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# *How to Patent Business, Software, and Medical Diagnostic Methods in the Aftermath of the Bilski Decision—Part 2, Business and Software Methods*

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This is Part 2 of a three-part article. Part 1<sup>1</sup> explored what the Supreme Court's decision in *In re Bilski*<sup>2</sup> says on the law of 35 U.S.C. §101 and the standard for defining patentable subject matter. The tension between Sections 101 and 102/103 is explored along with analysis of how the "new and useful" standard of Section 101 differentiates from Sections 102/103 anticipation/obviousness. Part 2 delves deeper into what the Court's opinion means to the patenting of business and software methods and provides several practice pointers for use in drafting claims narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself. Part 3 will examine what the Court's opinion means to the patenting of diagnostic methods.

## **Understand What Structure or Process Makes a Post-Solution Activity Not Insignificant**

Will the thinking of the Court in *Bilski* be strictly limited to "process" patents or will it have spillover effects upon the patentability of the other categories of machine, manufacture, or composition of matter? ("[t]o hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.")<sup>3</sup>

In the aftermath of *Bilski*, now more than ever, a practitioner needs to understand what structure or process makes a post-solution activity not insignificant. For software patents, it is no longer enough to tie the software to a computer or the Internet. Software claims should recite computer architecture specially programmed and recite data representing physical and tangible and not abstract objects.

The law in this area is very unsettled with the Supreme Court providing little guidance other than explaining through *Benson*, *Flook*, *Diehr*, and now *Bilski* that a process claim must be tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself. Still, the precedent provided by the lower courts *post*-Federal Circuit machine-or-transformation test—a test not overruled but stripped of its exclusivity by the Supreme Court—provides some insight into how the jurisprudence in this area might evolve and for that limited purpose is instructive.

## **Business Methods**

The Court held in *Bilski* that business methods amounting to abstract ideas are unpatentable. The Federal

Circuit has generally arrived at the same result when rejecting as unpatentable a method for coordinating firefighting efforts, *Patton*,<sup>4</sup> a method for deciding how salesmen should best handle customers, *In re Maucorps*,<sup>5</sup> and a computerized method for aiding a neurologist in diagnosing patients, *In re Meyer*.<sup>6</sup>

More recently in *In re Ferguson*,<sup>7</sup> the Federal Circuit held unpatentable a process for “marketing a product ... using a shared marketing force” and a “paradigm for marketing a company....”. Methods of “organizing business or legal relationships in the structuring of a sales force (or marketing company)” do not transform “physical objects or substances” or “representati[ons] of physical objects or substances.”

In *Fort Props., Inc. v. Am. Master Lease, LLC*,<sup>8</sup> the District Court of the Central District of California held unpatentable a “method for creating an investment instrument out of real property.” The claims at issue “involve only the transformation or manipulation of legal obligations and relationships.” In particular, those claims “only transform or manipulate legal ownership interests in real estate” and, therefore, “[u]nder *Bilski*, the [c]ourt [could not] find that those claims transform an article or thing.”

## Software

Although business method applications may use technology, such as computers, to accomplish desired results, the innovative aspect of the claimed method is an entrepreneurial rather than a technological one. Thus, although *Bilski*’s claimed hedging method theoretically could be implemented on a computer that alone does not render it patentable.<sup>9</sup>

### Running a Business Method on a Computer or over the Internet or Residing the Business Method on Computer Readable Medium (i.e., Beauregard Claim) May Not Be Enough

When a claimed business method simply uses a known machine to do what it was designed to do, such as using a computer to gather data or perform calculations, use of that machine will not bring otherwise unpatentable subject matter within the ambit of Section 101.<sup>10</sup>

Consistent with the foregoing rationale, running a business method on a computer or over the Internet without more may not be enough. The mere recitation of “computer” or reference to using a computer in a patent claim was found to be insufficient to tie a patent claim to a particular machine in *Fuzzysharp Techs. Inc. v. 3D Labs Inc., Ltd.*<sup>11</sup> The claims in *Fuzzysharp Techs.*

*Inc.* were directed to “mathematical algorithms that can be used to reduce the number of calculations required to determine whether a 3D surface is visible or invisible on a display screen.”<sup>12</sup> The court held the claims unpatentable. The main issue was whether the claims at issue were tied to a “particular” machine.<sup>13</sup> The patentee argued that the limitations, “computations” and “computer storage,” and constructions that referenced “using a data structure in a computer” and “projecting 3D images ‘on a computer screen’” established a sufficient tie to a particular machine.<sup>14</sup> The court rejected this argument noting “[t]he salient question is not whether the claims are tied to a computer,” but “[r]ather, as *Bilski* makes clear, the question is whether the claims are ‘tied to a particular machine.’”<sup>15</sup> The court stated “the claims are not tied to a particular computer, but simply make a generally [sic] reference to ‘a’ computer. Courts applying *Bilski* have concluded that the mere recitation of ‘computer’ or reference to using a computer in a patent claim is [sic] insufficient to tie a patent claim to a particular machine.”<sup>16</sup> The court found *DealerTrack, Inc., CyberSource*, and three BPAI cases persuasive for this notion.<sup>17</sup> As a result, the court found the claims at issue invalid under *Bilski*.<sup>18</sup>

Failure to “specify precisely how the computer hardware and database are ‘specially programmed,’ and claiming a central processor as doing nothing more than performing as a general purpose computer that has been programmed in some unspecified manner were the undoing of claims in *DealerTrack*. In *DealerTrack, Inc. v. Huber*,<sup>19</sup> the claims were directed to “a computer aided method of managing a credit application.” The Court held the claims unpatentable. The patentee argued each of the following structures established a tie to a particular machine under *Bilski*: (i) “remote application entry and display device” and (ii) “terminal device.”<sup>20</sup> Respectively, the court construed those terms as (i) “any device, e.g., personal computer or dumb terminal, remote from the central processor, for application entry and display;” and (ii) “any device, e.g., personal computer or dumb terminal, located at a logical or physical terminus of the system.”<sup>21</sup> The court relied on *In re Alappat* for the notion that “a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.”<sup>22</sup> Nevertheless, based on its analysis, in part, of *CyberSource, Inc.* and a string of BPAI cases, the court found that each of the structures construed above were not a “particular machine” pursuant to *Bilski*.<sup>23</sup> The court noted that the patent “does not specify precisely how the computer hardware and database are ‘specially programmed,’ and the claimed central processor is nothing more than a general

purpose computer that has been programmed in some unspecified manner.”<sup>24</sup> The patentee conceded that the claims at issue were not transformative.<sup>25</sup> Accordingly, the court held the claims at issue invalid under *Bilski*.<sup>26</sup>

### ***Listing of Computer Components Not Enough; Specific Computer Having Particular Programming so As to Amount to a Specific Computer Architecture Is Required***

In *Accenture Global Servs. GmbH v. Guidewire Software Inc.*,<sup>27</sup> in its machine analysis, the court explained that limitations such as “claim database,” “a display device,” “a file note screen,” a “searchable claim database,” and “a claim folder,” while construed “as computer-related,” “do not imply a specific computer having any particular programming—they are descriptive of a general computer system at best.”<sup>28</sup> Moreover, the claim term—“a data processing system comprising a memory, secondary storage device, central processing unit, input device and video display; the memory contains a program for automatically generating file notes”—also does not rise to the specificity of a particular machine.<sup>29</sup> Relying on *Every Penny Counts, Inc.* and *Research Corp. Tech., Inc.*, the court expressed that “[i]f the architecture of the computer is of no import, it is unclear how the claimed methods are drawn to a specific machine within the meaning of *Bilski*.”<sup>30</sup> In other words, “the patent claims implicate the use of a machine, but a machine does not impose any limit on the claimed methods themselves.”<sup>31</sup> Nonetheless, the court conceded that “[i]t is unclear to the court whether (and how) the claims may be interpreted to define a particularly-programmed computer.”<sup>32</sup>

As to ’111 machine prong, there is no indication that a machine imposes any limitation on the ’111 patent claims. The parties sought the court’s assistance in construing the term “claim folder,” which the court construed to be the electrical analog of a physical folder but did not seek construction of the terms “database,” “a data processing system,” “a display device,” “a claim folder ‘screen,’” or a file note ‘screen.’” Construing each of these terms as computer-related in accordance with the invention do not imply a specific computer having any particular programming—they are descriptive of a general computer system at best.<sup>33</sup> Nor do the specific embodiments in the specification imply a specific computer since the specification teaches that the concepts apply with other computer systems such as network computers, workstations, and mainframe computers having architectures different from the architecture shown in the specification. In the absence of the importance of the architecture, it is

unclear how the claimed methods are drawn to a specific machine within the meaning of *Bilski*.<sup>34</sup>

### ***Unpatentable Subject Matter Does Not Become Patentable by Tossing in References to Internet Commerce***

In *Cybersource*, claims were directed to

a computer readable medium containing program instructions for detecting fraud in a credit card transaction between a consumer and a merchant over the Internet, wherein execution of the program instructions by one or more processors of a computer system causes the one or more processors to carry out the steps of: (a) obtaining credit card information ...; and (b) verifying the credit card information based upon values of plurality of parameters, in combination with information that identifies the consumer . . . , wherein execution of the program instructions by one or more processors of a computer system causes the one or more processors to carry out the further steps of; obtaining information about other transactions that have utilized an Internet address that is identified with the credit card transaction; constructing a map of credit card numbers based upon the other transactions; and utilizing the map of credit card numbers to determine if the credit card transaction is valid. The court found that performing the method “over the Internet” was not a tie to a particular machine because “the internet is an abstraction ... as [o]ne can touch a computer or a network cable, but one cannot touch “the internet.”<sup>35</sup> Under *Bilski*, the use of the internet does not impose meaningful limits on the scope of the claims.<sup>36</sup>

Similarly, the court noted that otherwise unpatentable subject matter “does not become patentable by tossing in references to internet commerce.”<sup>37</sup> The court further noted that the specification failed to describe the processors or a computer.<sup>38</sup>

### ***Crafting Claims As a Beauregard Type Claims May Not Save the Claim***

The “computer readable medium” claims in *Cybersource* did not alter the conclusions of the court that the Internet” and “one or more processors” limitations were deemed to be inadequate ties to a particular machine.<sup>39</sup>

While arguably a 35 U.S.C. §101 “machine” and not a “process” on which *Bilski* was decided, a Beauregard claim ultimately may be deemed to be a claim on a process and the recited computer readable medium an insignificant post-solution activity. It all depends on whether the thinking of the Court in *Bilski* will be strictly limited



to “process” patents or will it have spillover effects upon the other independent categories of inventions or discoveries that are patent eligible: namely, machines, manufactures, or compositions of matter? (“[t]o hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection”<sup>40</sup>). Whether *Bilski* spills over into categories of subject matter other than a “process” may ultimately turn on how much a claim looks like a “process” despite being crafted as a “machine,” a “manufacture,” or a “composition.”

## **Running a Business Method on a Computer for Data Gathering and Performing Calculations May Not Be Enough**

### ***Gathering Data Can Fairly Be Characterized As Insignificant Extra-Solution Activity***

Federal Circuit precedent too has frequently stated that adding a data-gathering step to an algorithm is insufficient to convert that algorithm into a patent-eligible process.<sup>41</sup> In *Grams* the Federal Circuit held unpatentable a process of performing a clinical test and, based on the data from that test, determining if an abnormality existed and possible causes of any abnormality.<sup>42</sup> The claim was rejected because it was merely an algorithm combined with a data-gathering step.<sup>43</sup> The Court noted that, at least in most cases, gathering data would not constitute a transformation of any article. A requirement simply that data inputs be gathered—without specifying how—is a meaningless limit on a claim to an algorithm because every algorithm inherently requires the gathering of data inputs.<sup>44</sup>

### ***A Process Claim Must Be Tailored Narrowly Enough to Encompass Only a Particular Application of a Fundamental Principle Rather Than to Preempt the Principle Itself***

Failure to specify any particular type or nature of data or how or from where the data is obtained or what the data represents undercuts patentability of graphically displayed data. In *In re Abele* the Federal Circuit held unpatentable a broad independent claim reciting a process of graphically displaying variances of data from average values.<sup>45</sup> That claim 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.<sup>46</sup> One dependent claim, however, was drawn to patent-eligible subject matter where it specified that “said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.”<sup>47</sup>

“This data clearly represented physical and tangible objects, namely the structure of bones, organs, and other body tissues. Thus, the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.”

### ***A Mathematical Algorithm [That] Uses Machines for Data Input and Data Output and to Perform the Required Calculations But Impose No Limit on the Process Itself Is Merely Insignificant Post Solution Activity***

In *Every Penny Counts, Inc. v. Bank of America Corp.*,<sup>48</sup> claims were directed to a system, comprising:

- a network; entry means coupled to said network for entering into the network an amount being paid in a transaction by a payor;
- identification entering means in said entry means and coupled to said network for entering an identification of the payor;
- said network including computing means having data concerning the payor including an excess determinant established by the payor for the accounts; and
- said computing means in said network being responsive to said data and said identification entering means for determining an excess payment on the basis of the determinant established by the payor, and said computing means in said network being responsive to the excess payment for apportioning, at least a part of the excess payment amount said accounts on the basis of the excess determined and established by the payor and on the basis of commands established by the payor and controlled by other than the payee.<sup>49</sup>

The court held the claims unpatentable. The court explained that “the ‘system’ described by the claim at issue ‘has no substantial practical application except in connection with’ computers, cash registers, and networks, but it is not comprised of those devices. The [patent at issue] is a process, not a machine.”<sup>50</sup> In its “machine” analysis, the court found that the alleged ties to machines were merely “insignificant extra-solution activity.”<sup>51</sup> In particular, the claimed “process” includes “a mathematical algorithm [that] uses machines for data input and data output and to perform the required calculations.”<sup>52</sup> But, “those machines do not ... impose any limit on the process itself.”<sup>53</sup> The patentee did not contend that claim at issue was transformative. As a result, the court held the claim at issue invalid under *Bilski*.<sup>54</sup>

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## ***Failure to Visually Display Generated Profiles May Not Always Lead to Unpatentable Claims***

In *Research Corp. Techs. v. Microsoft Corp.*,<sup>55</sup> the claims were directed to “image halftoning technology used in computers and printers.” Claim 11 recited

a method for the halftoning of color images which comprises the step of utilizing, in turn, a pixel-by-pixel comparison of each of a plurality of color planes of said color image against a respective one of a plurality of masks in which each respective mask comprises a non-deterministic, non-white noise single valued function which is designed to provide visually pleasing dot profiles when thresholded and wherein said step of utilizing said pixel-by-pixel comparison is used to produce a halftoned image.

While other claims reciting “the production of an image as a result of the comparison numbers” were transformative, the claims at issue that merely “assembl[ed] ... gray scale images to generate final dot profiles” were not transformative because they did not “mandate a further visual display or image.” The court invalidated the claims under *Bilski* that were both not transformative and not tied to a particular machine.<sup>56</sup>

The court explained that the machine-or-transformation test is one “for determining whether a process claim is ‘tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself.’”<sup>57</sup> It added that “[t]he machine-or-transformation test solves the issue of inappropriate preemption....”<sup>58</sup> The court noted that the machine-or-transformation test accomplishes this result, in part, based on “[t]wo corollaries”: (1) “post-solution and [(2)] field-in-use limitations are insufficient to make a claim to a fundamental principle process patent eligible.”<sup>59</sup> It cited prior precedent for what may constitute postsolution activities: “a simple recordation step in the middle of the claimed process”; and “a presolution step of gathering data....”<sup>60</sup> The court interpreted the Federal Circuit’s discussion of *In re Abele* in *Bilski* as providing two requirements for a claimed process to be transformative: “it should be (1) limited to transformation of specific data, and (2) limited to a visual depiction representing specific objects or substances.”<sup>61</sup> Based on its interpretation of *Bilski*, the court analyzed the representative claims at issue under the machine-or-transformation test.<sup>62</sup> It found that all the claims at issue failed the “machine” prong of the test, as the claims “state[d] no particular machine [that] is required for [the claimed] algorithm....”<sup>63</sup> Notably, the court explained that its interpretation of “comparator”—“[a] device (or

collection of operations, as in software)” —could include software per se and, therefore, a “comparator” was not a “particular” machine.<sup>64</sup> In other words, the court expressed that “the potential for use on a machine is not the equivalent of being tied to a machine,” moreover, “the term ‘device’ is not synonymous with machine.”<sup>65</sup>

In its transformation analysis, the court found that the claims at issue that recite “the production of an image as a result of the comparison numbers” are transformative.<sup>66</sup> Specifically, “the comparison between the halftoned color images and each of the color planes against a mask which is designed to produce visually pleasing dot profiles to finally produce a halftoned image” or “the comparison of a halftoned image against an array, or an ordering of numbers, and that the array produces a pattern when it undergoes another comparison through thresholding, and that the step of comparing those numbers produces a halftones image” claim “a transformation of specific data” that “is further limited to a visual depiction which represents specific objects.”<sup>67</sup> In addition, the court found that even the “recitation of the production of an image as a result of the comparison of numbers” rose to the level of performing a “transformation.” However, the claims at issue that merely “assembl[ed] ... gray scale images to generate final dot profiles” were not transformative because they did not “mandate a further visual display or image....”<sup>68</sup>

On appeal and argued before the Federal Circuit on June 9, 2010, we believe that some of the questions and statements posed by the panel of judges suggest that the Federal Circuit may be poised to clarify the scope of patentable subject matter, where a claim fails to recite visually displaying generated profiles, to include the “virtual” display of structured data possibly drawing upon legal analysis of the kind discussed in the following section of this article.<sup>69</sup>

## **Running a Business on a Computer to Create Data Representing Physical and Tangible Objects May Be Enough**

### ***Electronic Transformation of Data Representing Physical and Tangible Objects Is Patentable***

The *Morse* case is one of the bedrock cases in US patent jurisprudence. In his original 1837 petition to the Commissioner of Patents, Morse described his fifth claim as: “[a] dictionary or vocabulary of words, numbered and adapted to this system of telegraph.”<sup>70</sup> In the 1848 reissue of the patent, Morse’s fifth claim recited “the system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, for numerals, letters, words,



or sentences, substantially as herein set forth and illustrated, for telegraphic purposes.”<sup>71</sup> In examining Morse’s fifth claim, the Supreme Court held: “We perceive no well-founded objection . . . to his right to a patent for the first seven inventions set forth in the specification of his claims.”<sup>72</sup> In other words, the fifth claim recited patentable subject matter.

The Morse system claim was patentable arguably because the recited system represented physical and tangible objects (e.g., opening or closing of a telegraphic switch) despite arguably recited without any physical link (i.e., any physical connection) to the physical and tangible objects. The clue to the patentability of software may thus lie in the “reaching out and touching” by the electrical signals generated by the software of physical and tangible objects whether physically as in *Diehr* (i.e., the electrical signals are connected to the physical and tangible objects of a “mold” and a “press” through the steps of “loading of the mold” and “opening of the press”) or virtually, that is to say, by electrical signals generated by the software instructions representing physical and tangible objects as in *Morse*.

### ***Data Representing Physical and Tangible Objects and Their Respective Structures May Be Patentable Even without a Visual Depiction of the Data***

In *Abstrax, Inc. v. Dell, Inc.*,<sup>73</sup> claim was directed generally: “a method for assembling a product having components wherein the variable portions of a set of abstract assembly steps are resolved in accordance with data from a desired configuration.” Claim 10 recites:

a method, performed by a computer, for assembling a product having components, the method comprising the steps of:

- (a) providing one or more abstract assembly steps for assembling the product, the abstract assembly steps containing variable portions for assembling the product with potentially different configurations, the variable portions including variable parameters capable of representing different component information;
- (b) obtaining a configuration model corresponding to a requested configuration of the product, the configuration model including one or more of the component information lines corresponding to one or more components utilized in the requested configuration; and
- (c) applying the configuration model to the abstract assembly steps provided for assembling the

product by inserting component information from the component information lines into the variable parameters of the variable portions of the abstract assembly steps to produce one or more assembly instructions for assembling the product to have the requested configuration.<sup>74</sup>

The court held the claim patentable because the data in the claim “represents physical and tangible objects and their respective structures” because it concerns “how parts, pieces, or components of a product fit together and how they are configured . . . the raw data is transformed into assembly instructions for assembling the product to have the requested configuration.”<sup>75</sup>

In its transformation analysis, the court explained that the issue is “what sorts of things constitute ‘articles’ such that their transformation is sufficient to impart patent-eligibility under § 101.”<sup>76</sup> Furthermore, the court noted that “today’s ‘articles’ are often electronic signals and electronically manipulated data....”<sup>77</sup> Rejecting the accused infringer’s argument that the data at issue was too broadly claimed, the court also rejected the accused infringer’s argument that the claim did not contain a sufficient “visual depiction.”<sup>78</sup> “Here, the raw data is transformed into assembly instructions for assembling the product to have the requested configuration.”<sup>79</sup> Notably, the court mentioned that “transformation of ‘configuration model’ impose[d] meaningful limits on the claim’s scope” because both parties proposed the term “configuration model” for claim construction.<sup>80</sup> (“Ostensibly, a claim term that both parties feel warrants construction would impose limits on a claim and would not be merely extra-solution activity.”) As a result, the court found the claims at issue to be patentable subject matter.

We believe the court’s finding of the *Abstrax* claims to be patentable subject matter to be faithful to the Supreme Court’s concern that a claim not preempt a fundamental principle. However, the applicability of the transformation test in arriving at that finding may be at odds with the guidelines on what amounts to a “transformation” under the *Benson-Flook-Diehr* precedent.

In *Benson*<sup>81</sup> as in *Diehr* and *Bilski*<sup>82</sup> the Court explained that: “[t]ransformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.” (emphasis added) In *Abstrax*, the method claims amounted to no more than the generation of “signals” as the court observed in explaining that “today’s ‘articles’ are often electronic signals and electronically manipulated data....”<sup>83</sup> *Benson* and *Flook* likewise effectively both claimed the generation of “signals” whose form changed from step to step of the claim and the Court found those signals to be non-transformative

since they never caused the electrical signal to be other than an electrical signal (e.g., the electrical signal never changed a physical or tangible object into a different state or thing). In contrast, in *Diehr* the signals were transformative because they changed a physical and tangible object such as the “mold” and the “press” when they triggered the “loading of the mold” and the “opening of the press.” On this precedent, it is hard to reconcile the *Abstrax* court’s analysis that the generation of electrical signals amounts to a transformation with the *Benson-Flook-Diehr* guidelines that suggest that a transformation involve a change in a physical and tangible object.

As the Court in *Benson* explained and the Court in *Bilski* has echoed—the machine-or-transformation test was never intended to be exhaustive or exclusive.<sup>84</sup> We believe that the claims in *Abstrax* may be one of those types of process claims that qualify for patentability outside the machine-or-transformation test that the *Abstrax* court was constrained to use by Federal Circuit precedent. We believe that patentability of the claims in *Abstrax* may lie in the existence of electrical signals generated by the software that “reach out and touch” physical and tangible objects (e.g., the assembly instructions for assembling the product to have the requested configuration) virtually, that is to say, by electrical signals generated by the software instructions *representing* physical and tangible objects (e.g., in this case, the positioning of those objects in a configuration). In *Diehr*, it was in the *physical* “reaching out and touching” of the physical and tangible objects of the “mold” and the “press” by the electrical signals generated by the software through the steps of “loading of the mold” and “opening of the press” that gave patentability to the claims; the Court explaining these steps as “transforming” articles or materials to a “different state or things.” Where, as in *Abstrax*, the generated electrical signals do not actually (i.e., physically) transform physical or tangible objects into a different state or thing, it is in the virtual “reaching out and touching” of the physical and tangible objects that may make the claims narrow enough to prevent preemption of fundamental principles and so deserving of patent protection.<sup>85</sup>

### ***No Adoption of a Broad Exclusion over Software or Any Other Such Category of Subject Matter beyond the Exclusion of Claims Drawn to Fundamental Principles***

At issue in *Versata Software, Inc. v. Sun Microsystems, Inc.*,<sup>86</sup> are two software patents that allowed consumers to select from a variety of configuration options, when ordering a product online. The software allowed the

consumer to select only those combinations of options that would yield a workable product. The claims were directed generally to “a computer-based configuration system” for modifying configuration instances in a computer model. The accused infringer filed a motion for judgment on the pleadings, based on the recently-issued (CAFC) *Bilski* decision. Claim 1 recited:

A method of configuring a system in a computer system comprising the steps of:

1. defining a structural model hierarchy comprised of composite and container hierarchies and port relationships substructures; instantiating in said computer system a configuration instance;
2. modifying said configuration instance in response to a request by creating in said configuration Instance instances of one or more model elements based on said request;
3. storing said modifications in a list of modifications; examining said instances to determine if a constraint exists;
4. satisfying in said computer said constraint when said constraint exists;
5. satisfying in said computer a component constraint of said component hierarchy when said instances are constrained by said component constraints;
6. satisfying in said computer container constraints of said container hierarchy when said instances are constrained by said container constraints;
7. satisfying in said computer connection constraints of said port relationship when said instances are constrained by said connection constraints;
8. committing said modifications to said configuration instance and removing said modifications from said modifications list when no constraint exists and when all constraints associated with said instances are satisfied; and
9. removing said modifications from said configuration instance and said modifications list when any constraint associated with said instances is not satisfied.

The court denied the motion, noting that the Federal Circuit declined to adopt a broad exclusion over software or any other such category of subject matter beyond the exclusion of claims drawn to fundamental principles ...[and noted] the process claim at issue in the appeal is not, in any event, a software claim. Thus, the facts here would be largely unhelpful in illuminating the distinctions between those software claims that are patent-eligible and those that are not.



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## Running a Business on a Computer to Create Data Representing Abstract Objects May Not Be Enough

We believe that from the *Benson-Flook-Diehr* spectrum of software can be gleaned the threshold for software patentability; *to wit, the existence of a link of the software to a physical and tangible object*. The software in *Diehr* was held patentable because it connected (more specifically, the electrical signals generated by the software connected) to the physical and tangible objects of a “mold” and a “press” through the steps of “loading of the mold” and “opening of the press.” In the case of the claims in *Diehr* and as the Court observed, this connection was transformative. Patentability in *Flook* failed because the claims were without any such link.

In the context of this threshold, the *dicta* of the Court in *Bilski* explaining that “nothing in today’s opinion should be read as endorsing interpretations of §101 that the Court of Appeals for the Federal Circuit has used in the past. See, e.g., *State Street*, 149 F. 3d, at 1373; *AT&T Corp.*, 172 F. 3d, at 1357,”<sup>87</sup> may take on even greater importance. The *dicta* may be more than a tacit statement that *State Street* and *AT&T* were judged patentable on an erroneous standard—one based on practical application by producing “a useful, concrete and tangible result”—as opposed to the *Bilski* standard that a claim should be narrow enough to encompass only a particular application of a fundamental principle rather than to preempt the principle itself. The *dicta* may call into question the very patentability of the *State Street* and *AT&T* subject matter.

The manipulation of objects such as dollar amounts and other financial items in *State Street* is starting to look more like the manipulation of commodity contracts in *Bilski*, which the *Bilski* Court found to be the manipulation of abstract objects preempting a fundamental idea and so unpatentable. Specifically, claim 1 in *State Street* recited a data processing system for managing a financial services configuration of a portfolio having a computer running a program that essentially generated, aggregated, and correlated data regarding assets in a portfolio and each of funds therein from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio. The Federal Circuit held that “the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces “a useful, concrete and tangible result”—a final share price momentarily fixed for recording and reporting

purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.”<sup>88</sup> By its *dicta* on *State Street* and *AT&T*, the *Bilski* Court may be suggesting that *State Street*’s financial business method and objects like dollar amounts and other financial items are abstract objects preempting a fundamental idea and so are unpatentable “process claim” subject matter, not unlike the abstract objects on which patentability in *Bilski* was decided. They do not become patentable subject matter simply by its implementation on a computer.<sup>89</sup>

On the other hand, the manipulation of a “message record” as recited in *AT&T* including primary interexchange carrier (PIC) indicator information arguably represents physical and tangible objects (e.g., interexchange carriers). Consistent with the teachings in *Bilski*, *AT&T* software would appear to be manipulating non-abstract objects encompassing only a particular application of a fundamental principle rather than pre-empting the principle itself and so patentable. Specifically, claim 1 of *AT&T* recited:

[a] method for use in a telecommunications system in which interexchange calls initiated by each subscriber are automatically routed over the facilities of a particular one of a plurality of interexchange carriers associated with that subscriber, said method comprising the steps of: generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers.

Unlike a “message record” which without more may be an abstract object the “message record” recited in *AT&T* includes primary interexchange carrier (PIC) indicator information arguably representing physical and tangible objects (e.g., interexchange carriers). The generation of virtual non-abstract objects (i.e., representations of physical and tangible objects) as may be done in *AT&T* may hold the clue to the patentability of computer implemented business methods that unlike in *Diehr* are not *physically* linked to a physical and tangible object.

The lesson from *State Street* and *AT&T* through the prism of *Bilski* may be that electronic transformation of data representing physical and tangible objects is likely patentable even if the software link to the physical and tangible object is *virtual* as in *AT&T* (i.e., the electrical signals generated by the software are *only a representation* of physical and tangible objects) and not simply *physical*

as in *Diehr* (i.e., the electrical signals generated by software *physically touch the physical and tangible objects*). It may matter less *how* the signals generated by the software reach out and touch the physical and tangible objects *only that they do* (i.e., they reach out and touch the physical and tangible objects physically or virtually).

As previously discussed, the Supreme Court may have suggested as much in *The Morse Case* in which the Supreme Court held patentable Morse's fifth claim reciting "the system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, for numerals, letters, words, or sentences, substantially as herein set forth and illustrated, for telegraphic purposes."<sup>90</sup> The Morse system claim was patentable arguably because the recited system represented physical and tangible objects (e.g., opening or closing of a telegraphic switch) despite arguably recited without any *physical link* to a physical and tangible object. The clue to the patentability of software may thus lie in the "reaching out and touching" by the electrical signals generated by the software of physical and tangible objects whether *physically* (i.e., actually) as in *Diehr* or *virtually*, that is to say, by electrical signals generated by the software instructions representing physical and tangible objects.

## Suggested Strategies for Claiming Software Post-Bilski

On the foregoing analysis, a suggested strategy for drafting claims on software methods in the unsettled aftermath of the *Bilski* decision is to:

1. Strictly scrutinize recited steps that are central to the invention. Steps that recite "token use of technology only" will not carry the day.
2. Be sure central steps are not abstract ideas in order to comply with *Bilski*. For software inventions, draft claims to look more like *Diehr* than *Benson*.
3. Try to claim a manipulation or modification of a substance. For software inventions, manipulate data representing physical and tangible objects. Particular computer architecture should be linked to a physical and tangible object where possible. The link may be a physical link to the physical and tangible object *a la Diehr* or a virtual link through data representing physical and tangible objects through computer architecture.
4. The manipulation should be not a manipulation of an abstract idea but should change the state or thing of the physical and tangible object either physically or virtually. Avoid *Benson*-like manipulations of abstract objects.
5. Introduce claims of differing scope with intermediate and narrow claims introducing even more significant links; be they physical links to physical and tangible objects or virtual links through data representations of physical and tangible objects.
6. Use the foregoing principles when construing issued claims in counseling, monetization, and litigation.

## Conclusion

In *Bilski*, The Supreme Court affirmed the judgment of the Federal Circuit in rejecting the *Bilski* patent claims but under the Court's precedents on the unpatentability of abstract ideas and not on the machine-or-transformation test adopted by the Federal Circuit. In the aftermath of *Bilski*, now more than ever, a practitioner needs to understand what structure or process makes a post-solution activity not insignificant. For software patents, it is no longer enough to tie the software to a computer or the Internet. Software claims should recite computer architecture specially programmed and recite physical or virtual links to physical and tangible and not abstract objects.

1. Part 1 appeared in *IP Litigator*, Vol. 16, No. 5, September/October 2010.  
2. In re *Bilski*, No. 08-964, slip op. (S.Ct. Jun. 10, 2010); \_\_\_ U.S. \_\_\_ (2010).  
3. *Diehr*, 450 U. S. 192 (1981).  
4. *Patton*, 127 F.2d at 326-327.  
5. In re *Maucorps*, 609 F.2d 481 (CCPA 1979).  
6. In re *Meyer*, 688 F.2d 789 (CCPA 1982).  
7. In re *Ferguson*, 558 F.3d 1359 (Fed. Cir. 2009).  
8. *Fort Props., Inc. v. Am. Master Lease, LLC*, 609 F. Supp. 2d 1052 (C.D. Cal. 2009).  
9. See *Diehr*, 450 U.S. at 192 n.14 (Patentability cannot be established by the "token" use of technology.); *Gottschalk v. Benson*, 409 U.S. 63, 64-66 (1972) (finding unpatentable a method of programming a general purpose digital computer to convert signals from binary-coded decimal to pure binary form). *Bilski Meyer* dissent. P. 106.  
10. See *Benson*, 409 U.S. at 67 (finding a process unpatentable where "[t]he mathematical procedures [could] be carried out in existing computers long in use, no new machinery being necessary").  
11. *Fuzzysharp Techs. Inc. v. 3D Labs Inc., Ltd.*, No. C 07-5948 SBA, 2009 WL 4899215, at \*1 (N.D. Cal. Dec. 11, 2009).  
12. *Fuzzysharp Techs. Inc. v. 3D Labs Inc., Ltd.*, No. C 07-5948 SBA, 2009 WL 4899215, at \*1 (N.D. Cal. Dec. 11, 2009).  
13. *Id.*, at \*4.

14. *Id.*  
15. *Id.* (quoting *Bilski*, 545 F.3d at 961) (emphasis in original).  
16. *Id.*  
17. See *id.* at \*4-5 (citing *DealerTrack, Inc.*, 2009 WL 2020761, at \*3; *CyberSource*, 620 F. Supp. 2d at 1077; Ex Parte David Myr, 2009 WL 3006497, at \*8-9 (BPAI Sept. 18, 2009); Ex Parte Nick M. Mitchell and Gary S. Sevitsky, 2009 WL 460662, at \*6 (BPAI Feb. 23, 2009); Ex Parte Sandeep Nawathe and Vaishali Angal, 2009 WL 327520, at \*4 (BPAI Feb. 9, 2009)) ("Though the calculations may be 'performed on a computer,' they are not tied to any particular computer.".)  
18. See *id.* at \*5.  
19. *DealerTrack, Inc. v. Huber*, 657 F. Supp. 2d 1152, 1153 (C.D. Cal. July 7, 2009).  
20. *Id.* at 1155-1156.  
21. *Id.* at 1156.  
22. *Id.* at 1155 (quoting In re *Alappat*, 33 F.3d at 1545).  
23. *Id.* (citing *CyberSource, Inc.*, 620 F. Supp. 2d at 1077; Ex parte Gutta, No. 2008-3000 at 5-6, 2009 WL 112393 (BPAI Jan. 15, 2009); Ex parte Nawathe, No. 2007-3360, 2009 WL 327520, at \*4 (BPAI Feb. 9, 2009); Ex parte Cornea-Hasegan, No. 2008- 4742 at 9-10, 2009 WL 86725 (BPAI Jan. 13, 2009)).  
24. *Id.*  
25. See *id.* at 1154.



26. See *id.* at 1156.
27. *Accenture Global Servs. GmbH v. Guidewire Software Inc.*, — F. Supp. 2d — 2010 WL 771595, at \*2 (D. Del. 2010).
28. *Id.*, at \*17.
29. See *id.*
30. *Id.* (citing *Every Penny Counts, Inc.*, 2009 U.S. Dist. LEXIS 53626, at \*6; *Research Corp. Tech., Inc.*, 2009 WL 2413623 at \*17)
31. *Id.*
32. *Id.* at \*17.
33. *Accenture*, p. 35.
34. *Accenture*, p. 36 [see summary of case on p. 36].
35. *Id.* at 1077 (citing *Ferguson*, 558 F.3d at 1366).
36. *Id.* (citing *Bilski*, 545 F.3d at 961).
37. *Id.*
38. See *id.* at 1076 (“the written description includes nary a detail about the ‘one or more processors’ recited by claim 2”).
39. *Id.* at 1076-78.
40. *Diehr*, supra at 192.
41. E.g., *Grams*, 888 F.2d at 840 (step of “deriv[ing] data for the algorithm will not render the claim statutory”); *Meyer*, 688 F.2d at 794 (“[data-gathering] step[s] cannot make an otherwise nonstatutory claim statutory”).
42. *Grams*, 888 F.2d at 837, 841.
43. *Id.* at 839-41.
44. *Id.* at 839-40.
45. *Abele*, 684 F.2d at 909.
46. *Id.*; see also *In re Meyer*, 688 F.2d *In re Abele*, 684 F.2d 902 (CCPA 1982) 789, 792-93 (CCPA 1982) (process claim involving undefined “complex system” and indeterminate “factors” drawn from unspecified “testing” not patent-eligible). (cf. *Abele* where one dependent claims was drawn to patent-eligible subject matter where it specified that “said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.” *Abele*, 684 F.2d at 908-09.
47. *Id.*, supra, at 908-09.
48. *Every Penny Counts, Inc. v. Bank of America Corp.*, No. 2:07-cv-042, slip op. (M.D.Fla. May 27, 2009)
49. *Id.* at p.2.
50. *Id.* at 4-5
51. *Id.* at 5 (quoting *Bilski*, 545 F.3d at 961-62).
52. *Id.*
53. *Id.*
54. See also *DealerTrack, Inc. v. Huber*, 657 F. Supp. 2d 1152, 1153 (C.D. Cal. July 7, 2009) involving claims directed to “a computer aided method of managing a credit application” which the Court held unpatentable. The court noted that the patent “does not specify precisely how the computer hardware and database are ‘specially programmed,’ and the claimed central processor is nothing more than a general purpose computer that has been programmed in some unspecified manner.”
55. *Research Corp. Techs. v. Microsoft Corp.*, No. CV-01-658, 2009 WL 2413623. (D. Ariz. July 28, 2009).
56. See *id.*, at \*18.
57. *Id.*, at \*6 (quoting *Bilski*, 545 F.3d at 954).
58. *Id.*, at \*8 (citing *Bilski*, 545 F.3d at 957).
59. *Id.* at \*7.
60. *Id.* (citing *In re Schrader*, 22 F.3d 290, 294 (Fed. Cir. 1994); *In re Grams*, 888 F.2d 835, 839-40 (Fed. Cir. 1989)).
61. *Id.*, at \*9.
62. See *id.*, at \*11-17.
63. *Id.*, at \*13.
64. *Id.*, at \*17 (citation omitted).
65. *Id.*
66. *Id.*, at \*15.
67. *Id.*
68. *Id.*, at \*10.
69. Following submission of this article, on December 8, 2010, the Federal Circuit *indeed* upheld the patentability of the claims that merely “assembl[ed] ... gray scale images to generate final dot profiles” but that were not transformative because they did not “mandate a further visual display or image”; *but* under arguably yet a new standard for determining the eligibility of software processes for patent—to wit, a “functional and palpable applications” test. See *Research Corp. v. Microsoft Corp.* appeal, p. 15. (Fed. Cir. 2010).
70. *O'Reilly v. Morse*, 56 U.S. 62, 82 (1853).
71. *Id.* at 86.
72. *Id.* at 112.
73. *Abstrax, Inc. v. Dell, Inc.*, No. 2:07-CV-221-DF-CE, 2009 WL 3255085, at \*2 (E.D. Tex. Oct. 7, 2009).
74. *Id.*, at \*2-3.4.
75. *Abstrax* at \*2 (E.D. Tex. Oct. 7, 2009). (The claims at issue in *Abstrax, Inc.* were “directed to a method for assembling a product having components wherein the variable portions of a set of abstract assembly steps are resolved in accordance with data from a desired configuration.”).
76. *Id.* at \*3 (quoting *Bilski*, 545 F.3d at 962).
77. *Id.* at \*3.
78. *Id.* at \*4.
79. *Id.*
80. *Id.*
81. *Benson*, supra at 70.
82. *Diehr*, 450 U.S. at 185, *Bilski*, at 7-8.
83. *Id.* at \*3.
84. *Id.*; *Bilski* at 8, citing *Flook*, 437 U.S. 584, 588, n. 9.
85. It could be argued that even though the electrical signal in *Abstrax* does not physically transform a physical and tangible object, the electrical signal nonetheless satisfies the “transformation” test because the signal does in fact virtually transform that physical and tangible object. This in fact amounts to one form of a link to a physical and tangible object that we believe is consistent with the precedent—towit, a virtual link, as opposed to the existence of a physical link to the physical and tangible object as was the case in *Diehr*. As the Court in *Benson* explained and the Court in *Bilski* has echoed: the machine-or-transformation test was never intended to be exhaustive or exclusive. We believe that an analysis based on a virtual link squares better with the *Benson-Flook-Diehr* precedent than to limit virtual representations of a physical and tangible object based on the existence of a transformation.
86. *Versata Software, Inc. v. Sun Microsystems, Inc.*, No. 2-06-CV-358 (TJW), Memorandum Opinion & Order, Dkt. No. 90, at p. 2 (E.D. Tex. Aug. 19, 2008).
87. *Bilski*, supra, at 16.
88. *State Street*, 149 F. 3d at 1373.
89. *Bilski* applies to “process claims” and *State Street* involved a “system” claim which the district court construed to be a “process” but the Federal Circuit construed to be a “machine.” *Bilski* impacts business methods (process claims) claiming *State Street* -like financial business methods and objects like dollar amounts and other financial items which may be deemed to be *Bilski*-like abstract objects. *Bilski* could arguably even spill-over to affect the *State Street*-like “machine” claims if the claimed computer structure in those “machine” claims is found to be insignificant. (“[t]o hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.” *Diehr*, supra.
90. *Id.* at 86.