PATENT LAW — PATENTABLE SUBJECT MATTER — FEDERAL CIRCUIT HOLDS THAT CERTAIN SOFTWARE METHOD CLAIMS ARE PATENT INELIGIBLE. — Bancorp Services, L.L.C. v. Sun Life Assurance Co. of Canada (U.S.), 687 F.3d 1266 (Fed. Cir. 2012).

To encourage innovation,\(^1\) patent eligibility is defined broadly\(^2\) by the categories identified in § 101 of the Patent Act of 1952.\(^3\) The Supreme Court has identified three implicit exceptions to patent eligibility — “laws of nature, physical phenomena, and abstract ideas”\(^4\) — to preserve free public access to fundamentally important concepts.\(^5\) Patents that involve processing otherwise-abstract ideas on computers have proven difficult to evaluate under § 101 and the abstract-idea exception. In determining the patent eligibility of a method claim reciting the use of a computer as a limitation, the Federal Circuit has looked to whether the computer plays “a significant part” in the invention or is merely “an obvious mechanism for permitting a solution to be achieved more quickly.”\(^6\) However, the court has not established a clear rule for determining whether a computer plays a “significant part” in performing a claimed software method. Recently, in Bancorp Services, L.L.C. v. Sun Life Assurance Co. of Canada (U.S.),\(^7\) the Federal Circuit considered the patent eligibility of claims describing a method and system for “determining the values required to manage a stable value protected life insurance policy,”\(^8\) and held that the use of a computer was not sufficiently “integral to the claimed invention” to avoid patent ineligibility under the abstract-idea exception.\(^9\) Bancorp illustrates that the Federal Circuit’s current approach to patent eligibility of software methods is indeterminate and can lead to seemingly con-

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1 See Mark A. Lemley et al., Life After Bilski, 63 STAN. L. REV. 1315, 1326 (2011) (“The core mission of patent law is to create incentives for the production, disclosure, and commercialization of socially valuable inventions.”).


5 See Bilski, 130 S. Ct. at 3253.

6 SiRF Tech., Inc. v. Int’l Trade Comm’n, 601 F.3d 1319, 1333 (Fed. Cir. 2010).

7 687 F.3d 1266 (Fed. Cir. 2012).

8 Id. at 1270.

9 Id. at 1278.
tradictory results in similar cases, producing ex ante uncertainty surrounding patentability and therefore chilling innovation. Rather than continuing this approach, the Federal Circuit should adopt a rule, derived from its existing jurisprudence, that any software implementation of a method performable without a computer is patent eligible if the computer provides some functional benefit other than efficiency.

Bancorp owned U.S. Patents 5,926,792 (the '792 Patent) and 7,249,037 (the '037 Patent), which cover systems and methods for managing assets known as stable value protected investment plans. The patented methods “provide[] a computerized means for tracking the book value and market value of the policies” and disclose equations that can be used to “calculate the credits representing the amount the [third party] must guarantee and pay should the policy be paid out prematurely.

In 2000, Bancorp sued Sun Life Assurance Company of Canada (U.S.) (Sun Life) for infringement of the '792 Patent and, in 2009, added a claim for infringement of the '037 Patent. Sun Life moved for summary judgment, arguing that the asserted patents were invalid under § 101 for covering patent-ineligible subject matter. The U.S. District Court for the Eastern District of Missouri granted Sun Life’s motion, holding that both the system and method claims described patent-ineligible subject matter. The court applied the traditional “machine-or-transformation” test, which permits method patents only where they are reduced to application on machines or perform a fundamental transformation. Here, the court found both the machine

10 Id. at 1269. These assets comprise insurance policies that are paired with additional investments whose market value may fluctuate over time. To provide greater certainty in accounting for these assets, a third party guarantees an asset at a particular book value and receives a fee in exchange for assuming the risk that the book value may be higher than the market value when the plan owner redeems the asset. Id. at 1269–70.
11 Id. at 1270 (alteration in original) (quoting Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1369 (Fed. Cir. 2004)) (internal quotation mark omitted). In Hartford, Bancorp asserted the '792 patent against a separate defendant. The district court held the patent invalid for indefiniteness, but the Federal Circuit reversed and remanded, holding that the patent was not indefinite. Hartford, 359 F.3d at 1376.
12 Bancorp, 687 F.3d at 1270 (quoting Hartford, 359 F.3d at 1369) (internal quotation mark omitted).
13 Id. at 1272.
14 Id.
15 Id. at 1272–73. The district court found no “meaningful distinction” between the system and method claims, and interpreted all the claims at issue as method claims. Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.), 771 F. Supp. 2d 1054, 1059 (E.D. Mo. 2011).
16 Bancorp, 771 F. Supp. 2d at 1061. The Federal Circuit once applied this analysis as the sole test of patent eligibility for method claims, but the Supreme Court held in Bilski that the machine-or-transformation test is not the exclusive test for patent eligibility under § 101. Bilski v. Kappos, 561 U.S. 583, 601 (2010). However, lower courts have narrowed Bilski’s impact by continuing to rely on the test as a “useful tool” in analyzing the patent eligibility of method claims. See, e.g., Bancorp, 771 F. Supp. 2d at 1061; see also Lemley et al., supra note 1, at 1319–22.
prong and the transformation prong unsatisfied: the machine prong because “the specified computer components are no more than ‘object[s] on which the method operates,’” and the transformation prong because the claims at issue did not transform raw data into anything other than more data. The court also noted that the claimed steps could be performed manually, albeit less efficiently.

The Federal Circuit affirmed. Writing for a unanimous panel, Judge Lourie held that the asserted patents were invalid under § 101 as directed toward abstract ideas. First, the court construed the system claims to require computers. Regarding the method claims, the court noted that the patents included independent claims describing general methods for managing stable value protected insurance plans, and dependent claims that required each independent claim to be “performed by a computer.” The court held that the independent claims did not require the use of a computer, and that the dependent claims did require computer use.

The court next turned to an analysis of patentability under § 101, concluded that “the claims cover no more than abstract ideas,” and held that computer implementation of those ideas “does not impose meaningful limits on the scope of those claims.” Having decided that the computer limitations were not integral to the patents’ goal of managing insurance policies, the court characterized the remaining claims as describing “mere mathematical computation.” It noted that computer implementation may shift an abstract process from patent ineligibility to patent eligibility, but only when a computer is “integral to

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18 Id. at 1066.
19 Id. at 1065.
20 *Bancorp*, 687 F.3d at 1281.
21 Judge Lourie was joined by Judges Prost and Wallach.
22 *Bancorp*, 687 F.3d at 1281.
23 Id. at 1274.
24 Id. at 1275. Dependent claims add limitations to independent claims within the same patent and are always narrower in scope than the independent claims to which they refer.
25 Id.
26 The court did not place significant weight on the form of the claims, recognizing that the system and method claims at issue described virtually identical subject matter. *Id.* at 1277; see also, e.g., CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1374 (Fed. Cir. 2011) (“Regardless of what statutory category . . . a claim’s language is crafted to literally invoke, we look to the underlying invention for patent-eligibility purposes.”).
27 *Bancorp*, 687 F.3d at 1277. The court drew an analogy to the claims invalidated in *Bilski*, concluding that the idea of managing insurance assets (as in Bancorp’s patents) and the idea of hedging risk in energy markets (as in *Bilski*) are similarly abstract. *Id.* at 1278.
28 Id. at 1278.
29 Id. at 1280.
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the claimed invention.” 30 Though the court did not set out a clear rule for determining whether a computer is integral to a claimed invention, it did note that “the fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.” 31

Though the Federal Circuit correctly identified the claims at issue in Bancorp as patent-ineligible expressions of an abstract idea, its analysis highlights the indeterminacy of its current test, which can lead to seemingly contradictory results in similar cases. This indeterminacy may chill innovation by creating uncertainty regarding the boundaries of patent-eligible subject matter. By contrast, the court could reduce ex ante uncertainty, reconcile some of its otherwise contradictory holdings, and preserve the Supreme Court’s broad interpretation of § 101 patent eligibility by implementing a clear rule granting patent eligibility to any computer implementation of a method that could otherwise be performed manually, so long as the computer implementation provides a functional benefit other than efficiency.

The Federal Circuit’s current test requires the court to examine whether a claim’s computer limitations are sufficiently “integral” to the patent to render its otherwise-abstract subject matter patent eligible. 32 One potential understanding of “integral” would give the word its ordinary meaning of “essential to completeness.” 33 However, it would be difficult to find any software method for which a computer is truly essential. Fundamentally, computers are very fast calculators that can store and further manipulate the results of their calculations, and it would theoretically be possible (though heinously inefficient) to duplicate those calculations by hand. By contrast, if integrality is understood only to require that a computer be necessary to perform a method in a practicable manner, the test could permit the patenting of software that does nothing more than quickly solve equations that would otherwise require impractically tedious manual calculation. Such an interpretation would be in tension with patent law’s fundamental stance against fencing off abstract ideas. 34 The Federal Circuit has not formally adopted either of these problematic understandings of integrality, but instead has adopted an incompletely theorized 35 black

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30 Id. at 1278 (citing SiRF Tech., Inc. v. Int’l Trade Comm’n, 601 F.3d 1319, 1333 (Fed. Cir. 2010)).
31 Id.
32 See id.
34 See Recent Case, 125 HARV. L. REV. 2167, 2168 (2012) (discussing Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323 (Fed. Cir. 2011), and noting that computational complexity does not help distinguish abstract from nonabstract software).
35 But see Cass R. Sunstein, Incompletely Theorized Agreements, 108 HARV. L. REV. 1733 (1995). Professor Sunstein observes that theoretically incomplete justifications for particular out-
box approach — allowing judges, in a conclusory fashion, to find a computer to be “integral” — that does not lead to predictable outcomes.\(^{36}\)

For example, just two weeks prior to its decision in \textit{Bancorp}, the Federal Circuit held in \textit{CLS Bank International v. Alice Corp.}\(^{37}\) that a computer-enabled expression of an abstract idea was patentable.\(^{38}\) In doing so, however, the court did not provide a detailed explanation for its finding of integrality beyond the conclusory statement that “[t]he claim limitations can be characterized as being integral to the method.”\(^{39}\) Judge Prost dissented, taking issue with the majority’s failure to explain the meaning of “integral” in the context of § 101.\(^{40}\) There does not appear to be a clear rule of decision stating why the computers in \textit{CLS Bank} were sufficiently integral while the computers in \textit{Bancorp} were not. Both cases dealt with the same type of patent claim — those that implement methods on computers that could theoretically be performed without computers\(^{41}\) — and therefore appear difficult to distinguish under the current doctrine.\(^{42}\) Indeed, the Federal Circuit recently vacated its previous opinion in \textit{CLS Bank} and granted CLS Bank’s motion for rehearing en banc, specifically requesting briefing comes can help facilitate agreement among actors who may not agree on abstract theoretical points, but who agree on a particular outcome. \textit{Id.} at 1735–36. However, while incompletely theorized agreements may be optimal for many reasons in an adjudicative context where moral and political values are at stake, patent law exists primarily to support the useful arts by promoting innovation, \textit{see} Lemley \textit{et al.}, \textit{supra} note 1, at 1329, and only secondarily to act as a framework for dispute resolution.


\(^{38}\) \textit{Id.} at 1356. The claims in \textit{CLS Bank} covered a “computerized trading platform for exchanging obligations in which a trusted third party settles obligations . . . so as to eliminate ‘settlement risk.’” \textit{Id.} at 1343. When there is a time gap between an exchange agreement and the actual exchange, there is a risk that one of the parties will no longer have the necessary resources to meet its half of the agreement at the time of the exchange. The asserted patents provided a method for using a trusted third party computer platform to track the parties’ resources between the forming of the agreement and the exchange, and for ensuring that neither party incurs additional obligations that would prevent them from meeting obligations already incurred. \textit{See id.}

\(^{39}\) \textit{Id.} at 1355.

\(^{40}\) \textit{Id.} at 1357 (Prost, J., dissenting).

\(^{41}\) \textit{See id.} (noting that the concept of using financial intermediaries to facilitate exchange is “literally ancient”); Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.), 771 F. Supp. 2d 1054, 1065 (E.D. Mo. 2011) (“[A]lthough it would be inefficient to do so, the steps for tracking, reconciling and administering a life insurance policy with a stable value component can be completed manually.”).

\(^{42}\) The majority opinion in \textit{Bancorp} did distinguish \textit{CLS Bank} on the grounds that the patents in \textit{CLS Bank} involved a “very specific application’ of the inventive concept,” while the claims in \textit{Bancorp} did not. \textit{Bancorp}, 687 F.3d at 1280. However, it is not clear from the respective opinions how the claims in \textit{CLS Bank} were significantly more specific than those in \textit{Bancorp}.
on the question of what test should be used to determine the patent eligibility of software method claims.\textsuperscript{43}

The indeterminacy of the current rule creates unpredictability.\textsuperscript{44}

To the extent that the patent system does provide ex ante incentives to innovate, approaches that blur the boundaries of patentable subject matter may weaken the overall innovation-promoting effect of patent law in subject areas near these boundaries,\textsuperscript{45} without the corresponding benefit of protecting open access to ideas: if a patent is issued on an apparently abstract method, third parties may shy away from using the ideas claimed in these potentially invalid patents given the difficulty of evaluating their validity under an indeterminate approach. However, a flexible approach, such as that embodied by the “integrality” test, has the advantage of giving courts the latitude to consider a broad range of facts bearing on abstractness. Flexibility may be especially advantageous in rapidly developing fields such as computer science, where the path of innovation may be difficult to predict.\textsuperscript{46}

The court could significantly reduce uncertainty for the types of patents at issue in \textit{Bancorp} and \textit{CLS Bank}, while maintaining a degree of flexibility, by adopting the following rule in the context of machine-or-transformation analysis: if the use of a computer in the claimed invention provides any functional benefit other than increased efficiency, the claims are patent eligible. Such a rule would draw on existing Federal Circuit and Supreme Court precedents regarding the boundaries of software patentability\textsuperscript{47} and would seek to harmonize these pronouncements into a clear and predictable approach.\textsuperscript{48} In practice, this


\textsuperscript{44} See Lemley et al., supra note 1, at 1316 (“Put simply, the problem is that no one understands what makes an idea ‘abstract’ . . . .”).

\textsuperscript{45} Cf. Brief of Intel Corp. as Amicus Curiae Supporting Affirmance at 5, Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd., 545 U.S. 913 (2005) (No. 04-480) (arguing that uncertainty as to the boundaries of copyright liability imposes a significant chilling effect on innovation). These boundary areas may contain subject matter of great social value. See \textit{CLS Bank}, 685 F.3d at 1350 (calling computers “one of the greatest inventions of all time,” but noting that many inventions related to computers may not satisfy the machine-or-transformation test for patent eligibility). But see Kelly Casey Mullally, Legal (Un)Certainty, Legal Process, and Patent Law, 43 LOY. L.A. L. REV. 1109, 1152–58 (2010) (noting that certainty sometimes comes at the expense of other desirable values in patent doctrine).


\textsuperscript{47} Though not identical to \textit{Bilski}’s abstract-idea analysis, see 130 S. Ct. at 3229–31, the proposed test addresses \textit{Bilski}’s concerns about abstractness by focusing on functional benefits.

\textsuperscript{48} For example, the Federal Circuit has explicitly cited “functional and palpable applications” as arguing in favor of patent eligibility. Research Corp. Techs. v. Microsoft Corp., 627 F.3d 859, 868 (Fed. Cir. 2010). As argued below, the court’s seemingly contradictory decisions in \textit{Bancorp} and \textit{CLS Bank} are reconcilable under a functional-benefit analysis. The efficiency exception rec-
rule would require judges to examine the functionality of a particular software method claim, determine how performing the method on a computer would differ from performing it manually, and decide if any such differences provide a functional benefit (other than efficiency) compared to manual performance. Though it is difficult to anticipate what nonefficiency benefits may be obtained through software implementation of otherwise-manual methods, some examples may include data visualization\(^49\) or remote access and communication.\(^50\)

Such a rule would have several benefits. First, it would reconcile the troubling tension between *Bancorp* and *CLS Bank*,\(^51\) which the Federal Circuit may have implicitly recognized in its grant of en banc rehearing in *CLS Bank*. In *Bancorp*, the plaintiff asserted that the methods had “specific applications to the marketplace,” but did not assert that the execution of these methods on a computer provided any additional benefit beyond calculating the relevant values manually.\(^52\)

While manual calculation would be slower, the values eventually computed would have exactly the same application in the marketplace as would those produced by the asserted computer-limited claims. By

\(^{49}\) Cf. *Research Corp.*, 627 F.3d at 868–69 (holding method claims describing software-based image manipulation to be patent eligible).


\(^{51}\) However, this rationalization may not be favored by all members of the Federal Circuit. Specifically, Judge Prost voted with the majority in *Bancorp*, 687 F.3d at 1269, and dissented in *CLS Bank*, 685 F.3d at 1356 (Prost, J., dissenting). This internal disagreement, and the Federal Circuit’s recent grant of en banc rehearing in *CLS Bank*, may indicate unresolved tension over the scope of patent-eligible subject matter in the wake of *Prometheus*. Compare *CLS Bank*, 685 F.3d at 1348 (majority opinion) (characterizing *Prometheus* as agnostic with regard to how to evaluate whether claims are drawn to abstract ideas), with *id.* at 1356 (Prost, J., dissenting) (characterizing *Prometheus* as a hint that “our subject matter patentability test is not sufficiently exacting”). The Federal Circuit has considered several other cases involving the use of software-based method claims, see, e.g., *Research Corp.*, 627 F.3d 859 (holding software claims that presented “functional and palpable applications in . . . computer technology” to be patent eligible, *id.* at 868), but space constraints prevent a broader discussion of these cases here.

\(^{52}\) *Bancorp*, 687 F.3d at 1276.
contrast, the exchange-facilitation platform described by the patents in CLS Bank may offer some benefits in addition to efficiency. For example, escrow agents are valuable because they are trusted third parties. The claims in CLS Bank provide the functionality of an escrow agent on a computerized trading platform, which may increase trust in an online marketplace.  

Second, this approach would improve predictability for inventors attempting to discern whether an invention would likely be patent eligible. It is intuitively easier to determine whether executing a method on a computer provides functional benefits, as opposed to determining whether computer limitations are integral.

A rule-based approach is arguably in tension with the Supreme Court’s moves toward standards-focused § 101 jurisprudence. However, the proposed rule need not be applied exclusively. Rather, it may be viewed as a refinement of the machine-prong under the machine-or-transformation test. The proposed rule would sharpen this test into a more useful tool when courts do apply it. Where the facts of a case indicate that considerations other than those weighed by the machine-or-transformation test are of greater significance, as in Prometheus, courts would remain free to weigh those considerations accordingly.

Bancorp and CLS Bank may have created additional confusion about the already murky test for patent eligibility under § 101, but the Federal Circuit’s planned en banc rehearing in CLS Bank is an opportunity to build a more predictable approach. By focusing on the benefits obtained by limiting a claimed method to a computer, the proposed rule would secure for inventors greater certainty regarding the patentability of their inventions before disputes arise, and courts will be able to resolve those disputes that do arise in a more consistent fashion.

53 See Paul A. Pavlou & David Gefen, Building Effective Online Marketplaces with Institution-Based Trust, 15 INFO. SYS. RES. 37, 50–51 (2004) (noting that the presence of electronic escrow agents that buyers perceived as effective increased overall trust in a community of sellers on Amazon.com by a statistically significant amount).

54 See Prometheus, 132 S. Ct. at 1305 (noting that specialized rules derived for the needs of one field may have unexpected effects in others); Bilski v. Kappos, 130 S. Ct. 3218, 3229–31 (2010) (declining to endorse an exclusive rule for patent eligibility). However, the Federal Circuit’s continued application of the machine-or-transformation test indicates that it may be interpreting the Supreme Court’s charge narrowly. See Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.), 771 F. Supp. 2d 1054, 1059 (E.D. Mo. 2011); see also Lemley et al., supra note 1, at 1319–22.

55 But see Lemley et al., supra note 1, at 1322–25 (arguing that the machine-or-transformation test itself is deeply flawed, and proposing an alternative rule). While the criticisms of the machine-or-transformation test are persuasive, the Federal Circuit and district courts appear set to continue to rely on it as a useful tool. So long as courts apply the test, it will remain worthwhile to refine it.

56 132 S. Ct. at 1303 (noting concern that the patent at issue would foreclose access to the laws of nature, and emphasizing such concern over a rigid application of the machine-or-transformation test).