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***BILSKI'S EFFECT ON PATENT LAW: PATENTABLE  
PROCESSES UNDER 35 U.S.C. § 101***

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**I. INTRODUCTION**

Most people would question whether a patent for the method of reserving a restroom is inventive. Regardless, the United States Patent and Trademark Office (“PTO”) granted IBM a patent, which claimed a method comprising two steps: (1) receiving a reservation request from a user; and (2) notifying the user “when [the] restroom [is] available for his or her use.”<sup>1</sup> However, shortly after issue, IBM disclaimed all the claims,<sup>2</sup> likely because the patent was so ridiculous. Does the allowance of this type of patent comport with the writers of the Constitution and Congress’s view of the purpose of a patent system?<sup>3</sup> Would the patent be less objectionable if the claim in-

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<sup>1</sup> U.S. Patent No. 6,329,919 B1 (filed Aug. 14, 2000) (issued Dec. 11, 2001) (describing a computer based process used by a passenger on an airplane/boat/train).

<sup>2</sup> U.S. Patent No. 6,329,919 C1 (filed Feb. 12, 2002) (issued Oct. 8, 2002). Had the broad claim incorporated the airplane/boat/train computer system, maybe the patent would not have been so ridiculous. This is likely what IBM thought when it applied for its patent.

<sup>3</sup> “A patent is a contract between an inventor and the U.S. government under which the government grants the inventor a limited monopoly” for approximately 20 years from the filing of the application and “the inventor discloses [his or her] complete invention to the public.” Ronald B. Hildreth, *Definition of a Patent*, 2006 PRAC. L. INST. PAT. L.: PRAC. GUIDE § 1:2. Each patent contains “a specification and at least one claim.” *Id.* § 2:2. “The specification describes the complete invention” and the “claim defines the legal rights of the patent owner.” *Id.* An examiner at the PTO examines a patent application to determine if the “claimed subject matter is new, useful, and unobvious over the prior art” in light of the specification. *Id.* §§ 2:4, 3:3. The examiner may reject the claim as being non-statutory subject matter under 35 U.S.C.A. § 101; anticipated subject matter under 35 U.S.C.A. § 102; obvious subject matter under 35 U.S.C.A. § 103; or claimed too broadly and/or not fully

cluded a computer programmed with software for implementing the method? Should the PTO have rejected the claim under: Section 101<sup>4</sup> because the claimed invention was a mental process; Section 112,<sup>5</sup> as indefinite because the invention was not distinctly claimed<sup>6</sup> (by not including the computer); or Sections 102 or 103,<sup>7</sup> because the claimed invention was not novel or was obvious?

In 2005, Judge Smith, an administrative patent judge on the Board of Patent Appeals and Interferences (“BPAI”), wrote a dissenting opinion in *Ex Parte Lundgren*<sup>8</sup> questioning the constitutionality of method claims that did not include the use of a computer, a machine, or an apparatus.<sup>9</sup> He explained that a claimed process that is

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described by the specification under § 112. See DONALD S. CHISUM, CHISUM ON PATENTS §§ 1.01, 3.01, 5.02[4], 7.01, 7.03 (2010). An applicant may appeal a decision from an examiner at the Board of Patent Appeals and Interferences (“BPAI”), and thereafter, the United States Court of Appeals for the Federal Circuit (“Federal Circuit”), and finally the United States Supreme Court. Hildreth, *supra* note 3, § 2:4. There are a number of different types of patents, such as utility patents, design patents, and plant patents. See *id.* §§ 1:7.1, 1:7.2, 1:7.3. This comment pertains to utility patents and more specifically to utility patents that have process or method claims.

<sup>4</sup> 35 U.S.C.A. § 101 (West 2010).

<sup>5</sup> *Id.* § 112.

<sup>6</sup> The claims define the invention. CHISUM, *supra* note 3, § 8.01. When an invention is not distinctly claimed, its scope is too broad and it encompasses more than the actual invention. *Id.* § 8.03. When the scope covers the prior art, it will also be rejected under § 102 and/or § 103 because things already in public domain may not be covered by a patent. *Id.* §§ 3.01, 5.02[4]. When the scope covers processes of the human mind, “[I]aws of nature, physical phenomena, [and/or] abstract ideas,” it will also be rejected under Section 101. Hildreth, *supra* note 3, § 1:7.1.

<sup>7</sup> 35 U.S.C.A. §§ 102(a), 103(a) (West 2010).

<sup>8</sup> No. 2003-2088, 76 U.S.P.Q.2d 1385, 1385-86 (B.P.A.I. Sept. 28, 2005). (reversing the decision of the PTO examiner, which rejected the applicant’s claims for a “method of compensating manager of [a] business firm” as unpatentable under Section 101 because the method was “outside the technological arts,” or more specifically, it was an economic theory not tied to a computer or apparatus; the B.P.A.I. reversed the examiner because the method “produce[d] a useful, concrete, tangible result without preempting other uses of the mathematical principle”) (quoting *AT&T Corp. v. Excel Commc’ns, Inc.*, 172 F.3d 1352, 1358 (Fed. Cir. 1999), *abrogated by In re Bilski (In re Bilski)*, 545 F.3d 943 (Fed. Cir. 2008) (en banc), *aff’d sub nom. Bilski v. Kappos (Bilski)*, 130 S. Ct. 3218 (2010)) (internal quotation marks omitted). The case name at the United States Supreme Court was originally *Bilski v. Doll*, but it was revised to *Bilski v. Kappos* prior to the oral arguments before the Court when David J. Kappos replaced John J. Doll as the director of the PTO. See *Bilski v. Doll (Bilski v. Doll)*, 129 S. Ct. 2735 (2009); *David Kappos Confirmed as Patent and Trademark Office Director*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/main/homepagenews/2009aug07.htm> (last visited Sept. 1, 2010).

<sup>9</sup> *Lundgren*, 76 U.S.P.Q.2d at 1388 (Smith, J., dissenting) (reasoning that the patent system was created by the United States Constitution to encourage advances in technology).

not limited by technology includes “human conduct or thought processes,” which may be “totally unrelated to any science or technology.”<sup>10</sup>

Three members of the United States Supreme Court asked a similar question in 2006.<sup>11</sup> The questioned patent involved a process for (1) assessing the level of homocysteine in a bodily fluid and (2) observing whether the level is higher than normal for determining a vitamin deficiency.<sup>12</sup> The Court granted certiorari to determine whether the invention was patentable subject matter under 35 U.S.C. § 101 but eventually declined to hear the case.<sup>13</sup> When the Court denied certiorari, Justice Breyer wrote a dissenting opinion joined in by Justices Stevens and Souter, stating that this “process [was nothing] more than an instruction to read some numbers in light of medical knowledge,” and was, therefore, an unpatentable mental process.<sup>14</sup> The dissenters questioned whether the United States Court of Appeals for the Federal Circuit (“Federal Circuit”), which has jurisdiction for all patent matters appealed from the PTO and the district courts, applied an improper test for determining patentable subject matter.<sup>15</sup>

Justice Kennedy, in a concurring opinion in *EBay Inc. v. Mercexchange, L.L.C.*,<sup>16</sup> also questioned whether method claims directed towards doing business should be patentable subject matter, stating that business method patents were vague and suspect.<sup>17</sup> A business

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<sup>10</sup> *Id.*

<sup>11</sup> *See* *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 125 (2006) (Breyer, J., dissenting). The three members were Justice Breyer, Justice Stevens, and Justice Souter. *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> *Id.* at 125-26.

<sup>14</sup> *Id.* at 137-38. *Lab. Corp.* contended that the claim should have been invalidated for indefiniteness under Section 112. *Lab. Corp.*, 548 U.S. at 130-31.

<sup>15</sup> *Id.* at 136 (stating that the Supreme Court has never said “that a process is patentable if it produces a ‘useful, concrete, and tangible result,’ . . . and, if taken literally, the statement would cover instances where this Court has held the contrary” (quoting *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943).

<sup>16</sup> 547 U.S. 388, 394 (2006) (holding that permanent injunctive relief should only be given based on the traditional four-factor test rather than as a general rule in patent infringement cases).

<sup>17</sup> *Id.* at 397 (Kennedy, J., concurring) (“[I]njunctive relief may have different consequences for the burgeoning number of patents over business methods . . . [and] potential vagueness and suspect validity of some of these patents may affect the calculus under the four-factor test.”).

method patent typically claims a computer process directed towards automated financial, or management, data processing methods.<sup>18</sup> The Federal Circuit stated, in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*,<sup>19</sup> that a business method should have “the same legal requirements” as any other method or process.<sup>20</sup> Nevertheless, many commentators agree with Justice Kennedy’s comment because a majority of claimed business methods have been performed by companies for decades by humans, rather than by computers programmed with algorithms.<sup>21</sup> The problem with some of these business method patents is similar to the problem of the IBM restroom reservation patent, namely that the claims meet the Federal Circuit’s test for determining patentable subject matter under Section 101 without claiming a computer or apparatus, and the PTO has failed to find prior art to allow a rejection under Sections 102 and 103, even though the method is debatably “in the public domain.”<sup>22</sup> In fact, because of the proliferation of these questionable patents, Congress has enacted 35 U.S.C. § 273, which gives an infringer of a business method patent a statutory defense to patent infringement when the infringer has used the patented business method at least one year prior to the filing date of the patent.<sup>23</sup>

In 2009, the Federal Circuit responded to the Supreme Court’s criticisms by rejecting the “useful, concrete, and tangible result”

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<sup>18</sup> *USPTO White Paper—Automated Business Methods—Section III Class 705*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/patents/resources/methods/afmdpm/class705.jsp> (last visited Apr. 13, 2010). Business methods include market analysis, advertising management, catalog systems, incentive programs, redemption of coupons, credit and load processing, point of sale systems, billing, funds transfer, banking, clearinghouses, tax processing, investment planning, human resource management, scheduling, accounting, and inventory monitoring. *Id.*

<sup>19</sup> 149 F.3d 1368.

<sup>20</sup> *Id.* at 1375. The Supreme Court had not addressed the issue, but the PTO stated that patentability of business methods had become more prevalent because “data processing systems have become sufficiently developed to begin to allow us to fully tap our ingenuity in the business method arts.” *USPTO White Paper—Automated Financial or Management Data Processing Methods (Business Methods)*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/web/menu/busmethp/index.html>.

<sup>21</sup> See, e.g., John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1141 (1999).

<sup>22</sup> *In re Bilski*, 545 F.3d at 1007 (Mayer, J., dissenting).

<sup>23</sup> 35 U.S.C.A. § 273(b)(1) (West 2010) (effective Nov. 29, 1999). The use of a business method for more than a year prior to the filing of a patent that claims the business method should preclude the patent from issuing. *Id.* § 102(b). However, when the PTO does not have a record of the business method’s use, then a questionable patent is allowed to be issued. *In re Bilski*, 545 F.3d at 1007 (Mayer, J., dissenting).

test<sup>24</sup> for determining patentable subject matter under Section 101, and reaffirming the Supreme Court's "machine-or-transformation" test<sup>25</sup> last stated in *Diamond v. Diehr*.<sup>26</sup> *Diehr* was decided more than twenty-five years earlier, and was the last time the Supreme Court addressed a patentable process under Section 101.<sup>27</sup> This was long before the proliferation of computers and the Internet. Therefore, the Federal Circuit asked the Supreme Court for review of *In re Bilski*,<sup>28</sup> and the Supreme Court granted certiorari.<sup>29</sup> Because Bilski claimed a business method that was not tied to a computer, three dissenting judges in *In re Bilski* also questioned whether business methods and software not tied to a computer are patentable subject matter.<sup>30</sup> Consequently, in deciding *Bilski*, the Supreme Court considered: (1) whether the machine-or-transformation test is the appropriate Section 101 patentability test for method claims, (2) whether business methods are patentable, and (3) whether Bilski's claims were an abstract idea.<sup>31</sup>

Part II of this comment will discuss the purpose of the patent system and the definition of patentable subject matter stated in Section 101 of the patent statute. Part III will present Supreme Court cases that have interpreted patentable processes under Section 101 prior to *Bilski*. Part IV will present Federal Circuit cases that have interpreted patentable process under Section 101 in light of the Court's decisions. Part V will discuss issues in defining a test to de-

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<sup>24</sup> *In re Bilski*, 545 F.3d at 959-60 (majority opinion).

<sup>25</sup> *Id.* at 960.

<sup>26</sup> 450 U.S. 175 (1981).

[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (*e.g.*, transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of [Section] 101.

*Id.* at 192.

<sup>27</sup> *In re Bilski*, 545 F.3d at 1013 (Rader, J., dissenting).

<sup>28</sup> *See id.* at 956 (majority opinion).

<sup>29</sup> *Bilski v. Doll*, 129 S. Ct. 2735.

<sup>30</sup> *In re Bilski*, 545 F.3d at 950; *id.* at 976 (Newman, J., dissenting); *id.* at 998 (Mayer, J., dissenting); *id.* at 1015 (Rader, J., dissenting). However, the claim did recite initiating transactions between customers and determining a fixed rate of a commodity. *Id.* at 995-96 (Newman, J., dissenting).

<sup>31</sup> *Bilski*, 130 S. Ct. at 3223. The Court did not address whether a computer is a particular machine, whether the transformation of data is an acceptable transformation, whether software by itself is patentable, and when claims should be rejected under Sections 102, 103, and 112 rather than Section 101.

termine what is a patentable process. Part VI will explain the Supreme Court's decision in *Bilski* and its future implications.

## II. THE PATENT STATUTE

Article one, Section 8, Clause 8 of the United States Constitution provides the justification for the patent system: “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”<sup>32</sup> Justice O’Connor explained in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*,<sup>33</sup> that the purpose of the federal patent system is to encourage the creation and disclosure of new, useful, and non-obvious advances in technology and design in return for the exclusive right to exclude others from making, using or selling<sup>34</sup> the invention for a period of years.<sup>35</sup> Upon expiration of that period, the knowledge of the invention is available for people to use without restriction.<sup>36</sup> The “goal of the patent system is to bring new designs and technologies into the public domain.”<sup>37</sup> Because “research . . . may be costly and time consuming; monetary incentives may matter[,]” and the research and outcome from those incentives may greatly “benefit . . . the human race.”<sup>38</sup>

Congress defined patentable subject matter in 35 U.S.C. § 101, which states, that “[w]hoever invents or discovers any new and useful process,<sup>39</sup> machine,<sup>40</sup> manufacture,<sup>41</sup> or composition of mat-

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<sup>32</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>33</sup> 489 U.S. 141, 168 (1989) (holding that a Florida statute, making it unlawful to duplicate a vessel hull by a direct molding process, conflicted with federal patent law and was therefore invalid).

<sup>34</sup> *Id.* at 150-51.

[T]he right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States, and, if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States, or importing into the United States, products made by that process.

<sup>35</sup> 35 U.S.C.A. § 154(a)(1) (West 2010).

<sup>36</sup> *Bonito Boats*, 489 U.S. at 150-51.

<sup>37</sup> *Id.* at 151 (quoting *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 186-87 (1933)).

<sup>38</sup> *Id.*

<sup>39</sup> *Lab. Corp.*, 548 U.S. at 126.

<sup>40</sup> A process is also called a method (and a business method) and is an operation or series of steps leading to a useful result. CHISUM, *supra* note 3, § 1.03.

ter,<sup>42</sup> or any new and useful improvement thereof, may obtain a patent therefor[e], subject to the conditions and requirements of this title.”<sup>43</sup> Only an invention that fits into one of these four categories may receive a patent.<sup>44</sup>

Congress has made Section 101 broad to accommodate unknown fields of creativity.<sup>45</sup> “Reports accompanying the 1952 [Patent] Act,” in fact, stated “that Congress intended [patentable] subject matter to ‘include anything under the sun that is made by man.’”<sup>46</sup> This has led some people to believe that the courts should not interpret patentable subject matter restrictively, and rather than reject questionable patents as not patentable subject matter under Section 101, many of them should be rejected based on lack of novelty under Section 102, as obvious under Section 103, or as not distinctly claimed under Section 112.<sup>47</sup> Congress’s definition of a process has not helped the courts because it uses, at least in part, the term to define itself.<sup>48</sup> It states that “[t]he term ‘process’ means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.”<sup>49</sup>

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<sup>40</sup> A machine includes apparatuses, mechanisms, and mechanical elements. *Id.* § 1.02[1].

<sup>41</sup> Manufacture encompasses all man-made items not found in nature that are not machines or compositions of matter. *Id.* § 1.02[3].

<sup>42</sup> An intermixture of two or more ingredients that possess properties, which are different from the ingredients in their separate state. *Id.* § 1.02[2].

<sup>43</sup> 35 U.S.C.A. § 101.

<sup>44</sup> *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483 (1974) (holding that Ohio’s law of trade secrets was not preempted by United States patent laws, even if process techniques were patentable subject matter).

<sup>45</sup> *In re Bilski*, 545 F.3d at 978 (Newman, J., dissenting) (“The breadth of Section 101 and its predecessor provisions reflects the legislative intention to accommodate not only known fields of creativity, but also the unknown future.”).

<sup>46</sup> *Diehr*, 450 U.S. at 182 (quoting S. REP. NO. 82-1979, at 5 (1952); H.R. REP. NO. 82-1923, at 6 (1952)).

<sup>47</sup> *In re Bilski*, 545 F.3d at 995-96 (Newman, J., dissenting). Section 101 is the first hurdle that an inventor must pass to have his/her patent allowed. *State St.*, 149 F.3d at 1372 n.2. The next hurdle is § 112, which requires, inter alia, that the invention be distinctly claimed and described with enough detail to enable any person skilled in the art to make and use the invention. *Id.* The final hurdles are § 102 and § 103, which together require that the invention be novel and unobvious in view of the prior art. *Id.*

<sup>48</sup> *In re Bilski*, 545 F.3d at 978 (Newman, J., dissenting).

<sup>49</sup> 35 U.S.C.A. § 100(b) (West 2010) (effective Nov. 29, 1999).

### III. THE SUPREME COURT'S DEFINITION OF PATENTABLE PROCESS

The Supreme Court first defined the term process in *Cochrane v. Deener*.<sup>50</sup> The Court held that a process, “[i]f new and useful,” is patentable, “irrespective of the particular form of the instrumentalities used.”<sup>51</sup> It noted that a process can be one or more acts that transform a substance “to a different state or thing” regardless of the tools used.<sup>52</sup>

In *Gottschalk v. Benson*,<sup>53</sup> the Supreme Court addressed the issue of whether a process that is performed on a computer is patentable subject matter.<sup>54</sup> The Court held that the method for programming a “general-purpose digital computer” to convert binary coded decimal “BCD numerals to pure binary numerals” was not a patentable process because it was equivalent to patenting a mathematical formula.<sup>55</sup> The Court explained that ideas, mathematical equations, “[p]henomena of nature, . . . mental processes, and abstract intellectual concepts are not patentable.”<sup>56</sup> Citing *Cochrane*, the Court stated that a “[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.”<sup>57</sup> Therefore, the Court held that where a process, performed by a computer, transforms an article or is “tied to a particular machine,” the process is patentable.<sup>58</sup>

The Supreme Court again addressed the issue of whether a process that is performed on a computer is patentable subject matter in *Parker v. Flook*.<sup>59</sup> The Court held that a method for updating an alarm limit<sup>60</sup> was not eligible for patent protection because essential-

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<sup>50</sup> 94 U.S. 780, 788 (1876).

<sup>51</sup> *Id.* at 787-88.

<sup>52</sup> *Id.* at 788.

<sup>53</sup> 409 U.S. 63 (1972).

<sup>54</sup> *Id.* at 64.

<sup>55</sup> *Id.* at 71-72.

<sup>56</sup> *Id.* at 67.

<sup>57</sup> *Id.* at 69-70 (quoting *Cochrane*, 94 U.S. at 787-88) (articulating the “Machine-or-Transformation Test”).

<sup>58</sup> *Benson*, 409 U.S. at 71.

<sup>59</sup> 437 U.S. 584 (1978).

<sup>60</sup> The alarm limit was a number stored by a computer that signaled an abnormal condition during a chemical catalytic conversion process. *Id.* at 585. The number was calculated based on factors such as the safety margin, current temperature, and other process variables. *Id.* at 586.



ly it was a mathematical formula.<sup>61</sup> The method included the steps of: (1) measuring conditions such as temperature, pressure, and flow rates; (2) using an inventive algorithm to calculate a new alarm limit; and (3) “updat[ing the] alarm-limit.”<sup>62</sup> The Court stated that the only inventive component was the mathematical algorithm, which was not patentable under the mathematical algorithm exception doctrine, and, therefore, the entire method was not patentable.<sup>63</sup> Furthermore, the Court stated that the steps of measuring the conditions and updating of the alarm limit were “ ‘post-solution’ activit[ies].”<sup>64</sup> Although post-solution activity was not specifically defined by the Court, the Court stated that a final step of indicating an answer to a mathematical formula did not make the method patentable subject matter because a “competent draftsman could attach some form of post-solution activity to almost any mathematical formula.”<sup>65</sup> Some commentators criticized this decision for wrongly applying the requirements of Section 102 and Section 103 in determining whether the Section 101 requirements were fulfilled.<sup>66</sup> The Court recognized, in both this case and in *Benson*, that its decisions were based on “opinions written before the modern business of developing programs for computers was conceived,” and asked Congress for clarification of patent protection for computer programs that are novel and useful.<sup>67</sup>

However, the Supreme Court took a different view towards patentable subject matter in *Diamond v. Chakrabarty*.<sup>68</sup> Although

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<sup>61</sup> *Id.* at 594-95 (holding the method unpatentable under Section 101).

Here it is absolutely clear that respondent's application contains no claim of patentable invention. The chemical processes involved in catalytic conversion of hydrocarbons are well known, as are the practice of monitoring the chemical process variables, the use of alarm limits to trigger alarms, the notion that alarm limit values must be recomputed and readjusted, and the use of computers for “automatic monitoring-alarming.”

*Id.* at 594.

<sup>62</sup> *Flook*, 437 U.S. at 585.

<sup>63</sup> *Id.* at 594.

<sup>64</sup> *Id.* at 590. The Federal Circuit refers to this as “extra-solution activity.” *In re Bilski*, 545 F.3d at 957 n.14.

<sup>65</sup> *Flook*, 437 U.S. at 590.

<sup>66</sup> *See Diehr*, 450 U.S. at 204 (Stevens, J., dissenting). The Section 101 requirement of patentable subject matter is determined prior to, and separately from, determining what is inventive, which is a Section 102 and Section 103 requirement. *State St.*, 149 F.3d at 1372 n.2.

<sup>67</sup> *Flook*, 437 U.S. at 595. *See also Benson*, 409 U.S. at 73.

<sup>68</sup> *See* 447 U.S. 303, 318 (1980) (holding that a live, human-made micro-organism is patentable subject matter).

the decision did not address computer related subject matter, the Court stated that the only “ ‘prohibition against patents [is] for ‘ideas’ or phenomena of nature.’ ”<sup>69</sup> It emphasized that Section 101 should be read broadly “to ‘include anything under the sun that is made by man.’ ”<sup>70</sup>

Although Congress still did not change Section 101 to specifically include computer programs, the Supreme Court addressed the issue again in *Diehr*.<sup>71</sup> The Court held that the claimed invention for an improved process of molding rubber articles was patentable.<sup>72</sup> The Court found that the invention was not a mathematical formula, but rather a method for transforming rubber into a different state.<sup>73</sup> The invention claimed “[a] method of operating a rubber-molding press for precision molded compounds with the aid of a digital computer, comprising” the steps of: (1) providing a data base for data conversion; (2) inputting compound data; (3) setting a timer upon closure of the press; (4) constantly determining and providing to the computer the temperature of the mold; (5) updating the cure time using a mathematical formula; and (6) opening the press when the cure time has expired.<sup>74</sup> The Court stated:

[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (*e. g.*, transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of [Section] 101.<sup>75</sup>

The Court noted that unlike the alarm-limit-update process in *Flook*, this was not post-solution activity because it disclosed the monitoring of process variables and how the variables were determined.<sup>76</sup> Notably, the Court also stated that the claimed process

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<sup>69</sup> *Id.* at 315 (quoting *Flook*, 437 U.S. at 593).

<sup>70</sup> *Id.* at 309 (quoting S. REP. NO. 82-1979; H.R. REP. NO. 82-1923).

<sup>71</sup> *Diehr*, 450 U.S. at 185.

<sup>72</sup> *Id.* at 184.

<sup>73</sup> *Id.* at 191. The Court further reasoned “[t]hat [the] respondents’ claims involve the transformation of an article, in this case raw, uncured synthetic rubber, into a different state or thing cannot be disputed.” *Id.* at 184.

<sup>74</sup> *Id.* at 181 n.5.

<sup>75</sup> *Diehr*, 450 U.S. at 192.

<sup>76</sup> *Id.* at 193 n.14.

might still be rejected under Section 102 or Section 103, but that possibility did not affect the decision of whether the molding process is patentable subject matter under Section 101.<sup>77</sup>

However, Justice Stevens, dissenting, stated that computer programs should be considered unpatentable subject matter because they are based on mental steps, scientific concepts, or mere ideas.<sup>78</sup> He also stated that the opening of the press in the present invention was similar post-solution activity that caused the *Flook* invention to be rejected as unpatentable subject matter.<sup>79</sup> Finally, Justice Stevens cautioned against patent protection of computer programs because the PTO would be flooded with patent applications.<sup>80</sup> Twenty-five years later, but after significant changes in computer technology, *Bilski* again brings up the issue of when a computer program with minor physical steps is considered patentable subject matter, as debated by *Diehr*'s majority and dissent?<sup>81</sup>

#### IV. THE FEDERAL CIRCUIT'S DEFINITION OF PATENTABLE PROCESS

The Federal Circuit has exclusive jurisdiction over patent application appeals, patent interferences, and decisions of district courts throughout the country related to patent law.<sup>82</sup> The Federal Courts Improvement Act of 1982 created the Federal Circuit in order to, *inter alia*, unify decisions from district courts throughout the country regarding patent litigation with the decisions from the Court of Customs and Patent Appeals ("CCPA") on patent eligibility.<sup>83</sup> In its first decision, the Federal Circuit adopted the decisions of the CCPA as precedent.<sup>84</sup> Hence, decisions from the Federal Circuit regarding patent law are similarly precedential to decisions by the Supreme

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<sup>77</sup> *Id.* at 191.

<sup>78</sup> *Id.* at 195 (Stevens, J., dissenting). *But see Bilski*, 130 S. Ct. at 3227. Here, the Court stated "[b]ut times change. Technology and other innovations progress in unexpected way." *Id.*

<sup>79</sup> *Diehr*, 450 U.S. at 215 (Stevens, J., dissenting).

<sup>80</sup> *Id.* at 218.

<sup>81</sup> *Compare Bilski*, 130 S. Ct. 3218, with *Diehr*, 450 U.S. 175.

<sup>82</sup> 28 U.S.C.A. § 1295(a) (West 2010) (effective May 29, 2000). The district courts have original jurisdiction over any litigation arising under United States patent laws. *Id.* § 1338(b).

<sup>83</sup> *South Corp. v. United States*, 690 F.2d 1368, 1371 (Fed. Cir. 1982).

<sup>84</sup> *Id.* at 1369.

Court.<sup>85</sup> Since the Supreme Court accepts at most only a few patent cases each year, and the Federal Circuit hears hundreds of patent cases each year, some commentators believe that the Federal Circuit has a greater understanding of patent matters.<sup>86</sup> Therefore, when determining patentable subject matter with regard to computer related subject matter, it is essential to review the decisions of the Federal Circuit and the precedents set by the CCPA.

In *In re Bernhart*,<sup>87</sup> the CCPA acknowledged that a machine that is programmed with an inventive mathematical relationship that produces an output on a plotting apparatus should be patentable.<sup>88</sup> The court further addressed the issue of whether a computer software program stored in a computer makes it a new machine.<sup>89</sup> After stating that the issue is more of a Section 103 issue rather than a Section 101 issue, the court explained that a machine programmed in a new way “is physically different from the machine without that program.”<sup>90</sup> The court noted that the majority of “newly programmed machines [will be] obvious to those skilled in the art” but that these machines are patentable subject matter under Section 101.<sup>91</sup>

Likewise, in *In re Freeman*,<sup>92</sup> the CCPA held that a patent for a computer typesetter that neither recited, nor preempted, a mathematical algorithm, was patentable subject matter under Section 101.<sup>93</sup> The court read *Benson* as holding mathematical algorithms, rather than general computer program algorithms, as unpatentable subject matter.<sup>94</sup> The court also held that post-solution activity only applied to mathematical algorithms.<sup>95</sup> Accordingly, in *In re Walter*,<sup>96</sup> the

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<sup>85</sup> See John F. Duffy, *The Festo Decision and the Return of the Supreme Court to the Bar of Patents*, 2002 SUP. CT. REV. 273, 274-76 (2002).

<sup>86</sup> *Id.* at 276-77.

<sup>87</sup> 417 F.2d 1395, 1399-1400 (C.C.P.A. 1969) (holding that a computer, programmed for carrying out a portrayal process, by outputting on a plotting apparatus a two dimensional representation of a three-dimensional object, is patentable subject matter).

<sup>88</sup> *Id.*

<sup>89</sup> *Id.* at 1400.

<sup>90</sup> *Id.*

<sup>91</sup> *Id.*

<sup>92</sup> 573 F.2d 1237 (C.C.P.A. 1978), *abrogated by In re Bilski*, 545 F.3d 943.

<sup>93</sup> *Id.* at 1247.

<sup>94</sup> *Id.* at 1245-46.

<sup>95</sup> *Id.* at 1246.

<sup>96</sup> 618 F.2d 758, 760 (C.C.P.A. 1980), *abrogated by In re Bilski*, 545 F.3d 943 (claiming a method of seismic surveying comprising the steps of: (1) transmitting downwardly into the earth a train of seismic source waves; (2) receiving corresponding waves at geophone

CCPA held that the claimed algorithm for a seismic surveyor was only a mathematical equation and not patentable subject matter.<sup>97</sup> The court explained that if the claim is merely a mathematical algorithm and is not applied to physical elements or does not limit process steps, then “no amount of post-solution activity” would make it patentable subject matter under Section 101.<sup>98</sup> The court also stated that a field of use limitation in the preamble<sup>99</sup> of the claim would not save the claim.<sup>100</sup>

The CCPA next addressed the issue of a method patent claiming a mathematical formula on a computer in *In re Abele*.<sup>101</sup> Using the rationale of *Diehr*, the court held that an improvement in a CAT-scan by a computerized process was patentable subject matter where the method included “production, detection and display steps,” as opposed to solely mathematical algorithm steps.<sup>102</sup> This case was important for two reasons. First, the court stated a two part test for patentability that became known as the Walter-Freeman-Abele test, in which the claims are first analyzed to determine if there is a mathematical algorithm, and if so, whether the algorithm is “applied in any manner to physical elements or process steps.”<sup>103</sup> Second, by allowing some claims and rejecting other claims, the court showed the distinct line between patentable subject matter and unpatentable subject matter.<sup>104</sup>

Subsequently, in *In re Grams*,<sup>105</sup> the Federal Circuit added

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stations; (3) converting waves to digital samples; and (4) performing a mathematical algorithm on the digital samples).

<sup>97</sup> *Id.* at 771.

<sup>98</sup> *Id.* at 767.

<sup>99</sup> *On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1343 (Fed. Cir. 2006) (explaining that a field of use limitation in the preamble may limit the claim by “stat[ing] a necessary and defining aspect of the invention,” or may not limit the claim by merely stating “an introduction to the general field of the claim”).

<sup>100</sup> *Walter*, 618 F.2d at 767.

<sup>101</sup> 684 F.2d 902 (C.C.P.A. 1982), *abrogated by In re Bilski*, 545 F.3d 943.

<sup>102</sup> *Id.* at 908-09 (distinguishing application of a mathematical algorithm that included “production, detection and display steps” from non-essential post-solution activity).

<sup>103</sup> *Id.* at 906-07.

<sup>104</sup> *Id.* See also *In re Bilski*, 545 F.3d at 962-63 (stating that the broad claim in *Abele* “of graphically displaying [data] variances” was not patentable subject matter because the type of data or where it came from was not specified, but the narrow claims specifying the display of X-ray data “of bones, organs, and other body tissues,” was patentable subject matter).

<sup>105</sup> 888 F.2d 835, 836, 841 (Fed. Cir. 1989) (holding that a method for diagnosing the existence of an abnormality in an electrical, mechanical, chemical, or biological system was not patentable subject matter; also stating that because the claims were rejected as a

“data-gathering,” to “post-solution activity” and “field of use limitation” in the preamble, as not saving a claim that is merely a mathematical algorithm from being rejected under Section 101.<sup>106</sup> The Federal Circuit stated that the addition of a “data-gathering” step does not make a mathematical algorithm patentable under Section 101 when the data was not transformed and, therefore, it is the same as non-essential “post-solution activity,” as stated in *Flook*.<sup>107</sup>

Twelve years after the Walter-Freeman-Abele test was established, the Federal Circuit articulated a new test in *In re Alappat*.<sup>108</sup> In the patent application, Alappat used means plus function language for claiming a digital oscilloscope programmed with anti-aliasing software that eliminated discontinuity in a waveform to allow for a smooth continuous wave to be displayed.<sup>109</sup> The court stated that the mathematical algorithm exception applies to apparatus claims as well as process claims.<sup>110</sup> Nevertheless, the court found that the claimed invention, as a whole, was not a mathematical equation or an abstract idea, “but rather a specific machine to produce a useful, concrete, and tangible result.”<sup>111</sup> The court articulated that when a general-purpose computer is programmed to perform a claimed invention, it becomes a new machine, a special purpose computer.<sup>112</sup>

Conversely, in the same year that *Alappat* was decided, the Federal Circuit, in *In re Schrader*,<sup>113</sup> held that a method of conducting an auction that used a mathematical optimization algorithm was unpatentable because no *specific* machine or apparatus was in the claims.<sup>114</sup> The method comprised the steps of: (1) “identifying a plurality of related items in a record”; (2) offering the “items to a plurality of potential bidders”; (3) receiving bids for one or more of the

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mathematical algorithm, the issue of whether the claims were unpatentable as a method of doing business was not addressed).

<sup>106</sup> *Id.* at 839-40. In *In re Bilski*, the Federal Circuit groups data gathering with post solution activity and refers to both as “extra-solution activity.” *In re Bilski*, 545 F.3d at 963.

<sup>107</sup> *In re Grams*, 888 F.2d at 837, 839-40.

<sup>108</sup> 33 F.3d 1526, 1544 (Fed. Cir. 1994) (en banc) (stating the “useful, concrete, and tangible result” test), *abrogated by In re Bilski*, 545 F.3d 943.

<sup>109</sup> *Id.* at 1537-38. A digital oscilloscope is used to accurately observe the wave shape of an electrical signal. *Id.*

<sup>110</sup> *Id.* at 1544. The Federal Circuit first stated its “useful, concrete, and tangible result” test to replace the Freeman-Walter-Abele test in *Alappat*. *State St.*, 149 F.3d at 1374.

<sup>111</sup> *Alappat*, 33 F.3d at 1544.

<sup>112</sup> *Id.* at 1545.

<sup>113</sup> 22 F.3d 290 (Fed. Cir. 1994).

<sup>114</sup> *See id.* at 294 (using the Freeman-Walter-Abele test).

items; (4) entering the bids in the record; (5) indexing each bid; and (6) assembling a completion of the bids to identify, in the record, the bid corresponding to the highest price.<sup>115</sup> The court stated that the method was similar to “mathematical optimization procedures.”<sup>116</sup> Even though the method required the step of recording the bids of an item, the court relied on *Flook* in holding that this step was only insignificant post-solution activity rather than a transformation of physical objects and, therefore, the invention was an abstract mathematical algorithm and unpatentable subject matter.<sup>117</sup>

In a dissenting opinion, Judge Newman viewed the process as patentable subject matter stating that transforming bids in a record is “more than mental steps” because it requires computational steps and is no different from transforming data that represents “parameters in a process for curing rubber.”<sup>118</sup> Judge Newman also addressed a rejection from the BPAI for a business method exception, even though the majority did not.<sup>119</sup> She questioned whether a business method exception existed under Section 101 in the Federal Circuit’s case law and stated that in modern business systems it is difficult to discern “a method of ‘doing’ business” with other statutory computerized processes.<sup>120</sup> She further stated that all business method claims should be rejected under Sections 102, 103, and 112 rather than under Section 101.<sup>121</sup>

In 1998, the Federal Circuit started shifting the law through its decision in *State Street*, holding that a data processing system for administrating mutual funds for increased tax advantages was patentable.<sup>122</sup> The claims comprised: (1) a computer processor for processing data; (2) storage for storing data; and (3) multiple logic

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<sup>115</sup> *Id.* at 292.

<sup>116</sup> *Id.* at 293.

<sup>117</sup> *Id.* at 294.

<sup>118</sup> *Schrader*, 22 F.3d at 296-97 (Newman, J., dissenting) (citing *Diehr*, 450 U.S. at 186) (stating that both require a mathematical calculation to produce a useful output).

<sup>119</sup> *See id.* at 297-98. Since the majority found the claims were a mathematical abstraction, it did not address a rejection from the BPAI based on the business method exception to Section 101. *Id.* at 296 n.14 (majority opinion).

<sup>120</sup> *Id.* at 298 (Newman, J., dissenting) (stating that a business method exception was “fuzzy . . . error-prone, redundant, and obsolete”).

<sup>121</sup> *Id.* (“Patentability does not turn on whether the claimed method does ‘business’ instead of something else, but on whether the method, viewed as a whole, meets the requirements of patentability as set forth in Sections 102, 103, and 112 of the Patent Act.”).

<sup>122</sup> *State St.*, 149 F.3d at 1370. The system is also known as a “Hub and Spoke Financial Services” data processing system. *Id.*

circuits for processing assets, income, expenses, and net realized gain/loss, and allocating shares in a portfolio.<sup>123</sup> In this case, the court addressed both the mathematical algorithm exception and the business method exception.<sup>124</sup> The court explained that the mathematical algorithm exception did not apply because the invention was not an abstract idea since the algorithms were applied in a *useful* way.<sup>125</sup> The court held that the Freeman-Walter-Abele test was not applicable for determining statutory subject matter after *Diehr* and *Chakrabarty*, and the appropriate test, stated in *Alappat*, was that a method was patentable subject matter when it produced “a useful, concrete, and tangible result.”<sup>126</sup> The court explained that the use of mathematical calculations by a machine to transform data that represents dollar amounts into a share price met this test.<sup>127</sup> The court then rejected the questionable business method exception and stated that business method claims are “subject to the same legal requirements” as any other process claims.<sup>128</sup> In response to the argument that an allowance of the claims would foreclose all computerized accounting methods of this type, the court explained that the claims should be rejected under Sections 102, 103, and 112, rather than Section 101.<sup>129</sup>

The shift in the law was completed by *AT&T Corp. v. Excel Communications, Inc.*,<sup>130</sup> in which the Federal Circuit held that the process of adding a primary interexchange carrier (“PIC”) indicator to “a message record for long-distance telephone calls” was patentable subject matter.<sup>131</sup> The claimed method for use in a telecommunications system comprised the following two steps:

[(1)] generating a message record for an interexchange

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<sup>123</sup> *Id.* at 1371-72.

<sup>124</sup> *Id.* at 1372. The business method exception was relied on prior to the elimination of the requirement for invention by Section 103 of the 1952 Patent Act. *Id.* at 1375. Since 1952, the mathematical algorithm exception to Sections 101, 102, 103, and 112 has been used to judge the patentability of business methods. *State St.*, 149 F.3d at 1375 n.10.

<sup>125</sup> *Id.* at 1373.

<sup>126</sup> *Id.* at 1374 (quoting *Alappat*, 33 F.3d at 1544) (internal quotation marks omitted).

<sup>127</sup> *Id.* at 1373.

<sup>128</sup> *Id.* at 1375 (citing *Schrader*, 22 F.3d at 298 (Newman, J., dissenting)).

<sup>129</sup> *State St.*, 22 F.3d at 1377.

<sup>130</sup> 172 F.3d 1352.

<sup>131</sup> *Id.* at 1353, 1361. A PIC allows a long-distance telephone carrier to properly bill their subscribers by signaling when the subscriber has called a person who uses a different long-distance carrier; thereby requiring a higher fee. *Id.* at 1353.



call between an originating subscriber and a terminating subscriber, and [(2)] including, in [the] message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with [the] terminating subscriber is a predetermined one of [the] interexchange carriers.<sup>132</sup>

The district court in *AT&T* decided, prior to the Federal Circuit's *State Street* decision, that the claims comprised a mathematical algorithm with a data-gathering step and were therefore, unpatentable.<sup>133</sup> In reviewing the district court's decision, the Federal Circuit stated that "[s]ince the process of manipulation of numbers is a fundamental part of computer technology, we have had to reexamine the rules that govern the patentability of such technology."<sup>134</sup> The court held that the claims met the "useful, concrete, tangible result" test because they transformed one form of data into another form that was useful.<sup>135</sup> When Excel Communications argued that there was no "physical transformation" or "physical limitation," the court stated that: (1) a physical transformation is only an example of a useful result, rather than a requirement; and (2) as long as the mathematical algorithm was applied in a practical manner to produce a useful result, a physical transformation or limitation was not required.<sup>136</sup>

Therefore, in applying the "useful, concrete, and tangible result" test, first articulated in *Alappat* and then again in *State Street*, and by stating in *AT&T*, that physical transformations and limitations were unnecessary to satisfy the "useful, concrete, and tangible result" test, the Federal Circuit broadened the definition of a patentable

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<sup>132</sup> *Id.* at 1354 (emphasis omitted).

<sup>133</sup> *Id.* at 1355.

<sup>134</sup> *AT&T*, 172 F.3d at 1356.

<sup>135</sup> *See id.* at 1358. The Court reasoned that "the judicially-defined proscription against patenting of a 'mathematical algorithm,' to the extent such a proscription still exists, is narrowly limited to mathematical algorithms in the abstract." *Id.* at 1356.

<sup>136</sup> *Id.* at 1358-59.

[P]hysical limitations analysis seems of little value because "after *Diehr* and *Alappat*, the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a 'useful, concrete and tangible result.' "

*Id.* at 1359 (quoting *State St.*, 149 F.3d at 1374).

process to accommodate method claims that do not meet the machine or transformation test stated in *Diehr*.<sup>137</sup> Since the “useful, concrete, and tangible result” test has been adopted by the Federal Circuit, computer-managed processes in the information technology, banking, e-commerce, medicine, data processing, industrial engineering, and insurance fields have received expanded patent protection.<sup>138</sup> However, the broadening of what constitutes a patentable process has also allowed for questionable patents that claim only human conduct and mental processes, such as IBM’s patent for a method of reserving a restroom.<sup>139</sup>

Seven years after *AT&T Corp.* was decided, and more than a few questionable patents later,<sup>140</sup> the Supreme Court and the PTO started to question the “useful, concrete, and tangible result” test.<sup>141</sup> In response to the Supreme Court’s criticism, the Federal Circuit began to swing the pendulum in the opposite direction. In *In re Comiskey*,<sup>142</sup> the court stated that Section 101 does not allow business systems that are entirely mental processes.<sup>143</sup> The Federal Circuit further stated that the Supreme Court has recognized only the machine-or-transformation test.<sup>144</sup> A year after *Comiskey*, the Federal Circuit created havoc when it addressed patentable subject matter

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<sup>137</sup> See *AT&T*, 172 F.3d at 1358-59.

<sup>138</sup> *In re Bilski*, 545 F.3d at 992 (Newman, J., dissenting).

<sup>139</sup> 919 B1 Patent.

<sup>140</sup> See Brief for Respondent at 40-41 & n.20, *Bilski v. Kappos*, 129 S. Ct. 2735 (2009) (No. 08-964), 2009 WL 3070864 (U.S. Patent No. 6,457,317 (“Method of Selling Merchandise on a Golf Course”)); U.S. Patent No. 6,292,788 (“Methods and Investment Instruments for Performing Tax-Deferred Real Estate Exchanges”); U.S. Patent No. 6,567,790 (“Establishing and Managing Grantor Retained Annuity Trusts Funded by Nonqualified Stock Options”); U.S. Patent No. 6,206,374 (“Methods of Playing Poker Games”); U.S. Patent No. 6,070,873 (“Card Game and Method of Playing Card Game”); U.S. Patent No. 6,607,389 (“Systems and Methods for Making Jury Selection Determinations”).

<sup>141</sup> See, e.g., *Lab. Corp.*, 548 U.S. at 136-37 (Breyer, J., dissenting) (stating that the Federal Circuit’s rule in *State Street* “would cover instances where this Court has held the contrary”); *Ebay*, 547 U.S. at 397 (Kennedy, J., concurring) (referring to the “suspect validity” of some of the patents issued under this rule); *Lundgren*, 76 U.S.P.Q.2d at 1388 (Smith, J., dissenting) (noting that “the term process is so broad that it can be used to claim inventions that cover nothing more than human conduct or thought processes that are totally unrelated to any science or technology”).

<sup>142</sup> 499 F.3d 1365, 1368 (Fed. Cir. 2007) (claiming a method of mandatory arbitration for unilateral and contractual documents), *withdrawn*, *In re Comiskey*, 554 F.3d 967 (Fed. Cir. 2009).

<sup>143</sup> *Comiskey*, 499 F.3d at 1378-79.

<sup>144</sup> *Id.* at 1376-77 (citing *Diehr*, 450 U.S. at 184).

again in a sua sponte, en banc review in *In re Bilski*.<sup>145</sup>

Claim one of Bilski's patent recited "[a] method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price" using a number of steps.<sup>146</sup> The claim comprised the steps of: (1) "initiating a series of transactions between [the] commodity provider and consumers . . . [who] purchase said commodity at a fixed rate based upon historical averages;" (2) "identifying market participants for [the] commodity having a counter-risk position to [the] consumers; and" (3) "initiating a series of transactions between [the] commodity provider and [the] market participants at a second fixed rate such that . . . [the] transactions balance[] the risk position of [the] series of consumer transactions."<sup>147</sup>

The PTO examiner rejected the claims because they were not directed to an apparatus, such as a computer, and were therefore merely an abstract idea.<sup>148</sup> The BPAI rejected the claim because the transformation of a "non-physical financial risk . . . did not produce a useful, concrete and tangible result."<sup>149</sup> The BPAI explained that the claim preempted "every possible way of [a human or machine] performing the steps of the . . . process," and therefore, it was an abstract idea, rather than patentable subject matter.<sup>150</sup>

In reviewing the BPAI's decision, the Federal Circuit used the opportunity to reject both "the useful, concrete and tangible result" test and the *Freeman-Walter-Abele* test, and affirm the Supreme Court's "machine-or-transformation" test.<sup>151</sup> The Federal Circuit stated that the machine-or-transformation test was the only test provided by the Supreme Court to determine whether an applicant is attempting "to claim a fundamental principle (such as an abstract idea) or a mental process," and therefore, it was the proper test for determining the patentability of Bilski's claims.<sup>152</sup> The court stated that "a claim that recites 'physical steps' but neither recites a *particular* machine or apparatus, nor transforms *any article* into a different state or

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<sup>145</sup> 545 F.3d 943.

<sup>146</sup> *Id.* at 949.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.* at 950.

<sup>149</sup> *Id.* (quoting *Ex Parte Bilski*, No. 2002-2257, 2006 WL 5738364, at \*10, \*18 (B.P.A.I. Sept. 26, 2006) (internal quotation marks omitted)).

<sup>150</sup> *In re Bilski*, 545 F.3d at 950 (quoting *Ex Parte Bilski*, 2006 WL 5738364, at \*20).

<sup>151</sup> *Id.* at 959-60.

<sup>152</sup> *Id.* at 952.

thing, is not drawn to patent-eligible subject matter.”<sup>153</sup> In rejecting Bilski’s claims under Section 101, the court held that Bilski did not claim a particular machine or a transformation, but rather a mental process, because the physical steps of performing a mathematical calculation on collected data and identifying transactions that would “hedge each other’s risks” based on the mathematical calculation, were not limited to “a computer or any other device, . . . [and the] step of consummating those transactions” was post-solution activity.<sup>154</sup>

However, the court stated that in the past decade, the use of computers and the Internet has begun to challenge the machine-or-transformation test, and the court “recognize[d] that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies.”<sup>155</sup> The court further stated that although there was no categorical exclusion of business methods or software,<sup>156</sup> the transformation of an article should be “a chemical or physical transformation of *physical objects or substances*.”<sup>157</sup> The court questioned whether many of the raw materials of information-age processes such as, electronic signals, electronically-manipulated data, legal obligations, organizational relationships, and business risks are *physical objects*.<sup>158</sup> The court did note, however, that a visual depiction that represents specific physical objects is a transformation of a physical object.<sup>159</sup>

The *Bilski* decision was a seventy-two-page opinion that included one concurring opinion and three dissenting opinions.<sup>160</sup> Each opinion stated why the machine-or-transformation test should or

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<sup>153</sup> *Id.* at 961 (emphasis added).

<sup>154</sup> *Id.* at 965.

<sup>155</sup> *In re Bilski*, 545 F.3d at 956.

<sup>156</sup> *Id.* at 960.

<sup>157</sup> *Id.* at 962.

<sup>158</sup> *Id.* at 962 (noting that broad independent claims which “recit[e] a process of graphically displaying variances of data from average values” were not patentable subject matter because the claims “did not specify any particular type or nature of data; nor did it specify how or from where the data was obtained or what the data represented”) (citing *Abele*, 684 F.2d at 908-09).

<sup>159</sup> *Id.* at 962-63 (noting that “one of Abele’s dependent claims” was patentable subject matter because it specified the data as X-ray attenuation data from a tomography scanner and the data represented physical objects—“the structure of bones, organs, and other body tissues”) (citing *Abele*, 684 F.2d at 908-09).

<sup>160</sup> *See In re Bilski*, 545 F.3d 943.

should not be the test for determining patentable subject matter.<sup>161</sup> These opinions and the Federal Circuit's evolving definition of a process to meet the requirements of Section 101 will be discussed in the next two sections.

#### V. ISSUES IN DEFINING A TEST FOR DETERMINING PATENTABLE PROCESSES

As can be seen by the Federal Circuit's decisions, there have been adjustments in the past twenty-five years in determining when a process is unpatentable, under both the Supreme Court's mathematical equation, abstract idea, fundamental principle exception doctrine and the Federal Circuit's elusive business method exception, due to the emergence of computers and the Internet.<sup>162</sup> As computers have become more prolific, faster, and able to store more information, many basic human functions or processes, in life and in business, are performed by computers in new ways every day. Do these processes fall into the abstract idea and mathematical algorithm exception doctrine?<sup>163</sup> Should there be a business method exception doctrine? Are these processes unpatentable subject matter per se, unpatentable subject matter unless claimed in association with computer hardware, or patentable subject matter<sup>164</sup> because obtaining patents in such fields promotes technology? And ultimately, what test should be used to help the PTO and the district courts determine when a process is patentable under Section 101? The Federal Circuit stated that the inquiry is not straightforward because today's process claims are not limited to the industrial manufacturing process of *Diehr*, and are not as abstract and mathematical as the algorithm in *Benson*.<sup>165</sup>

In his concurring opinion, Judge Dyk explained that the machine-or-transformation test appropriately distinguished patentable subject matter because historically, "the only processes that were patentable were processes for using or creating manufactures, machines,

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<sup>161</sup> *Id.* at 972 (Dyk, J., concurring); *id.* at 976 (Newman, J., dissenting); *id.* at 1008-09 (Mayer, J., dissenting); *id.* at 1015 (Rader, J., dissenting).

<sup>162</sup> *See In re Bilski*, 545 F.3d at 956.

<sup>163</sup> *See id.* at 960 (grouping mental processes into this exception).

<sup>164</sup> The method would be allowable under Section 101. However, it may still be rejected under Sections 102, 103 or 112.

<sup>165</sup> *In re Bilski*, 545 F.3d at 954.

and compositions of matter.”<sup>166</sup> However, each of the three dissenting judges questioned the court’s selection of the machine-or-transformation test for different reasons.<sup>167</sup>

In his dissent, Judge Mayer noted that nearly every process claim, whether a business method, human activity, or otherwise, can be rewritten to include a machine or a physical transformation and that the machine-or-transformation test will not “stem the growth of [business] patents.”<sup>168</sup> He also stated that the patent system has been overwhelmed with business method patents<sup>169</sup> and “has run amok,” in allowing many ridiculous patents to be granted.<sup>170</sup> In addition, he explained that PTO has asked for assistance, but the machine-or-transformation test will do little to help.<sup>171</sup> He believes that because business methods “impede rather than promote innovation, [and] are frequently of poor quality” there should be a requirement for advancement of science or technology in Section 101.<sup>172</sup>

However, Judge Rader, in his dissent, stated that the majority should not have “disrupt[ed] settled and wise principles of law,” but rather, should have simply held that *Bilski*’s method was an abstract idea.<sup>173</sup> He further stated that today’s technology requires a newer test than the machine-or-transformation test because patent eligibility should not be linked “to the age of iron and steel at a time of subatomic particles and terabytes.”<sup>174</sup> Judge Rader also stated that “[t]oday’s software transforms our lives without physical anchors. This court’s test not only risks hobbling these advances, but preclud-

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<sup>166</sup> *Id.* at 972 (Dyk, J., concurring).

<sup>167</sup> *See id.* at 976 (Newman, J., dissenting); *id.* at 1008-09 (Mayer, J., dissenting); *id.* at 1015 (Rader, J., dissenting).

<sup>168</sup> *In re Bilski*, 545 F.3d at 1008-09 (Mayer, J., dissenting).

<sup>169</sup> *Id.* at 1004 (stating that applications for business method “patents increased from fewer than 1,000 applications in 1997 to more than 11,000 applications in 2007”).

<sup>170</sup> *Id.* at 1010. Some of the more ridiculous patents included U.S. Patent No. 5,851,117 patenting a “method of training janitors to dust and vacuum using video displays;” U.S. Patent No. 5,862,223 patenting a “method for selling expert advice;” U.S. Patent No. 6,014,643 patenting a “method for trading securities;” U.S. Patent No. 6,119,099 patenting a “method of enticing customers to order additional food at a fast food restaurant;” U.S. Patent No. 6,329,919 patenting a “system for toilet reservations;” U.S. Patent No. 7,255,277 patenting a “method of using color-coded bracelets to designate dating status in order to limit the embarrassment of rejection;” and U.S. Patent No. 6,049,811 patenting a “method for obtaining a patent.” *Id.* at 1004.

<sup>171</sup> *Id.* at 1010.

<sup>172</sup> *In re Bilski*, 545 F.3d at 1005, 1009.

<sup>173</sup> *Id.* at 1011, 1015 (Rader, J., dissenting).

<sup>174</sup> *Id.* at 1011.

ing patent protection for tomorrow's technologies."<sup>175</sup>

Likewise, Judge Newman dissented because, in her opinion, Section 101 should be interpreted broadly, and the machine-or-transformation test is too narrow and excludes inventive technologies that should be patentable.<sup>176</sup> Judge Newman noted that "the Supreme Court has consistently" refrained from restricting Section 101 so that it can accommodate unknown future fields of creativity.<sup>177</sup> Citing previous cases, Judge Newman reasoned that information-based and software-implemented inventions "have been dominant contributors to today's economic growth and societal change [and that] [r]evision of the commercial structure affecting major aspects of today's industr[ies] should be approached with care," as an exclusion of these inventions impacts thousands of patents already granted by putting a cloud over them.<sup>178</sup>

Furthermore, Judge Newman stated that Bilski's patent application described a process that is patent eligible under Section 101 because although one step used a mathematical calculation, other steps obtained information and carried out commercial transactions via a computer and the Internet.<sup>179</sup> However, she explained, because Bilski's claims did not include the limitation of a computer, the invention was not distinctly claimed thereby requiring a rejection under Sections 102, 103, and 112 rather than Section 101.<sup>180</sup>

In adopting the machine-or-transformation test as the only test for determining patent eligibility of processes under Section 101, the Federal Circuit left many issues for another day.<sup>181</sup> Specifically, what is considered a physical object for the transformation prong?<sup>182</sup> Is a general-purpose computer a specific machine?<sup>183</sup> "What consti-

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<sup>175</sup> *Id.* at 1015.

<sup>176</sup> *Id.* at 978 (Newman, J., dissenting).

<sup>177</sup> *In re Bilski*, 545 F.3d at 977.

<sup>178</sup> *Id.* at 976-77.

<sup>179</sup> *Id.* at 995-96.

<sup>180</sup> *Id.* at 997.

<sup>181</sup> *Id.* at 962 (majority opinion).

[I]ssues specific to the machine implementation part of the test are not before us today. We leave to future cases the elaboration of the precise contours of machine implementation, as well as the answers to particular questions, such as whether or when recitation of a computer suffices to tie a process claim to a particular machine.

*In re Bilski*, 545 F.3d at 962.

<sup>182</sup> *Id.* at 1015 (Rader, J., dissenting).

<sup>183</sup> *Id.*

tutes ‘extra-solution activity?’ ”<sup>184</sup> The Federal Circuit,<sup>185</sup> the PTO,<sup>186</sup> and the district courts<sup>187</sup> have faced many of these questions since the Federal Circuit’s decision in *Bilski*, each with varying interpretations.

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<sup>184</sup> *Id.* See also *id.* at 963 (majority opinion) (explaining that extra-solution activity includes both post-solution activity and data-gathering steps).

<sup>185</sup> See, e.g., *Prometheus Labs., Inc. v. Mayo Collaborative Servs.*, 581 F.3d 1336, 1339, 1340, 1346 (Fed. Cir. 2009) (holding a method of optimizing thiopurine in a person comprising three steps: (1) administering the drug to a subject; (2) determining the metabolite levels; and (3) warning that an adjustment in dosage may be needed, meets the transformation prong of the machine-or-transformation test because methods of treating humans are always transformative), *vacated*, 130 S. Ct. 3543 (2010) (“[The] case [is] remanded to the . . . Federal Circuit for further consideration in light of *Bilski v. Kappos*.”); *In re Ferguson*, 558 F.3d 1359, 1361 (Fed. Cir. 2009) (holding that a method of marketing software failed to meet either prong of the machine-or-transformation test); *Comiskey*, 554 F.3d at 981 (remanding the case to the PTO to determine whether the dependent claims that recited “the Internet, intranet, World Wide Web, software applications, telephone, television, cable, video [or radio], magnetic, electronic communication, or other communications means” contained patentable subject matter).

<sup>186</sup> See, e.g., *Ex parte Gutta*, No. 2008-3000, 2009 Commr. Pat. LEXIS 59, at \*6, \*8 (B.P.A.I. Jan. 15, 2009) (holding that “[a] computerized method performed by a data processor” for “recommending one or more available items . . . to a target user” was unpatentable subject matter because a recitation in the preamble of a computer “adds nothing more than a general purpose computer that is associated with the steps of the process in an unspecified manner.”); *Ex Parte Cornea-Hasegan*, No. 2008-4742, 2009 WL 86725, at \*2, \*5, \*6 (B.P.A.I. Jan. 13, 2009) (holding that a “method of predicting results of floating point mathematical operations and calculating the results” was unpatentable subject matter under *Bilski* because even though the claims recited (1) a processor and (2) computer readable media, the processor was not a *particular* machine, and computer readable media does not limit the scope of the claim). *But see, e.g., Ex parte Moyer*, No. 2009-002154 (B.P.A.I. Jan. 20, 2010) (holding that the claim meets the machine-or-transformation test because it recites a processor in each step and a processor becomes a particular machine when programmed with instructions).

<sup>187</sup> See, e.g., *Dealertrack, Inc. v. David L. Huber*, 657 F. Supp. 2d 1152, 1153, 1156 (C.D. Cal. 2009) (holding that a “computer aided method” of managing a credit application in the preamble of the claim does not fulfill the machine prong within the meaning of *Bilski*); *Every Penny Counts, Inc. v. Bank of America Corp.*, No. 2:07-cv-042, 2009 WL 6853402, at \*1, \*3 (M.D. Fla. May 27, 2009) (holding a consumer donation system did not recite a “particular machine,” but rather a general purpose computer in the claim and was therefore, unpatentable subject matter); *Cybersource Corp. v. Retail Decisions, Inc.*, 620 F. Supp. 2d 1068, 1071, 1077-78 (N.D. Cal. 2009) (holding that a credit card fraud verification process over the Internet did not meet the machine-or-transformation test because credit card numbers are data; credit card accounts are legal relationships; and manipulation of data or legal relationships is not a transformation under *Bilski*, and a recitation of Internet in the preamble did not meet the machine prong because the Internet is not a particular machine). *But see, e.g., Versata Software, Inc. v. Sun Microsystems, Inc.*, No. 2-06-CV-358 (TJW), 2009 WL 1084412, at \*1 (E.D. Tex. Mar. 31, 2009) (stating that it did not interpret *Bilski* so broadly as to exclude software that was not a fundamental principle, and therefore denied summary judgment).



**VI. BILSKI V. KAPPOS**

If the Federal Circuit and the patent community expected guidance from the Supreme Court in *Bilski*, for determining what processes are patent eligible, they will likely be disappointed. In fact, the opinion written by Justice Kennedy created more questions than it answered because no test was selected, no terms were defined, and two sections of his opinion were not joined by Justice Scalia, making those sections a plurality rather than a majority opinion.<sup>188</sup> Although the Court affirmed *Bilski* in a nine to zero decision, the Court was split as to whether any business methods should be patent eligible.<sup>189</sup>

The Court addressed three arguments as to why Bilski's claimed invention was not patentable subject matter: "(1) it [was] not tied to a machine and [did] not transform an article; (2) it involve[d] a method of conducting business; and (3) it [was] merely an abstract idea."<sup>190</sup> The Court unanimously held that the machine-or-transformation test was not the sole test in determining whether a process is patent eligible and, therefore, Bilski's claims were not invalid based on argument one.<sup>191</sup> However, the Court also unanimously held that Bilski's claimed invention was an abstract idea and hence, it was invalid based on argument three.<sup>192</sup>

The majority opinion and the concurring opinions by Justice Stevens<sup>193</sup> and Justice Breyer<sup>194</sup> made it clear "that the machine-or-transformation test" was only a *clue* to patentable subject matter and that a process could still qualify for a patent even if it did not meet

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<sup>188</sup> *Bilski*, 130 S. Ct. at 3223. Part II-B-2 addresses, but does not take a position on, allowing patentability of software and other inventions of the information age, while Part II-C-2 addresses, but does not expand on, limiting patentability of business methods. *Id.* at 3227-29.

<sup>189</sup> *Id.* at 3232 (Stevens, J., concurring); *id.* at 3257-59 (Breyer, J., concurring).

<sup>190</sup> *Id.* at 3223 (plurality opinion). The questions presented for the oral arguments only included the first argument; the Court added the last two argument to the opinion. *See Bilski*, 130 S. Ct. at 3231 (Stevens, J., concurring).

<sup>191</sup> *Id.* at 3227 (plurality opinion).

<sup>192</sup> *Id.* at 3229-30.

<sup>193</sup> *Id.* at 3231 (Stevens, J., concurring) (joining in Justice Stevens' concurring opinion were Justices Ginsburg, Breyer, and Sotomayor).

<sup>194</sup> *Id.* at 3257 (Breyer, J., concurring). Justice Scalia joined Part II only. Part I addressed the unpatentability of business methods, and Part II addressed the "agreement among many Members of the Court on many of the fundamental issues of patent law raised by this case." *Bilski*, 130 S. Ct. at 3257-58.

this test.<sup>195</sup> Though all three opinions stated that the Federal Circuit's "useful, concrete, and tangible result" test was not the appropriate test,<sup>196</sup> none of the opinions suggested a more appropriate test to guide the Federal Circuit in determining the line that delineates patentable processes from unpatentable processes. In addition, because the Court rejected the machine-or-transformation test as the exclusive test in determining a patent eligible process, none of the opinions clarify what is a *particular* machine, a transformation, or extra-solution activity.<sup>197</sup> In reading Justice Kennedy's plurality opinion in Part II-B-2, it appears as if four of the Justices would like "software, advanced diagnostic medicine techniques, and inventions based on linear programming, data compression, and the manipulation of digital signals" to be patentable.<sup>198</sup> However, Justice Kennedy concluded the section by stating that "[n]othing in this opinion should be read to take a position on where [the patentability line] ought to be struck."<sup>199</sup>

The majority opinion and both concurring opinions also made clear that Section 101 should be interpreted broadly, but that "laws of nature, physical phenomena, and abstract ideas" are not patent eligible.<sup>200</sup> Quoting *Benson*, *Flook*, and *Diehr*, the Court explained that *Bilski*'s claims are an abstract idea because they are directed towards the basic concept of hedging, a reduction of the hedging concept to a mathematical formula, and post-solution-activity.<sup>201</sup> However, other than stating that a mathematical algorithm is an abstract idea, the majority does not define the term abstract idea.<sup>202</sup>

The contentious issue in *Bilski* is whether methods of doing business are unpatentable subject matter per se. The majority asserts that the term "method" "include[s] at least some methods of doing

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<sup>195</sup> *Id.* at 3227 (plurality opinion); *id.* at 3232 (Stevens, J., concurring); *id.* at 3258 (Breyer, J., concurring).

<sup>196</sup> *See id.* at 3258-59 (Breyer, J., concurring) (quoting *State St.*, 149 F.3d at 1373) (noting that his views were "consistent with both the opinion of the Court and Justice Stevens' opinion concurring in the judgment.") (internal quotation marks omitted).

<sup>197</sup> These issues brought much uncertainty to the Federal Circuit case law. *See supra* notes 184-86 and accompanying text.

<sup>198</sup> *Bilski*, 130 S. Ct. at 3227 (plurality opinion).

<sup>199</sup> *Id.* at 3228.

<sup>200</sup> *Id.* at 3225 (quoting *Chakrabarty*, 447 U.S. at 309) (internal quotation marks omitted); *id.* at 3253 (Stevens, J., concurring) (citing *Diehr*, 450 U.S. at 185); *id.* at 3258 (Breyer, J., concurring) (quoting *Benson*, 409 U.S. at 67).

<sup>201</sup> *Bilski*, 130 S. Ct. at 3229-30 (plurality opinion).

<sup>202</sup> *Id.* at 3236 (Stevens, J., concurring).

business” because it is difficult to categorically determine what is a *business* method and a *non-business* method.<sup>203</sup> In addition, 35 U.S.C. § 273(b)(1), which allows an infringer of a patented method to claim prior use as a defense, defines a method “as ‘a method of doing or conducting business.’ ”<sup>204</sup> However, the minority argued that Bilski’s claims were unpatentable because they were directed to a method of doing business in addition to being an abstract idea, and that business methods should not be patent eligible.<sup>205</sup>

Similar to the minority opinion, Justice Kennedy, in his plurality opinion, questioned the vagueness and validity of business method patents.<sup>206</sup> He stated that

[I]f the [Federal Circuit] were to succeed in defining a narrower category or class of patent applications that claim to instruct *how business should be conducted*, and then rule that the category is unpatentable because, for instance, it represents an attempt to patent *abstract ideas*, this conclusion might well be in accord with controlling precedent.<sup>207</sup>

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<sup>203</sup> *Id.* at 3228 (majority opinion).

<sup>204</sup> *Id.* (quoting 35 U.S.C.A. § 273(a)(3)).

<sup>205</sup> *See id.* at 3232 (Stevens, J., concurring). In his concurring opinion, Justice Stevens stated that a more prudent way of denying Bilski’s claims would have been to hold that they were unpatentable because they were directed to an unpatentable business method rather than an abstract idea. *Bilski*, 130 S. Ct. at 3232. This is because: (1) the majority did not clearly show how the claimed method was an abstract idea and what “an unpatentable abstract idea” actually is; (2) the history of patent law requires business methods to be unpatentable; (3) “the requirements of novelty, nonobviousness, and particular description” do not eliminate comical patents; (4) Section 273 merely limited the effects of *State Street* and shows the judges on the Federal Circuit misunderstood Section 101; (5) patenting of business methods stifles innovation, just as patenting of “laws of nature, natural phenomena, and abstract ideas” does; (6) business methods do “not entail the same kinds of risk as does more traditional, technological innovation,” which require large outlay of expenses and labor; (7) businesses will still move forward without business method patents; (8) businesses can still protect themselves with trade secrets; (9) “[m]any business methods are practiced in public” and therefore do not need disclosure for public knowledge; (10) many private business methods “do not generate any efficiency but only provide a means for competitors to one-up each other in a battle for pieces of the pie;” and (11) “[i]f business methods could be patented, then many business decisions, no matter how small, could be *potential* patent violations.” *Id.* at 3236, 3238, 3239, 3251-52, 3253, 3254-55, 3256.

<sup>206</sup> *Id.* at 3229 (plurality opinion) (citing *EBay Inc.*, 547 U.S. at 397 (Kennedy, J., concurring)).

<sup>207</sup> *Id.* (emphasis added). In addition, Justice Kennedy expressed a desire for “a high enough bar” to be set to keep the Patent Office and the courts from being flooded with business method claims. *Id.*

Nevertheless, similar to his plurality opinion in Part II-B-2, Justice Kennedy did an about-face at the end of the section by stating that business methods must pass the requirements of Section 102, Section 103, and Section 112 and that “[t]hese limitations serve a critical role in adjusting the tension, ever present in patent law, between stimulating innovation by protecting inventors and impeding progress by granting patents.”<sup>208</sup>

Given its lengthy history, one might ask how *Bilski* has affected patent law? The PTO has interpreted *Bilski* as requiring that a claimed invention that is an abstract idea must be found unpatentable even if it meets the machine-or-transformation test.<sup>209</sup> However, the majority did not specifically state this holding.<sup>210</sup> The only certainty as to how *Bilski* has affected patent law is that the Federal Circuit’s “useful, concrete, and tangible result” test is not an appropriate patentable subject matter test. What the appropriate test will be, what business methods will be patent eligible, and what will be considered an abstract idea will all have to be determined at a later date.

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<sup>208</sup> *Bilski*, 130 S. Ct. at 3229.

<sup>209</sup> Memorandum from Robert W. Bahr, Acting Assoc. Comm’r for Patent Examination Policy, to the Patent Examining Corps (June 28, 2010) (on file with author).

If a claimed method meets the machine-or-transformation test, the method is likely patent-eligible under [S]ection 101 unless there is a clear indication that the method is directed to an abstract idea. If a claimed method does not meet the machine-or-transformation test, the examiner should reject the claim under [S]ection 101 unless there is a clear indication that the method is not directed to an abstract idea.

*Id.*

<sup>210</sup> *Bilski*, 130 S. Ct. at 3236 (Stevens, J., concurring) (“The Court, in sum, never provides a satisfying account of what constitutes an unpatentable abstract idea. Indeed, the Court does not even explain if it is using the machine-or-transformation criteria.”).