance between the interests of suppliers and consumers. Differentiation can be achieved in

costs or benefits on others outside the marketplace.”).

⁶⁴ In this conception the “height” is the inventive step, the “breadth” is the extent of protection, and the “length” is the patent term. From a legal perspective, not all of these “parameters” are available for (this) optimization though.

⁶⁵ See, e.g., Patrick F. E. Beschoner, *Optimal Patent Length and Height*, 35 EMPIRICA 233 (2008); Richard Gilbert & Carl Shapiro, *Optimal Patent Length and Breadth*, 21 RAND J. OF ECON. 112 (1990).

⁶⁶ Excluded are “laws of nature,” “physical phenomena” and “abstract ideas.” See *Diamond v. Chakrabarty*, 447 U.S. 303 (1980) (with references to older case law).

⁶⁷ EPC, *supra* note 30, art. 52(2a). Often quoted examples include the fact that Einstein could not have patented the formula $E = mc^2$, and that Newton could not have patented the law of gravity, as was also noted by a British court: *Aerotel Ltd. v. Telco Holdings Ltd.*, 2006 EWCA Civ 1371, 2006 WL 3102401, ¶¶ 9, 14 (2006).

⁶⁸ *Cal. Research Corp. v. Ladd*, 356 F.2d 813 (D.C. Cir. 1966).

⁶⁹ 35 U.S.C. § 103(a).

⁷⁰ NUÑO PIRES DE CARVALHO, *THE TRIPS REGIME OF PATENT RIGHTS: WITH AN INTRODUCTION ON THE HISTORY AND THE ECONOMIC FUNCTION OF PATENTS 2* (2nd ed. rev. 2005) (citing the following cases: *Sinclair & Carroll v. Interchemical Corp.*, 325 U.S. 327 (1945); *United States v. Masonite Corp.*, 316 U.S. 265 (1942); *Morton Salt v. Suppiger*, 314 U.S. 488 (1942); *Motion Picture Patents v. Universal Film Mfg.*, 243 U.S. 502 (1917)).

⁷¹ Fritz Machlup & Edith E.T. Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. ECON. HIST. 1, 10–28 (1950).

⁷² SAMUELSON & NORDHAUS, *supra* note 59, at 92.

⁷³ *Id.* at 150.

⁷⁴ *Id.* at 168.

many ways.⁷⁵ For instance, building a strong brand image is a tried-and-true method of differentiation.

¶31 Usually, differentiation is possible without regulatory intervention. Only in exceptional cases is there no natural way to differentiate. In such cases, legal means—notably patents⁷⁶—may help to turn knowledge that lacks natural exclusivity into an exclusive resource, thus allowing that knowledge to contribute to differentiation.⁷⁷

¶32 These types of interventions are exceptions to the rule of free competition, so knowledge should only be made exclusive if it lacks natural exclusivity. Knowledge has natural exclusivity if it cannot be applied by ordinary craftsmen, but only by scarce experts with special skills.

¶33 Therefore, it is essential to distinguish knowledge requiring special skills, and knowledge fit for application by any person skilled in the art. Both forms of knowledge are fit for application, having some form of “practical utility.”⁷⁸ Under the current patent law, both types of knowledge are statutory subject matter. “Upstream” knowledge, such as purely scientific knowledge, has no use without the intervention of someone with special skills: an inventor. Such knowledge therefore has a natural exclusivity, obviating the need for the artificial exclusivity of patents.

¶34 Similarly, the application of business methods also requires special skills. A businessman is a kind of inventor, in the sense that mere craftsmanship does not suffice for business success. That is, business is not routine, and businessmen encounter external factors beyond their control—just as inventors do. This means that the knowledge of a business method has a natural exclusivity as well, and therefore does not need the artificial exclusivity of a patent. Arguably, the application of some business methods, e.g. bookkeeping methods, do not require rare talents. Here we again face the vagueness of the “business method” concept. All confusion can be avoided by asking only whether the application of certain knowledge requires either inventor-like talents, or just mere craftsmanship.

¶35 Artists incidentally also resemble inventors in this sense, because their creative work is not just a matter of craftsmanship. The need for storyline patent protection, therefore, should be seriously questioned.⁷⁹ The author elaborating a storyline has ample

⁷⁵ F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 571 (3rd ed. 1990).

⁷⁶ Secrecy is an alternative: easy, but limited. Breaking a secret may be a crime or a tort, but a secret itself usually is not protected as “intellectual property.” Also, unlike patented inventions, secrets can not be published while reserving the right to apply them.

⁷⁷ Occasionally firms benefit from disposing exclusively of certain production means. Incidentally, that does not only apply to knowledge.

⁷⁸ *Nelson v. Bowler*, 626 F.2d 853, 857 (1980) (“‘Practical utility’ is a shorthand way of attributing ‘real-world’ value to claimed subject matter.”).

⁷⁹ Andrew F. Knight, *A Potentially New IP: Storyline Patents*, 86 J.PAT. & TRADEMARK OFF. SOC’Y 859 (2004). This writer offers his services to obtain such patents on <http://www.plotpatents.com>. Other writers are more critical: Ben Manevitz, *What’s the Story with Storyline Patents—An Argument Against the Allowance of Proposed Storyline Patents and for the Rejection of Currently Pending Storyline Patent Applications*, 24 CARDOZO ARTS & ENT. L.J. 717 (2006); Anu R. Sawkar, *Are Storylines Patentable? Testing the Boundaries of Patentable Subject Matter*, 76 FORDHAM L. REV. 3001 (2008).

opportunities to distinguish himself. This applies to any “skills-based profession.”⁸⁰ Sports are yet another example.⁸¹

¶36 Patents are often associated with “protection.” This word is misleading, though. As noted, patents only serve to protect against *excessive* competition. A general competition protection would violate the principle of the free market, which is the basis of the western economy. Eventually, “creative destruction” is inevitable in an innovating economy.⁸² Undue “protection” hampers innovation.

C. Synthesis of Findings

¶37 The analysis of both the structure of patent law and its objectives leads to the same conclusion: patents are only justified and necessary in cases of precisely-delimited knowledge that is described in a way fit for routine application by an average craftsman, not requiring the special skills of an inventor, businessman, artist, or sportsman.

D. Incorporation into Current Patent Law

¶38 Current patent law requires a proper “enabling description” of the invention in patent applications.⁸³ While at first sight the related provision § 112 is merely a rule for the form of patent applications, there has been an understanding for some time now that this provision also entails a substantive meaning.⁸⁴ Lack of a proper description may indicate that such a description is impossible because the application has not been sufficiently elaborated. Therefore, such “abstract ideas” do not qualify for a patent.

¶39 Remarkably, § 112 draws the same limits as we just found from our analysis of the system and the objectives of patent law. A proper application of the present statute may, therefore, already entail a significant limitation of business method patentability. Section 112 is not just a procedural rule, but also implies a substantive limitation.

¶40 An objection to this line of reasoning might be that the patent law system would not allow the enablement test in § 112 to be mixed with the subject-matter test in § 101. But, that does not actually happen. Section 112 only *logically* reflects on § 101. Subject matter that cannot comply with § 112 cannot be statutory subject matter. Section 112 does not become redundant however, because not all applications that *can* comply with this statutory requirement will actually do so.

¶41 So we must conclude that “abstract ideas” that do not qualify for patents according to age-old case law⁸⁵ are characterized by the lack of an enabling description in the sense of § 112, that is sufficient for a “person having ordinary skill in the art,” because that implies that the invention has been elaborated insufficiently, and will have an overly wide scope.

⁸⁰ Neeraj Arora, *Disabling Patentability for Skill-Based Inventions: Aligning Patent Law with Competition Policy*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1 (2005).

⁸¹ See, e.g., Derek Bambauer, *Legal Responses to the Challenges of Sports Patents*, 18 HARV. J. LAW & TECH. 401 (2005), available at <http://jolt.law.harvard.edu/articles/pdf/v18/18HarvJLTech401.pdf>.

⁸² JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM AND DEMOCRACY* (1942).

⁸³ 35 U.S.C. § 112. The comparable provision in European patent law is Art. 83 EPC.

⁸⁴ *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998) (“Whether the patent’s claims are too broad to be patentable is not to be judged under Section 101, but rather under Sections 102, 103 and 112.”).

⁸⁵ *Le Roy v. Tatham*, 55 U.S. 156 (1853).

¶42 In its recent decision, *In re Bilski*, the Federal Circuit again rejects a technology test,⁸⁶ but it adopts a “machine-or-transformation” test.⁸⁷ While a comprehensive review of this complicated case is beyond the scope of this Article, it can be noted that this test also strives to prevent abstract ideas from being patented, but basically on different grounds: the purpose of this test is to prevent fundamental principles from being preempted, in line with the Supreme Court precedent.⁸⁸ Still, it is an accepted consequence of patent law that a patent may cover “fundamental” knowledge to the extent that it creates a true monopoly—as long as the invention is properly disclosed. If the patent law system and objectives are not properly understood, a “machine-or-transformation” test may lead to interpretation problems similar to the problems that occurred in the decades preceding the *State Street Bank* decision.

IV. FINAL THOUGHTS

¶43 It is tempting to consider a European-style technology requirement to prevent patent law from exceeding its “traditional” boundaries, whatever they are. The European experience, however, is not promising: the technology requirement has led to complicated rules and legal uncertainty, while there is no logical relationship with the objectives of patent law. A rule that is ultimately based on tradition, with nothing more, offers little help for interpretations that reflect the purpose of patent law and do not only rely on the word-play so commonly found in patent law. Some argue that patent law should move with the times, while others argue that it should adhere to its age-old principles. Both arguments appear equally strong. And, as a British court noted, “the word ‘technical’ is not a solution. It is merely a restatement of the problem in different and more imprecise language.”⁸⁹

¶44 As we have seen, the actual solution is found by an unorthodox analysis of the structure and objectives of patent law. Patent statutes⁹⁰ contain all of the necessary conditions for a proper delimitation of patentable “subject matter.” If the statutory text is followed closely and consistently, mindful of the above arguments, a meaningful distinction is made between patentable and unpatentable business methods and other subject-matter.

¶45 The adage that “anything under the sun made by man” should be patent-eligible has created the misconception that patent law is a general instrument for knowledge protection. The free trade principle, which is embraced in most parts of the world, requires a basic freedom of ideas, except in cases where a restriction of this freedom is necessary. As we have seen, that is rarely the case. Furthermore, patent law as a “property rights” system is unfit for many forms of knowledge. Patent protection should be considered an exception—an intervention in the free market that is necessary only in

⁸⁶ *In re Bilski*, No. 2007-1130, 2008 WL 4757110 at *10 (Fed. Cir. 2008).

⁸⁷ *Id.* at *15.

⁸⁸ *E.g.*, *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972).

⁸⁹ *In re Patent Applications GB 0226884.3 and 0419317.3 by CFPH L.L.C.*, 2005 EWHC 1589, 2005 WL 1801209, ¶ 14 (2005), *available at* <http://www.bailii.org/ew/cases/EWHC/Patents/2005/1589.html>.

⁹⁰ Art. 83 EPC is similar to 35 U.S.C. § 112.

exceptional circumstances. The idea of “compensation” can not be the guiding principle. Descartes never said “cogito ergo patent”—I think, therefore I deserve a patent.⁹¹

⁹¹ Sven J.R. Bostyn, *Ik denk, dus ik krijg een patent. Patenteerbaarheid van bedrijfsvoeringsmethodes en ideeën in Europa en de VS [I Think, Therefore I Get a Patent. Patentability of Business Methods and Ideas in Europe and the U.S.]*, 69 BIJBLAD BIJ DE INDUSTRIËLE EIGENDOM 77, 88 (2001) (Neth.) (the title of this article is a variation on the famous statement made by the renowned French philosopher René Descartes (1596–1650): “*Cogito ergo sum*”—“I think, therefore I am”).