
FROM *BENSON* TO *ALICE*: EVOLUTION OF PATENT
ELIGIBILITY OF COMPUTER-IMPLEMENTED INVENTIONS
UNDER 35 U.S.C. § 101*

I. JUDICIAL EXCEPTIONS TO § 101: THE EARLY YEARS

The Supreme Court first introduced the concept of judicial exceptions to patentable subject matter in *Gottschalk v. Benson*.¹ The Court's next two cases—*Parker v. Flook*² and *Diamond v. Diehr*³—addressed inventions that involved mathematical algorithms. The Court deemed those algorithms by themselves to be unpatentable abstract ideas.⁴ An invention that applied an algorithm to a particular process, however, could be patent eligible.⁵ Lower courts reacted to these judicially created exceptions to § 101 by trying to develop a test for patent eligibility of inventions involving mathematical formulas.⁶

A. *Early Supreme Court Case Law on Computer-Implemented Inventions*

Benson concerned a patent claim for a method of programming a computer to convert binary-coded decimal form into pure binary form on any general-purpose computer.⁷ At the heart of the program was an algorithm that did the conversion.⁸ When deciding whether the program was patent-eligible subject matter under § 101, the Court looked at old case law for examples of patentable and unpatentable processes.⁹ It compared the facts to those in *O'Reilly v. Morse*,¹⁰ which provided an example of an unpatentable process.¹¹ *O'Reilly* invalidated a patent for the use of electric current to produce distinguishable signs through telegraphy.¹² It reasoned that such a patent,

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1. 409 U.S. 63 (1972) (holding that an abstract idea is not patentable under 35 U.S.C. § 101).
2. 437 U.S. 584 (1978) (holding that a new mathematical formula was an unpatentable abstract idea).
3. 450 U.S. 175 (1981) (holding that while a mathematical formula was an unpatentable abstract idea, its application within an existing process was patent eligible).
4. See *infra* notes 20–43 and accompanying text for a discussion of *Flook* and *Diehr*.
5. See *infra* notes 31–43 and accompanying text for a discussion of *Diehr*'s holding about patentability of application of an algorithm to a particular process.
6. See *infra* Part I.B for a discussion of lower courts' various tests.
7. *Gottschalk v. Benson*, 409 U.S. 63, 65 (1972).
8. *Id.*
9. *Id.* at 67–71.
10. 56 U.S. 62 (1853).
11. *Benson*, 409 U.S. at 68.
12. *O'Reilly*, 56 U.S. at 113.

without specifying a use of a particular machine or apparatus, would give a monopoly over all use of electric current for writing or printing.¹³ *Benson* also looked to several cases in which processes not tied to particular machines were nevertheless deemed patent eligible due to some kind of a physical change.¹⁴

Benson announced that the laws of nature, mental processes, and abstract ideas were not patent eligible because they were basic tools of scientific and technological work.¹⁵ It decided that patenting the program would be the same as patenting the conversion formula itself.¹⁶ To allow the patent would be to completely preempt any use of the formula.¹⁷ Therefore, the formula was not a patent-eligible process within the meaning of the Patent Act.¹⁸ The Court left open potential patent eligibility of processes not addressed by precedent, including computer programs.¹⁹

The Supreme Court had to deal with patent eligibility of a computer-implemented process six years later in *Flook*.²⁰ The invention in question was a new formula for calculating and adjusting alarm limits for operating conditions during catalytic conversion of hydrocarbons.²¹ The method consisted of three steps: (1) measuring the present value of a process variable, (2) using the formula to calculate what the new alarm value should be, and (3) adjusting the alarm value to what it should be according to the calculation.²²

The Court recognized that the line between a patentable process and an unpatentable idea is not always clear.²³ It also recognized that uses for the formula existed outside the petrochemical and oil-refining industries.²⁴ Nevertheless, the Court deemed the formula not patent eligible under § 101.²⁵ The fact that the formula changed alarm values was not enough to turn it into a patentable process.²⁶ Neither was it sufficient that the patent claim limited the formula's use to the petrochemical and oil-refining industries.²⁷ The Court held that conventional or obvious post-solution activity was not enough to turn an unpatentable algorithm into a patentable process.²⁸ A "competent draftsman" could turn any unpatentable mathematical formula into a

13. *Id.*

14. *Benson*, 409 U.S. at 69–71 (providing examples from old case law of processes for improving the quality of flour, expanding metal, and hatching eggs by applying circulated air to them).

15. *Id.* at 67.

16. *Id.* at 71.

17. *Id.* at 72. The formula had no substantial use outside a digital computer. *Id.* at 71.

18. *Id.* at 71–72.

19. *Id.* at 71.

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

21. *Id.* at 586. Catalytic conversion of hydrocarbons is a chemical process used in petrochemical and oil-refining industries. *Id.* The operating conditions included temperature, pressure, and flow rates. *Id.* at 585.

22. *Id.* at 585–86. While the calculations could be done without the use of a computer, the claim made it clear that it would be primarily useful for computerized adjustments. *Id.* at 586.

23. *Id.* at 589.

24. *Id.* at 589–90.

25. *Id.* at 594.

26. *Id.* at 590.

27. *Id.* at 589–90.

28. *Id.* at 590.

patentable process by adding the words “applied to” to the formula.²⁹ The Court once again mentioned that its decision did not foreclose patent protection to all computer programs.³⁰

Not all early Supreme Court decisions deemed computer-implemented inventions nonpatentable subject matter.³¹ In *Diehr*, the Court decided that the use of a known algorithm—the Arrhenius equation—in the process of curing rubber qualified as a patentable process.³² The process involved constantly measuring the temperature inside the mold holding uncured rubber and sending the data to a computer.³³ The computer would constantly recalculate the cure time based on the data and send the signal to open the press at the required time.³⁴ This process ensured proper cure of the rubber articles inside the mold.³⁵

The Court again recognized that “laws of nature, natural phenomena, and abstract ideas” did not receive patent protection.³⁶ The invention, however, must be considered as a whole when deciding whether it qualifies as patent-eligible subject matter.³⁷ The claim described a step-by-step method of curing rubber, beginning with putting uncured rubber into the mold and ending with the finished cured rubber product.³⁸ Involvement of a mathematical formula or a computer program did not automatically make the process unpatentable.³⁹ It was irrelevant for the purpose of § 101 whether the use of the Arrhenius equation was the only new part of the curing process.⁴⁰ The Court distinguished the patent claim from those in *Benson* and *Flook*.⁴¹ Those claims were to the algorithms themselves, while the claim in *Diehr* was to the *application* of the algorithm to the process of curing rubber.⁴² The Court in *Diehr* held that a claim that incorporated a formula into a process that involved “transforming or reducing an article to a different state or thing” satisfied the § 101 requirements.⁴³

Benson announced that one cannot patent an abstract idea, and that an algorithm constituted such an unpatentable abstract idea.⁴⁴ *Flook* decided that one cannot take an unpatentable abstract idea and make it patentable by limiting its use to a particular field or by adding an insignificant post-solution activity.⁴⁵ *Diehr*, however, said that while

29. *Id.*

30. *Id.* at 595.

31. *See* *Diamond v. Diehr*, 450 U.S. 175 (1981) (deeming a process for curing rubber that used a mathematical equation patent eligible).

32. *Id.* at 177–78 n.2, 191.

33. *Id.* at 178.

34. *Id.* at 178–79.

35. *Id.* at 177.

36. *Id.* at 185.

37. *Id.* at 188.

38. *Id.* at 184.

39. *Id.* at 187.

40. *Id.* at 188–89.

41. *Id.* at 187–88.

42. *Id.*

43. *Id.* at 192.

44. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

45. *Parker v. Flook*, 437 U.S. 584, 590 (1978).

one cannot patent an abstract idea, one can patent the *application* of an abstract idea.⁴⁶ The Court did not draw the line between insignificant post-solution activity associated with the abstract idea and an application of that idea. This created a problem for the lower courts as they struggled to find that line.

B. Lower Courts' Tests

Once the Supreme Court set forth the abstract idea exception to patentable subject matter, the lower courts tried to come up with a test to determine whether a particular invention fell into that exception. The Court of Customs and Patent Appeals set forth a two-step test as it decided three cases: *In re Freeman*,⁴⁷ *In re Walter*,⁴⁸ and *In re Abele*.⁴⁹ The first step was to determine whether the patent claim directly or indirectly recited an algorithm.⁵⁰ If the claim recited an algorithm, the second step determined if the algorithm was “applied in any manner to physical elements or process steps.”⁵¹ If the claimed invention was patent eligible without the presence of an algorithm, it did not automatically become unpatentable if it implemented the use of one.⁵²

In 1982, the Court of Appeals for the Federal Circuit succeeded the Court of Customs and Patent Appeals in hearing all appeals arising under the United States patent law.⁵³ The court formulated a new test for computer-implemented inventions in *In re Alappat*⁵⁴ and *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*⁵⁵ In order for a computer program to be patent eligible, it had to produce a “useful,

46. *Diehr*, 450 U.S. at 187.

47. 573 F.2d 1237 (C.C.P.A. 1978).

48. 618 F.2d 758 (C.C.P.A. 1980).

49. 684 F.2d 902 (C.C.P.A. 1982).

50. *Freeman*, 573 F.2d at 1245. The invention in *Freeman* was a system that utilized a computer program to print out mathematical formulas while keeping all the symbols' original positioning. *Id.* at 1238–39. The court interpreted the program to be a series of process steps for spatial positioning of symbols, not a mathematical formula that *Benson* determined to be unpatentable. *Id.* at 1246. Because the first step was not satisfied, the court did not proceed to the second step of the test. *Id.* at 1245.

51. *Abele*, 684 F.2d at 907 (internal quotation marks omitted). Initially, the court formulated the second step to determine if the claim fully preempted the use of the algorithm. *Freeman*, 573 F.2d at 1245. After the Supreme Court decided *Flook*, the Court of Customs and Patent Appeals modified the second step. *Walter*, 618 F.2d at 767. The claim did not need to cover “every conceivable application” of an algorithm to be unpatentable. *Id.* (quoting *Parker v. Flook*, 437 U.S. 584, 586 (1978)). If the claimed invention simply presented and solved the algorithm, then the claim was to a nonstatutory exception. *Id.* The invention was patent eligible if it used the algorithm to define structural relationships between physical elements of the process or limit or refine claim steps. *Id.* *Abele*, which was decided after *Diehr*, further modified the second step to its latest iteration. *Abele*, 684 F.2d at 907.

52. *Abele*, F.2d at 907. The claim in *Abele* was to an improved CAT scan process that produced a better image while reducing a body's exposure to x-rays. *Id.* at 903. The court decided that the use of an algorithm simply improved an otherwise patentable process, just like the use of the Arrhenius equation improved the rubber curing process in *Diehr*. *Id.* at 908–09.

53. LYDIA PALLAS LOREN & JOSEPH SCOTT MILLER, *INTELLECTUAL PROPERTY LAW: CASES & MATERIALS* 120 (2013).

54. 33 F.3d 1526 (Fed. Cir. 1994).

55. 149 F.3d 1368 (Fed. Cir. 1998).

concrete, and tangible result.”⁵⁶ The “useful, concrete, and tangible result” test replaced the *Freeman-Walter-Abele* test, since the latter “ha[d] little, if any, applicability to determining the presence of statutory subject matter.”⁵⁷

The Federal Circuit abrogated the *Freeman-Walter-Abele* test and the “useful, concrete, and tangible result” tests, deeming them inadequate.⁵⁸ The court set forth a new interpretation of *Benson*, *Flook*, and *Diehr*.⁵⁹ An invention had to either be “tied to a particular machine or apparatus” or “transform[] a particular article into a different state or thing” to be patent eligible.⁶⁰ All possible uses of a fundamental principle—unpatentable by itself—could not be preempted if the application of the principle was tied to a particular machine or apparatus.⁶¹ Similarly, patenting the use of a fundamental principle to transform an article would not preempt its uses that did not involve the same article or the same end result.⁶² In order to pass the machine-or-transformation (MOT) test, the use of a machine or an article’s transformation had to meaningfully limit the scope of the claim.⁶³ Use of a machine or a transformation had to be more than insignificant pre- or post-solution activity.⁶⁴

The invention in *Bilski* was a method of hedging risk in the field of commodity trading.⁶⁵ The claimed method involved the use of an intermediary, set up in a way that would minimize the risks for both the buyer and the seller.⁶⁶ The court held that the invention failed the MOT test, since it did not claim the use of any particular machine

56. *Alappat*, 33 F.3d at 1544; *State St. Bank & Trust Co.*, 149 F.3d at 1373–74. The program in *Alappat* created a smoother image on a cathode ray tube by using a mathematical formula to determine the level of illumination of each pixel on the screen. *Alappat*, F.3d at 1537–38. The court held that the program converted a general-purpose computer (the program could be used on any computer) into a special-purpose one. *Id.* at 1545. The claim was, therefore, to “a specific machine to produce a useful, concrete, and tangible result”—a smoother image. *Id.* at 1544. Because a machine is one of four enumerated categories in § 101, “a computer operating pursuant to software may represent patentable subject matter.” *Id.* at 1542, 1545.

The court later applied the “useful, concrete and tangible result” test to a system for managing mutual funds. *State St. Bank & Trust Co.*, 149 F.3d at 1373. It found the system produced “a useful, concrete and tangible result—a final share price momentarily fixed for recording and reporting purposes.” *Id.* (internal quotation marks omitted). As in *Alappat*, the court found the claimed invention to be a machine despite the fact that the claim was to a general-purpose computer. *Id.* at 1375. The court further stated that, in light of *Diehr* and *Alappat*, the invention that involved input, calculation, output, and storage of numbers did not automatically become unpatentable. *Id.* at 1374. It fell into one of the judicial exceptions only if it failed to produce a “useful, concrete and tangible result.” *Id.* (quoting *Alappat*, 33 F.3d at 1544).

57. *State St. Bank & Trust Co.*, 149 F.3d at 1374. The court decided that “application of the [*Freeman-Walter-Abele*] test could be misleading.” *Id.* It put too much emphasis on whether the invention contained an algorithm, rather than the nature of the invention as a whole. *Id.* This was inconsistent with *Diehr* and *Alappat*. *Id.*

58. *In re Bilski*, 545 F.3d 943, 959–60 (Fed. Cir. 2008).

59. *Id.* at 954.

60. *Id.*

61. *Id.*

62. *Id.*

63. *Id.* at 961.

64. *Id.* at 962. Because the patent in *Benson* did not claim any use of a machine, the court did not address the question of what level of machine implementation was necessary to satisfy the MOT test. *Id.*

65. *Id.* at 949.

66. *Id.* at 949–50.

or transform any physical objects or substances.⁶⁷ The method of hedging risk only involved manipulations of business risks and legal obligations and was not enough to satisfy the transformation prong.⁶⁸

II. MODERN DEVELOPMENTS FOR COMPUTER-IMPLEMENTED INVENTIONS UNDER § 101

The Supreme Court rejected the Federal Circuit's use of the MOT test as the exclusive method to determine if an invention was patent-eligible subject matter in *Bilski v. Kappos*.⁶⁹ Two years later, in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*,⁷⁰ the Court provided some additional guidance regarding § 101 and the judicial exceptions.⁷¹ Unfortunately, those two decisions have led to more confusion in the Federal Circuit. The lower court has struggled to determine where to draw the line between unpatentable abstract ideas and patentable applications of those ideas for computer-implemented inventions.⁷²

A. Back to the Supreme Court

In *Bilski v. Kappos*, the Supreme Court agreed with the Federal Circuit that the *Bilski* invention was not patent-eligible subject matter.⁷³ It saw the method of hedging against risk as a basic economic practice, making it an abstract idea.⁷⁴ The Court likened the claimed limitation on commodity trading to the industry limitation and post-solution activity in *Flook*.⁷⁵ But while the Supreme Court upheld the Federal Circuit's decision for that particular invention, it specifically rejected the MOT test as the sole test for determining whether a process was patent eligible.⁷⁶ It stated that the test was merely "a useful and important clue . . . for determining whether some claimed inventions [were] processes under § 101."⁷⁷ The lower court's narrower definition of

67. *Id.* at 963.

68. *Id.* The court recognized that transformation of an electronic signal into a visual depiction (as was the case in *Abele*, which the court decided would have passed the MOT test), could satisfy the transformation prong. *Id.* at 962–64.

While *Bilski* was making its way to the Supreme Court, the Federal Circuit got a chance to apply the MOT test in *SiRF Technology, Inc. v. International Trade Commission*, 601 F.3d 1319 (Fed. Cir. 2010). The claimed invention involved a method of correlating satellite signals for improved position location by GPS devices. *Id.* at 1323. Because the use of a GPS receiver was specified in the claim, and the receiver satisfied the machine prong of the test, the court deemed the method patent-eligible subject matter. *Id.* at 1332.

69. 561 U.S. 593, 604 (2010).

70. 132 S. Ct. 1289 (2012).

71. See *infra* notes 84–94 and accompanying text for a discussion of *Mayo*.

72. See *infra* Part II.B for a discussion of the Federal Circuit § 101 response to *Bilski* and *Mayo* with regard to computer-implemented inventions.

73. *Bilski*, 561 U.S. at 611–12.

74. *Id.* at 608–12.

75. *Id.* at 611–12.

76. *Id.* at 604.

77. *Id.*

the term “process” set forth in its MOT test was inconsistent with the Supreme Court precedent.⁷⁸

The Court recognized that in order to allow the patent law to adapt to the information age, § 101 had to be flexible enough to allow for patentability of new technologies.⁷⁹ Imposing rigid tests like the MOT test—which may have made sense in the industrial age—would take away the flexibility needed in the information age.⁸⁰ The Court rejected categorical exclusion of computer programs or business methods, stating that both could be patentable subject matter, without saying that they actually were.⁸¹ The Court recognized that the patent law had to “stri[k]e [a] balance between protecting inventors and not granting monopolies over procedures that others would discover by independent, creative application of general principles.”⁸² It did not take a position on where the balance was.⁸³

The Court once again took up the question of patent-eligible subject matter in *Mayo*.⁸⁴ The patent claim had nothing to do with computer programs or mathematical algorithms. Instead, the patent claim was to a method of adjusting doses of a thiopurine drug based on levels of certain metabolites in a patient’s bloodstream after the drug’s administration.⁸⁵ The method involved having the doctors administer the drug, measure the metabolite levels in the bloodstream, and adjust the dosage of the drug based on those levels.⁸⁶ The medical community already knew about the correlation between metabolite levels and the efficacy or harm of the drug.⁸⁷

The Court set forth new guidelines for subject matter patentability.⁸⁸ The concern behind the judicial exceptions was the possibility of tying up basic tools of discovery.⁸⁹ An invention was not patent eligible if the patent would tie up too much future innovation compared to what the inventor actually contributed.⁹⁰ Even a narrow law of nature could not be patented, since the patent would still foreclose the use of a building block—albeit a smaller one—in future research.⁹¹ “A patent upon a narrow law of nature may not inhibit future research as seriously as would a patent upon Einstein’s

78. *Id.*

79. *Id.* at 605.

80. *Id.* at 605–06.

81. *Id.* at 605–11.

82. *Id.* at 606.

83. *Id.*

84. *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012).

85. *Id.* at 1294–95.

86. *Id.* at 1295.

87. *Id.* The Court held that the process was unpatentable because all it simply told the doctors about a law of nature. *Id.* at 1298. The remaining steps involved administering the drug and measuring metabolite levels through any methods the doctor chose to use. *Id.* These steps constituted well understood, conventional activity, and added nothing significant to the law of nature. *Id.* Granting a patent to this process would risk tying up this law of nature and inhibit its future use. *Id.* at 1294. The claim was weaker than the patentable claim in *Diehr* and no stronger than the unpatentable one in *Flook*—the two cases that the Court determined to be most useful in deciding *Mayo*. *Id.* at 1299.

88. *Id.* at 1301–03.

89. *Id.* at 1301.

90. *Id.* at 1303.

91. *Id.*

law of relativity, but the creative value of a discovery is also considerably smaller.”⁹² The use of a machine or transformation of an article was indeed an “important and useful clue.”⁹³ It did not, however, trump the law of nature exception, even if transformation occurred, as it did in the *Mayo* claim.⁹⁴

B. Federal Circuit Response to *Bilski* and *Mayo*

After the Supreme Court’s decision in *Bilski*, the Federal Circuit once again began searching for the line between patentable processes and unpatentable ideas. After *Bilski* (but before *Mayo*), the court was still heavily relying on the MOT test.⁹⁵ After *Mayo*, the Federal Circuit had mostly moved away from the MOT test. Instead, it began by looking at whether or not there are significant limitations to the application of a particular idea.⁹⁶

1. Post-*Bilski* Federal Circuit Case Law

After *Bilski*, the Federal Circuit still heavily relied on the MOT test. In *Research Corporation Technologies, Inc. v. Microsoft Corp.*,⁹⁷ the court deemed an improved method of digital image halftoning patent eligible because it specifically required the use of computer hardware.⁹⁸ The improved method of halftoning was a “functional and palpable application” of a mathematical equation in an existing field, and it required the use of hardware.⁹⁹ Therefore, the court deemed the process to be patent eligible.¹⁰⁰ The court noted that inventions with specific applications or improvements to existing technologies were unlikely to be so abstract as to fall within judicial exceptions.¹⁰¹

The court reached the opposite conclusion in *CyberSource Corp. v. Retail Decisions, Inc.*¹⁰² The claimed invention was a method for detecting online credit card fraud.¹⁰³ The method involved comparing the Internet protocol (IP) address for a particular online credit card transaction with other transactions associated with that IP address to determine if the transaction was valid.¹⁰⁴ The court decided that the process

92. *Id.*

93. *Id.* at 1303 (quoting *Bilski v. Kappos*, 561 U.S. 593, 603 (2010)).

94. *Id.* The transformation claimed in *Mayo* was the transformation of blood by the thiopurine drug. *Id.* at 1302.

95. See *infra* Part II.B.1 for a discussion of the post-*Bilski* Federal Circuit case law.

96. See *infra* Part II.B.2 for a discussion of the post-*Mayo* Federal Circuit case law.

97. 627 F.3d 859 (Fed. Cir. 2010).

98. *Research Corp. Technologies, Inc.* 627 F.3d at 868–69. The halftoning process involved the use of dots in digital images to produce smoother color images. *Id.* at 862–63. The claimed method used a mathematical equation to do a pixel-by-pixel comparison of the digital image against the noise mask. *Id.* at 864–65. The process created an improved blue noise mask, which resulted in higher quality halftone images while using less processor power and memory space. *Id.*

99. *Id.* at 868.

100. *Id.* at 869.

101. *Id.*

102. 654 F.3d 1366, 1372 (Fed. Cir. 2011).

103. *CyberSource Corp.*, 654 F.3d at 1367.

104. *Id.* at 1370.

could be performed mentally and a machine was not necessary.¹⁰⁵ Use of a machine was merely incidental to performing a purely mental process and was not enough to satisfy the machine prong.¹⁰⁶ The court then went on to determine if the invention was patent eligible despite failing the MOT.¹⁰⁷ The court interpreted *Benson* to make any method that is an equivalent of mental work an unpatentable abstract idea.¹⁰⁸ The court also held that manipulation or reorganization of data was not enough to satisfy the transformation prong.¹⁰⁹

2. Post-*Mayo* Federal Circuit Case Law

Things got even more confusing for computer-implemented inventions after the Supreme Court's decision in *Mayo*. The best illustration of the level of uncertainty came in the form of an en banc, nonprecedential, plurality decision in *CLS Bank International v. Alice Corp. Pty. Ltd.*¹¹⁰ The court had to decide whether a computerized trading platform for financial transactions was patent eligible.¹¹¹ There were three claims in question: (1) the method of conducting the transactions,¹¹² (2) the computer readable medium that contained the software instructing the computer to carry out the process steps,¹¹³ and (3) the system that would carry out the steps containing a computer and data storage.¹¹⁴

The court held that all three claims were patent ineligible,¹¹⁵ but produced six separate opinions. Of the ten judges deciding the case, five found all three claims to be directed to an unpatentable abstract idea.¹¹⁶ The abstract idea was reducing settlement risks by using a third-party intermediary—essentially, an escrow—to ensure that the parties could fulfill their obligations.¹¹⁷ The limitations of creating shadow accounts or issuing end-of-day instructions to each institution constituted trivial limitations on the use of the idea.¹¹⁸ Implementation of a computer was not essential but merely useful to

105. *Id.* at 1372.

106. *Id.* at 1375. The court distinguished *Research Corporation Technologies, Inc.* and *SiRF Technology, Inc.*, where the machines were necessary for the implementation of the claimed inventions. *Id.* at 1376. In the present case, the claim was only to a computer readable medium—disk, hard drive, or other data storage—containing the instruction for detecting fraud. *Id.* at 1373.

107. *Id.* at 1371.

108. *Id.*

109. *Id.* at 1375. CyberSource argued that the claimed invention satisfied the transformation prong because it took IP addresses and constructed a “map” of credit card numbers from prior transactions. *Id.*

110. 717 F.3d 1269 (Fed. Cir. 2013) (en banc) (per curiam), *aff'd*, *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014).

111. *CLS Bank Int'l*, 717 F.3d at 1274 (Lourie, J., concurring). The system used a third party to ensure that each party involved in a transaction was able to perform its obligations. *Id.* at 1285. The third party would create shadow credit and debit accounts and track them each day to ensure each party's ability to fulfill its obligations. *Id.*

112. *Id.* at 1285.

113. *Id.* at 1287–89.

114. *Id.* at 1289.

115. *Id.* at 1273 (per curiam).

116. *Id.* at 1292 (Lourie, J., concurring).

117. *Id.* at 1286.

118. *Id.* at 1286–87.

performing the process.¹¹⁹ The computer-readable medium claims were treated just like they were in *CyberSource Corp.*¹²⁰ The system claim merely recited generic computer components that would be able to perform the calculation, storage, and connectivity required for the process.¹²¹ Judge Lourie deemed such computer-based limitations to be merely “a Trojan horse designed to enable abstract claims to slide through the screen of patent eligibility.”¹²²

Two judges found both the system and the method claims patent eligible.¹²³ The claims had computer-based limitations and recited very specific steps in carrying out the transactions.¹²⁴ Therefore, they could not preempt all possible uses of the abstract idea at hand—reducing settlement risk.¹²⁵ Four judges found the method claims to be directed to an abstract idea of using escrow to reduce settlement risk.¹²⁶ Limiting that idea to a particular field of commerce was not enough to make it patent eligible.¹²⁷ Those four judges, however, found the system claims to be patent eligible.¹²⁸ The system claims specified computer components, so they were no longer claims to abstract ideas without limitations—analogue to the patent-eligible claims in *Diehr*.¹²⁹ One judge went as far as suggesting that the court should abandon its attempts to figure out abstractness or preemption of patent claims.¹³⁰ The court should instead recognize that “the statutory purpose of section 101 [was] to provide an inclusive listing of [] ‘useful arts.’”¹³¹ The decision whether the claimed invention is patentable should be made by looking at the other sections of the Patent Act.¹³²

The fractured decision in *CLS Bank* did not produce a clear rule for patent eligibility of computer-implemented inventions. Further, the two subsequent Federal Circuit cases did little to clarify that issue.¹³³ The court found the method of distributing copyrighted material over the Internet to be patent eligible in *Ultramercial, Inc. v. Hulu, LLC*.¹³⁴ The process involved a consumer receiving the material free of charge in exchange for viewing an advertisement, and the advertiser paying for the

119. *Id.* at 1286.

120. *Id.* at 1288–89.

121. *Id.* at 1290.

122. *Id.*

123. *Id.* at 1333 (Linn, J. and O’Malley, J., dissenting).

124. *Id.* at 1332.

125. *Id.*

126. *Id.* at 1312 (Rader, C.J., concurring and dissenting).

127. *Id.* This was similar to limiting the idea of hedging risk to commodity trading in *Bilski*. *Id.*

128. *Id.* at 1309–10.

129. *Id.*

130. *Id.* at 1322 (Newman, J., concurring and dissenting).

131. *Id.*

132. *Id.*

133. Compare *Ultramercial, Inc. v. Hulu, LLC*, 722 F.3d 1335 (Fed. Cir. 2013), vacated by *WildTangent, Inc. v. Ultramercial, LLC*, 134 S. Ct. 2870, 2870 (2014) (deeming a method of online media distribution to be patent eligible), with *Accenture Global Services, GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1337–38 (Fed. Cir. 2013) (deeming a task-generating system for insurance organizations to be patent ineligible).

134. *Ultramercial, Inc.*, 722 F.3d at 1354.

copyrighted material.¹³⁵ The claimed method involved eleven separate steps.¹³⁶ The steps included receiving the copyrighted product from the provider, offering it to the consumer in exchange for viewing a sponsored advertisement, facilitating the display of the advertisement, and receiving the payment from the sponsor.¹³⁷

The court set forth a two-step inquiry into whether the claim was to an abstract idea: (1) whether the claim involved an “intangible abstract idea”; and (2) whether there were “meaningful limitations in the claim,” making that claim to a “non-routine and specific application of that idea.”¹³⁸ The parties agreed that the claim involved an abstract idea—using advertising as a form of currency.¹³⁹ The court then proceeded to evaluate whether there were meaningful limitations in the claim.¹⁴⁰

The claims invoked the use of computer technology, thereby not covering every application of the idea of using advertising as currency.¹⁴¹ The claim was further limited by its ties to the Internet and the “cyber-market environment.”¹⁴² Specificity of the steps and the complexity of the programming involved to carry out those steps placed additional limitations on the use of the idea.¹⁴³ Those limitations ensured that there were many other ways to implement the idea without infringing on the specific process involved.¹⁴⁴ The court declined to provide any sort of guidance regarding the level of programming complexity required to make a computer-implemented method patent eligible.¹⁴⁵ It similarly declined to hold that the use of a website to implement the method was sufficient or necessary to make the method patent eligible.¹⁴⁶

The court reached the opposite conclusion in *Accenture Global Services, GmbH v. Guidewire Software, Inc.*¹⁴⁷ The patent in question was for a system that generated tasks to be performed in an insurance organization.¹⁴⁸ The court first determined whether the system claim rose and fell with the method claim for the purposes of § 101, or if it could be evaluated on its own.¹⁴⁹ It looked for any significant limitations that went beyond simply linking the method claim to a computer.¹⁵⁰ Accenture pointed to the inclusion of specific components in the system claim to show meaningful

135. *Id.* at 1337.

136. *Id.* at 1337–38.

137. *Id.*

138. *Id.* at 1349 n.2.

139. *Id.* at 1349.

140. *Id.*

141. *Id.* at 1350.

142. *Id.*

143. *Id.* at 1353–54.

144. *Id.*

145. *Id.* at 1352–53.

146. *Id.* at 1353.

147. 728 F.3d 1336 (Fed. Cir. 2013).

148. *Accenture*, 728 F.3d at 1338–39. There were originally two contested claims at the trial court level: the aforementioned system claim and the method claim for generating those tasks. *Id.* at 1340. Accenture appealed only the invalidity of the system claim after the trial court found both claims to be drawn to patent-ineligible abstract ideas. *Id.*

149. *Id.* at 1341.

150. *Id.* at 1342.

differences between the two claims.¹⁵¹ The components included “an insurance claim folder, a task library database, a server component, and a task engine.”¹⁵² The court did not see it that way.¹⁵³ The steps in patent-ineligible method claims essentially described those components, thereby rendering the differences claimed by the appellant negligible.¹⁵⁴ The system claim would then rise and fall with the method claim.¹⁵⁵

The court then determined whether the system claim was patent eligible independent of the method claim.¹⁵⁶ It had to decide whether the process that relied on the abstract idea—handling insurance-related information—offered significant limitations to the use of that idea.¹⁵⁷ The court held that it did not.¹⁵⁸ Limiting the use of the abstract idea to the insurance industry was not a substantive limitation.¹⁵⁹ The complexity of software required to implement the process was similarly insufficient to make the system claim patent eligible.¹⁶⁰ The court distinguished the claim from that in *Ultramercial* by the additional limitation in the *Ultramercial* claim.¹⁶¹

III. ALICE V. CLS BANK: THE SUPREME COURT’S FINAL SAY ON COMPUTER-IMPLEMENTED INVENTIONS

In *Alice Corp. Pty. Ltd. v. CLS Bank Intl.*,¹⁶² the Supreme Court affirmed the conclusion and the reasoning of the five-judge plurality led by Judge Lourie.¹⁶³ The Court reaffirmed the use of the framework it set forth in *Mayo* for the purposes of the abstract idea exception to § 101.¹⁶⁴ It concluded that the concept of using intermediated settlement was an abstract idea—“a fundamental economic practice long prevalent in our system of commerce”—similar to that of the abstract idea of risk hedging in *Bilski*.¹⁶⁵ The Court then held that reciting generic computer implementation of a method claim was not enough to transform an abstract idea into a patent-eligible invention.¹⁶⁶ According to the Court, *Benson*, *Flook*, and *Diehr* stood for this proposition.¹⁶⁷

151. *Id.*

152. *Id.*

153. *Id.* at 1342–43.

154. *Id.*

155. *Id.* at 1344.

156. *Id.*

157. *Id.* at 1344–45.

158. *Id.* at 1346.

159. *Id.* at 1345 (citing *Bilski*, *Diehr*, and *Flook* for support).

160. *Id.*

161. *Id.* Limiting the transactions to a website, conditioning access to the content on viewing of the advertisement, and limiting the claim to viewing media products made the *Ultramercial* method patent eligible. *Id.*

162. 134 S. Ct. 2347 (2014).

163. *Alice Corp Pty. Ltd.*, 134 S. Ct. at 2354.

164. *Id.* at 2355.

165. *Id.* at 2356 (quoting *Bilski v. Kappos*, 561 U.S. 593, 611 (2010)).

166. *Id.* at 2357.

167. *Id.* at 2357–58.

The Court looked at the elements of the method claim individually and as an ordered combination to determine if they constituted meaningful limitations to the claim.¹⁶⁸ It saw each computer-implemented step—creating shadow records for each party, obtaining start-of-day balances, adjusting the shadow records, and issuing end-of-day instructions—as “purely conventional.”¹⁶⁹ “Viewed as a whole, petitioner’s method claims simply recite the concept of intermediated settlement as performed by a generic computer.”¹⁷⁰ This amounted to “nothing significantly more than an instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer.”¹⁷¹

The Supreme Court also agreed with the Federal Circuit five-judge plurality with regard to the system claims, finding them also to be directed to an abstract idea.¹⁷² It found that the substance of the system claims was no different than that of the method claims.¹⁷³ Like the method claims that were directed to implementation of an abstract idea using a generic computer, the system claims recited generic computer elements that were to be used to implement the same abstract idea.¹⁷⁴ Treating the claims differently would have gone against the Court’s prior warnings of not allowing the “draftsman’s art” to overcome judicial exceptions to the patentable subject matter.¹⁷⁵

The Supreme Court provided some guidance regarding what constituted an abstract idea, what limitations were sufficient, and what limitations insufficient. Looking back to its prior cases, the Court said that mathematical formulas, fundamental economic principles, and methods of organizing human activity were abstract ideas by themselves.¹⁷⁶ Examples of sufficient limitations according to the Court were “improv[ing] the functioning of the computer itself” and “improvement[s] in any other technology or technical field.”¹⁷⁷ On the other hand, adding the words “apply it” to an abstract idea or “limiting the use of an abstract idea to a particular technological environment” were examples of limitations that were not sufficient to make an idea patent eligible.¹⁷⁸ Adding “apply it with a computer” to an abstract idea was similarly insufficient, since it was simply a combination of those two limitations.¹⁷⁹

IV. CONCLUSION

More than forty years ago, the Supreme Court told us that abstract ideas are not patent eligible under 35 U.S.C. § 101. The Court also said that specific applications of

168. *Id.* at 2359–60.

169. *Id.* at 2359 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1298 (2012)).

170. *Id.*

171. *Id.* at 2360 (internal quotation marks omitted).

172. *Id.*

173. *Id.*

174. *Id.*

175. *Id.* (internal quotation marks omitted).

176. *Id.* at 2356–57.

177. *Id.* at 2359–60 (citing *Diehr* to support the second example).

178. *Id.* at 2358 (internal quotation marks omitted) (citing *Mayo* and *Bilski* to support those examples).

179. *Id.*

such ideas are patent eligible. Since then, the courts have struggled to figure out where an unpatentable abstract idea ends and a patentable process applying that idea begins. This uncertainty has become a problem in the information age, as more inventions have involved processes handled by computers. As the technology evolved, the courts have tried to come up with a test that can be used to determine if a particular process is patent eligible. After more than four decades of struggling with this question, the answer remains unclear.

All the practitioners are left with are some guidelines from the Supreme Court and a few examples of what is or is not patent eligible from prior cases. As the post-*Alice* Federal Circuit decisions show, the latest Supreme Court guidance has done little to resolve uncertainty when it comes to patent eligibility of computer-implemented inventions.¹⁸⁰ Because the Supreme Court has repeatedly declined to categorically exclude software and business methods from patent eligibility, each new case will have to be evaluated individually in light of the guidance provided by the Supreme Court.

180. Compare *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 712 (Fed. Cir. 2014) (deeming a method of online media distribution to be patent ineligible), with *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–59 (Fed. Cir. 2014) (deeming a system for generating hybrid web pages to be patent eligible).