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## Do Abstract Ideas Have the Need, the Need for Speed?: An Examination of Abstract Ideas After *Alice*

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## DO ABSTRACT IDEAS HAVE THE NEED, THE NEED FOR SPEED?: AN EXAMINATION OF ABSTRACT IDEAS AFTER ALICE

Maria R. Sinatra\*

*Imagine you invented a way to perform mathematical calculations all over the world simultaneously. Now, imagine that you cannot patent your invention because it was compared to, and found to contain, the same idea as an abacus.<sup>1</sup> This scenario was the outcome of Alice Corp. v. CLS Bank International.<sup>2</sup>*

*In coming to its decision in Alice, the U.S. Supreme Court adopted a two-part test that it had previously utilized to analyze the patentability of laws of nature to determine whether the patent at issue met the subject matter patentability standards of § 101 of the Patent Act. Determining the claim contained an abstract idea, the Court then addressed whether the invention was a patentable application and found it was not because “generic” computer implementation did not add “significantly more” to the underlying idea.*

*Since Alice, courts have invalidated a number of patents for failing to meet this criteria—arguably turning from the plain meaning of the Patent Act and congressional intent. Utilizing the Alice framework, courts have dismissed patent infringement claims in the pleading stages upon labeling them as abstract and citing reasoning as well as utilizing terminology that is more indicative of a § 102 or § 103 Patent Act analysis. While an argument can be made that proactively dismissing some claims in the pleading stages could reduce the prevalence of patent trolls and improve the efficiency of the patent process, this Note argues that the widespread proclivity of courts to invalidate patents under § 101 by utilizing language indicative of § 102 and § 103 analysis robs patent holders of the ability to have their claims analyzed under proper standards and injects subjective*

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1. See Transcript of Oral Argument at 6, Alice Corp. v. CLS Bank Int'l, 134 S. Ct. 2347 (2014) (No. 13–298) (comparing the invention at hand to an abacus being operated by one of King Tut's workers). An abacus was a precursor to the modern calculator and computer and has been used since Babylonian times. See *Abacus*, ENCYCLOPEDIA BRITANNICA (Oct. 1, 2013), <http://www.britannica.com/technology/abacus-calculating-device> [<http://perma.cc/VV7Z-S5DH>].

2. 134 S. Ct. 2347 (2014).

and uncertain criteria into the patent infringement analysis that could be avoided by implementing other analytical methods.

As a remedy to the inclusion of § 102 and § 103 factors in the subject matter patentability analysis, this Note advocates that a substantial increase in speed or efficiency generated by an invention should be taken into account in determining if the invention adds “significantly more” to the idea. This would create a tangible bright-line test that would allow the claim to move forward and be analyzed under more suitable Patent Act sections.

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## INTRODUCTION

The rise of the information age has challenged scholars and the judiciary to determine whether an invention merely contains an unpatentable abstract idea or whether it contains patentable subject matter.<sup>3</sup> In an effort to clarify its doctrine regarding abstract ideas and the judicial exceptions to patentability, the Supreme Court recently stated in *Alice Corp. v. CLS Bank International*<sup>4</sup> that for a patent claim containing an application of an abstract idea to contain patentable subject matter under 35 U.S.C. § 101, the claim must add “significantly more” to the abstract idea than has previously been possible in the relevant industry.<sup>5</sup>

The *Alice* standard has thus far led to the dismissal of many patents that were previously granted<sup>6</sup>—some in the pleadings stage<sup>7</sup>—by utilizing

3. See *infra* Part I.C.

4. 134 S. Ct. 2347 (2014) (analyzing the patentability of a computerized trading platform for eliminating risk).

5. See *infra* Part I.C–D.

6. See *infra* Part I.E.

7. See *infra* notes 202–04 and accompanying text.

language traditionally indicative of analysis under other sections of the Patent Act. Some view the dismissal of claims before discovery as within the bounds of § 101 as a threshold inquiry and as beneficial for patent law, citing improvements in judicial efficiency, protection against patent trolls, and possible benefits for innovation.<sup>8</sup> However, others argue that use of the *Alice* framework to dispose of these claims in the pleading stages has interjected 35 U.S.C. § 102 and § 103 criteria into the subject matter analysis—contrary to congressional intent.<sup>9</sup> Effectively, this view holds that it robs the patent holder of the benefit of the clear and convincing evidence generated by discovery and, in its place, subjects the patent holder to analysis based largely on judicial impressions of whether the application of the idea meets the “significantly more” standard.<sup>10</sup>

This Note analyzes whether the *Alice* framework blurs the line between the sections of the Patent Act when it requires courts and the United States Patent and Trademark Office (USPTO) to determine what “significantly more” entails in the computer age. Part I of this Note provides background information regarding patent law and the information age, the keystone cases that have shaped the Supreme Court’s current abstract idea doctrine, the ambiguity regarding what “significantly more” entails, and the effects *Alice* has had on lower courts and the USPTO.<sup>11</sup> Next, Part II outlines the conflicting views regarding whether the *Alice* framework incorrectly blurs the line between subject matter patentability analysis and the other sections of the Patent Act, or whether the *Alice* framework works within the bounds of § 101 as a threshold inquiry and has positively affected patent law by allowing for the efficient dismissal of frivolous and abusive patent litigation.<sup>12</sup>

Lastly, Part III argues that the *Alice* framework has negatively affected patent law by including § 102 and § 103 requirements in the § 101 analysis, because it imports criteria into the § 101 analysis that is traditionally reserved for other sections of the Patent Act, it creates unnecessary uncertainty, and it allows courts to usurp legislative decision making. It then advocates for including a significant increase in speed or efficiency generated by the claim in the patentability analysis under § 101 for four reasons: (1) it would allow § 101 to conform to its traditional “coarse filter” role in determining whether a claim deserves patent protection, restoring the balance between the “wide scope” traditionally given to the statutory text of § 101 and the judicial exceptions to patentability;<sup>13</sup> (2) it would allow for greater certainty in the subject matter patentability analysis;<sup>14</sup> (3) it would encourage innovation by providing incentive to

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8. *See infra* Part II.B.

9. *See infra* Part II.A.

10. *See infra* Part II.A.

11. *See infra* Part I.

12. *See infra* Part II.

13. *See infra* Part III.

14. *See infra* Part III.

investors and inventors;<sup>15</sup> and (4) it would diminish the judiciary's role as a policymaker.<sup>16</sup>

### I. PATENTS IN THE INFORMATION AGE

Part I of this Note provides an overview of patentable subject matter and the rise of the information age. Part I.A discusses patents generally, while Part I.B discusses § 101 of the Patent Act. Next, Part I.C discusses the judicial exceptions to patentability, as well as the keystone cases that have shaped the Supreme Court's analysis of abstract ideas in the information age. Part I.D then explains what the "significantly more" requirement entails to transform an abstract idea into a patentable application. Lastly, Part I.E describes the effects of *Alice* on courts and the USPTO regarding patent invalidation under § 101.

#### A. Patents: Who, What, When, Why, and How

The first patent in the United States was issued in 1790 to Samuel Hopkins for making "potash," a fertilizer ingredient.<sup>17</sup> Since 1790, the USPTO has issued more than six million patents.<sup>18</sup> A patent is a property right granted pursuant to the U.S. Constitution<sup>19</sup> to an inventor "to exclude others from making, using, offering for sale, or selling the invention in the United States or importing the invention into the United States" for a limited time in exchange for disclosure of how the invention works.<sup>20</sup>

To obtain a patent, the invention or discovery must be filed in an application to the USPTO, which then examines the application to determine if the invention or discovery fits the criteria of Title 35 of the

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15. See *infra* Part III.

16. See *infra* Part III.

17. See Press Release, U.S. Patent & Trademark Office, First U.S. Patent Issued Today in 1790 (July 31, 2001), <http://www.uspto.gov/news/pr/2001/01-33.jsp> [<http://perma.cc/R25Z-9SMH>].

18. See Press Release, U.S. Patent & Trademark Office, USPTO Web Database Now Includes All Patents Dating from 1790 (Nov. 6, 2000), <http://www.uspto.gov/news/pr/2000/00-68.jsp> [<http://perma.cc/SDK7-RHDD>].

19. See U.S. CONST. art. I, § 8, cl. 8 ("The Congress shall have Power to . . . promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."). Little commentary on the thoughts of the Framers regarding the Constitution's intellectual property clause exists other than the text itself, see Edward C. Walterscheid, *Inherent or Created Rights: Early Views on the Intellectual Property Clause*, 19 HAMLINE L. REV. 81, 92 (1996), but some evidence of the importance the Framers placed upon protecting author's and inventor's rights can be found in the Federalist Papers, with James Madison stating that "[t]he utility of [patent protection] will scarcely be questioned." THE FEDERALIST No. 43, at 307 (James Madison) (Cynthia Brantley Johnson ed., 2004).

20. See *General Information Concerning Patents*, U.S. PATENT & TRADEMARK OFFICE (Dec. 8, 2014), <http://www.uspto.gov/patents-getting-started/general-information-concerning-patents> (citing 35 U.S.C. § 154 (2012)) [<http://perma.cc/DWU3-VUVN>]. Patent protection for utility and plant patents is up to twenty years from the date the patent was granted, and patent protection for design patents is up to fourteen years from the date the patent was granted. See *Id.*

U.S. Code.<sup>21</sup> If the invention meets the criteria detailed in the code, the USPTO grants the patent upon payment of a fee.<sup>22</sup>

Under 35 U.S.C. § 101, a patent can be granted to “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”<sup>23</sup> However, if an invention or discovery falls into one of the subject matters expressed in § 101, it must also meet the novelty condition,<sup>24</sup> meet the nonobvious condition,<sup>25</sup> and be particularly described<sup>26</sup> in order to receive patent protection.<sup>27</sup>

In addition, four express categories of patentable subject matter are stated in § 101: “processes, machines, manufactures, and compositions of matter.”<sup>28</sup> One of the most debated of these categories—and of the most importance to this Note—is process.<sup>29</sup> A “process” does not have to be tied to a particular machine,<sup>30</sup> and it is defined under § 101 as a “process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.”<sup>31</sup> The term “method” within the definition of “process” also “may include at least some methods of doing business” based on the plain meaning of the dictionary term of “method” and does not need to be tied to a particular machine in order to contain patentable subject matter.<sup>32</sup>

### B. Interpreting § 101

As a result of the conditional requirements of Title 35, courts have viewed the patentable subject matter requirement of § 101 as a “coarse

21. *See id.*

22. *See id.*

23. 35 U.S.C. § 101.

24. *Id.* § 102. For a claimed invention to meet the “novelty” condition, it must not be “patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention,” or it must not be “described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application” belongs to another inventor. *See id.* § 102(a)(1)–(2).

25. *Id.* § 103. For a claimed invention to be “nonobvious” as a whole, it must not be “obvious . . . to a person having ordinary skill in the art to which the claimed invention pertains.” *See id.*

26. *See id.* § 112. In order to meet the specification conditions of § 112, the patent application must contain a “written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same.” *Id.* § 112(a).

27. *Id.* § 101 (stating that in order to receive patent protection, the invention or discovery must meet the requirements of 35 U.S.C. § 101, as well as “the conditions and requirements of [the whole] title”); *see also* *Bilski v. Kappos*, 561 U.S. 593, 609 (2010) (listing novelty, nonobviousness, and particular description as requirements for patent protection in addition to meeting the requirements of 35 U.S.C. § 101).

28. *See Bilski*, 561 U.S. at 601.

29. *See generally* *Mayo Collaborative Servs. v. Prometheus Labs. Inc.*, 132 S. Ct. 1289 (2012); *Diamond v. Diehr*, 450 U.S. 175 (1981). *See also Bilski*, 561 U.S. at 603–04.

30. *See Bilski*, 561 U.S. at 603–04; *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972).

31. 35 U.S.C. § 100(b); *see also Bilski*, 561 U.S. at 602.

32. *See Bilski*, 561 U.S. at 607.

filter.”<sup>33</sup> Even if a patent contains subject matter sufficient to meet the requirement of § 101, it still may fail to be granted patent protection.<sup>34</sup> Determining whether a claim contains patentable subject matter is a “pure question of law,”<sup>35</sup> and the effects of this analysis on abstract ideas will be discussed further in Part II.B of this Note.<sup>36</sup>

In *Diamond v. Chakrabarty*,<sup>37</sup> the Supreme Court analyzed the text of § 101 under the plain meaning of the statute<sup>38</sup> and determined that Congress contemplated that § 101 would be given a “wide scope” by including the word “any.”<sup>39</sup> Using this statutory interpretation, courts have found that they “should not read into the patent laws limitations and conditions which the legislature has not expressed.”<sup>40</sup>

In addition to the plain meaning of the statute, courts have found that the legislative history indicates that patent laws should be given “broad construction.”<sup>41</sup> Since the first patent legislation was drafted in 1793, the language of that legislation and all subsequent patent statutes have contained the word “any”<sup>42</sup>—embodying the view that “ingenuity should receive . . . liberal encouragement.”<sup>43</sup> Even after Congress recodified the patent laws in 1952 (“the 1952 Act”), the language including “any” in the previous statutes remained intact.<sup>44</sup> Committee reports surrounding the 1952 Act, as well as commentary from the principal draftsman of the 1952 recodification,<sup>45</sup> indicate that Congress intended patentable subject matter under § 101 to “include anything under the sun that is made by man.”<sup>46</sup>

In describing patentable subject matter under § 101, P.J. Federico, one of the principle draftsmen of the legislation, stated that a patent can be found eligible under the Act even if the patent utilizes a “new use of a known machine, manufacture, composition of matter or material” if it can also

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33. See *Diamond v. Chakrabarty*, 447 U.S. 303, 308–09 (1980) (describing an analysis of the statutory construction of 35 U.S.C. § 101 to determine that subject matter patentability should be given a wide scope); see also *Bilski*, 561 U.S. at 602 (describing § 101 as “only a threshold test”); *Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859, 869 (Fed. Cir. 2010) (describing similar filter requirements).

34. See *Research Corp. Techs.*, 627 F.3d at 868–69 (citing *Bilski*, 561 U.S. at 602).

35. *Kickstarter, Inc. v. Fan Funded, LLC*, No. 1:11-cv-06909-KPF, 2015 WL 3947178, at \*5 (S.D.N.Y. June 29, 2015) (citing *Fort Props., Inc. v. Am. Master Lease LLC*, 671 F.3d 1317, 1320 (Fed. Cir. 2012)), *appeal docketed*, No. 15–1886 (Fed. Cir. 2015).

36. See *infra* Part II.B.

37. 447 U.S. 303 (1980).

38. See *id.* at 308–09.

39. See *id.*; see also 35 U.S.C. § 101 (2012) (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent.” (emphasis added)).

40. *Chakrabarty*, 447 U.S. at 308 (quoting *United States v. Dubilier Condenser Corp.*, 289 U.S. 178 (1933)); see also *Diamond v. Diehr*, 450 U.S. 175, 182 (1981).

41. See *Chakrabarty*, 447 U.S. at 308–09; see also *Diehr*, 450 U.S. at 182.

42. See *Chakrabarty*, 447 U.S. at 308.

43. *Id.* (quoting 5 WRITINGS OF THOMAS JEFFERSON 75–76 (Washington ed. 1871)); see also *Bilski v. Kappos*, 561 U.S. 593, 601 (2010).

44. See *Chakrabarty*, 447 U.S. at 309.

45. See *Patent Law Codification and Revision: Hearing on H.R. 3760 Before Subcomm. No. 3 of the H. Comm. on the Judiciary*, 82d Cong. 37 (1951) (statement of P.J. Federico).

46. See S. REP. NO. 89-1979, at 5 (1952); H.R. REP. NO. 82-1923, at 6 (1952).

satisfy the other conditions under Title 35.<sup>47</sup> Consequently, courts have found a broad reading of 35 U.S.C. § 101 is necessary because the inventions most beneficial to mankind are often those that push the boundaries of science and are often unanticipated in the drafting of patent laws.<sup>48</sup>

*C. Judicial Exceptions to Patentability Under § 101  
and the Rise of the Information Age*

Although Congress has expressed specific categories of subject matter that can be patented under § 101,<sup>49</sup> courts have created judicial exceptions excluding “laws of nature, natural phenomena, and abstract ideas” from patent protection.<sup>50</sup> These judicial exceptions have existed for over a hundred years<sup>51</sup> to prevent “tying up”<sup>52</sup> natural laws and inhibiting future discoveries that might apply those basic principles.<sup>53</sup>

Although the Court tends to use the terms “law of nature” and “natural phenomena” interchangeably,<sup>54</sup> whether a claim contains an abstract idea is somewhat separate, and arguably harder to ascertain,<sup>55</sup> especially after the rise of the computer and internet.<sup>56</sup> Patents in the Industrial Age<sup>57</sup> were

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47. P.J. Federico, *Commentary on the New Patent Act*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 161, 177 (1993).

48. *See Chakrabarty*, 447 U.S. at 316; *see also* *Diamond v. Diehr*, 450 U.S. 175, 181–83 (1981).

49. *See* 35 U.S.C. § 101 (2012) (providing “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” can be patentable subject matter).

50. *Diehr*, 450 U.S. at 185; *see also* *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2352 (2014) (finding a claim contained an abstract idea unpatentable under § 101); *Mayo Collaborative Servs. v. Prometheus Labs. Inc.*, 132 S. Ct. 1289, 1294 (2012) (finding a claim containing a law of nature unpatentable under § 101). Although these categories are usually depicted as the only judicial exceptions, other categories have also been described as exceptions to patentability. *See* The Hon. Paul R. Michel, *The Supreme Court Saps Patent Certainty*, 82 GEO. WASH. L. REV. 1751, 1757–58 (2014) (listing laws of nature, natural phenomenon, products of nature, natural correlations, and abstract ideas as terminology courts have used to describe exceptions).

51. *See, e.g., O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112–20 (1853); *Le Roy v. Tatham*, 55 U.S. (14 How.) 156, 174–75 (1852).

52. *See Mayo Collaborative Servs.*, 132 S. Ct. at 1292.

53. *See id.* at 1293 (“[M]onopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.”); *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939).

54. *See* *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 132 (1948) (utilizing the term “natural principle”); *see also Mayo Collaborative Servs.*, 132 S. Ct. at 1296. The Court has also described a law of nature as a “scientific truth.” *See id.* at 1293–94. Common examples of scientific truths are Albert Einstein’s famous formula  $E=mc^2$ , which is used to describe mass-energy equivalence, and Isaac Newton’s discovery of the law of gravity. *See id.* at 1293.

55. *See* Mark A. Lemley et al., *Life After Bilski*, 63 STAN. L. REV. 1315, 1316 (2011).

56. *See Bilski v. Kappos*, 561 U.S. 593, 605 (2010) (discussing the differences in patent analysis between the information age and the Industrial Age).

57. The Industrial Age is typically used to denote the period between the 18th century and 19th century in English and American history during which the Industrial Revolution occurred. *See* GEORGE SOULE, *ECONOMIC FORCES IN AMERICAN HISTORY* 150–51 (1952).



rarely granted without ties to a machine or apparatus,<sup>58</sup> and courts have argued that there is no evidence that “processes for organizing human activity were or ever had been patentable.”<sup>59</sup> Justice Stevens has even claimed, “Prior to 1968, well-established principles of patent law probably would have prevented the issuance of a valid patent on almost any conceivable computer program.”<sup>60</sup>

Even when a patent claim was tied to a machine or apparatus, the Court has invalidated claims when it was not “particularly described.”<sup>61</sup> For example, in *O’Reilly v. Morse*,<sup>62</sup> a patent for improving upon the telegraph was invalidated because it was not limited in scope and, as a result, it would have foreclosed others from using the basic ideas present in the telegraph technology<sup>63</sup>—namely utilizing “electric or galvanic current” in telegraph operation.<sup>64</sup>

Since the 1970s however, the computer industry has experienced “rapid growth” and has changed our daily lives.<sup>65</sup> From 1995 to 2005, the number of internet users tripled from roughly 513 million to nearly 1.7 billion,<sup>66</sup> and, currently, the estimated number of users is closer to three billion—approximately 40 percent of the world’s population.<sup>67</sup> People now bank,<sup>68</sup> obtain academic degrees,<sup>69</sup> shop,<sup>70</sup> and complete numerous other tasks online that were never thought possible before the rise of computers, software, and the internet.<sup>71</sup> Scholars have dubbed this boom in

The Industrial Revolution was marked by a rapid increase in manufacturing, mass production, and special purpose machinery. *See id.* at 138.

58. *See Bilski*, 561 U.S. 593, 605 (2010) (citing *In re Bilski*, 545 F.3d 943, 966–76 (Fed. Cir. 2008) (Dyk, J., concurring)), *aff’d on other grounds*, 561 U.S. 593 (2010).

59. *In re Bilski*, 545 F.3d at 972 (Dyk, J., concurring), *aff’d on other grounds*, 561 U.S. 593.

60. *See Diamond v. Diehr*, 450 U.S. 175, 195 (1981) (Stevens, J., dissenting); *see also Bilski*, 561 U.S. at 605.

61. *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 120–21 (1853).

62. 56 U.S. (15 How.) 62 (1853).

63. *See id.* at 118–19.

64. *See id.* at 113.

65. *See* David C. Tunick, *Has the Computer Changed the Law?*, 13 J. MARSHALL J. COMPUTER & INFO. L. 43, 43 (1994).

66. *See* Oliver Burkeman, *Forty Years of the Internet: How the World Changed for Ever*, THE GUARDIAN (Oct. 22, 2009, 3:00 PM), <http://www.theguardian.com/technology/2009/oct/23/internet-40-history-arpnet> [<http://perma.cc/5ZKN-V278>].

67. *See* INTERNET LIVE STATS, <http://www.internetlivestats.com/internet-users/> (last visited Oct. 21, 2015) (reporting that as of July 1, 2014 the estimated number of internet users throughout the world is 2,925,249,355 people out of the total world’s population of 7,243,784,121 people) [<http://perma.cc/4GQ3-WKCS>].

68. *See, e.g.*, BANK OF AM. ONLINE, <https://www.bankofamerica.com/onlinebanking/online-banking.go> (last visited Oct. 21, 2015) [<https://perma.cc/L7XS-8AH4>].

69. *See, e.g.*, PHOENIX UNIVERSITY, [http://www.phoenix.edu/colleges\\_divisions/education.html](http://www.phoenix.edu/colleges_divisions/education.html) (last visited Oct. 21, 2015) [<http://perma.cc/G4P9-X7B7>].

70. *See, e.g.*, AMAZON ONLINE, <http://www.amazon.com/> (last visited Oct. 21, 2015) [<http://perma.cc/E9LE-UQLK>].

71. *See Diamond v. Diehr*, 450 U.S. 175, 194 n.1 (1981) (Stevens, J., dissenting) (describing the technological era since the first general purpose electronic digital computer was built in 1946). The utility of the internet has even been compared to that of the invention of the printing press. *See* JOHN NAUGHTON, *FROM GUTENBERG TO ZUCKERBERG* 24 (2012).

technology, and the world's subsequent transition from a goods-based economy to a knowledge-based economy, as the information age.<sup>72</sup>

During the information age, the number of software patents issued has increased dramatically.<sup>73</sup> Roughly 15 percent of the U.S. patents granted in 2009 were for software inventions,<sup>74</sup> and the market for software products in the United States is substantial. Americans spend more money on software than gasoline and more than double on software than they spend on fast food.<sup>75</sup> This expenditure is far larger than what early courts could anticipate<sup>76</sup> and has led to an increase in multimillion-dollar disputes regarding software patents.<sup>77</sup>

Despite making up a significant portion of patents granted today, the terms “software” and “computer” are not defined anywhere in Patent Act, and controversy surrounds the issue of whether software patents are “too abstract or too vague.”<sup>78</sup> Although both dictionaries and the courts have attempted to define abstraction,<sup>79</sup> part of the problem in interpreting patent law “is that no one understands what makes an idea ‘abstract.’”<sup>80</sup>

The Supreme Court has held that inventions concerning computer software programs can contain patentable subject matter,<sup>81</sup> but it recognizes that the information age “raises new difficulties for . . . patent law.”<sup>82</sup>

72. See, e.g., NAUGHTON, *supra* note 71, at 189 (stating that we now “live in a knowledge economy”); see also John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 78 (2002); Note, *Antitrust and the Information Age: Section 2 Monopolization Analyses in the New Economy*, 114 HARV. L. REV. 1623, 1627–28 (2001).

73. See ROBERT PLOTKIN, *THE GENIE IN THE MACHINE: HOW COMPUTER-AUTOMATED INVENTING IS REVOLUTIONIZING LAW AND BUSINESS* 8–9 (2009).

74. See *id.* From 1998 to 2011 over 320,799 patents were issued in the technology era. See *CLS Bank Int'l v. Alice Corp.*, 717 F.3d 1269, 1313 n.1 (Fed. Cir. 2013) (en banc) (Moore, J., dissenting).

75. See GREGORY A. STOBBS, *United States of America, in SOFTWARE PATENTS WORLDWIDE* 9 (2014) (describing expenditures of Americans on software at \$383.3 billion, fast food at \$100 billion, and gasoline at \$324 billion in 2005).

76. See *Parker v. Flook*, 437 U.S. 584, 587 n.7 (1978) (describing the value of computer programs as \$43.1 billion in 1976 and estimated to climb to \$70.7 billion in 1980).

77. See BEN KLEMENS, *MA+H YOU CAN'T USE: PATENTS, COPYRIGHT, AND SOFTWARE* 6 (2006). Ben Klemens posits that the nature of the software writing process being discoverable by independent inventors has in some ways fueled the increase in litigation surrounding software patents. See *id.*

78. PLOTKIN, *supra* note 73, at 124; see also W. Wayt King, Jr., *The Soul of the Virtual Machine: In re Alappat*, 2 J. INTELL. PROP. L. 575, 576–77 (1995).

79. See *Abstract*, MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (11th ed. 2003) (defining abstract as “expressing a quality apart from an object”); see also *In re Alappat*, 33 F.3d 1526, 1542 n.18 (Fed. Cir. 1994) (defining abstract ideas as “disembodied concepts or truths which are not ‘useful’ from a practical standpoint standing alone, i.e. they are not ‘useful’ until reduced to some practical application”); PATENT & TRADEMARK OFFICE, *LEGAL ANALYSIS TO SUPPORT PROPOSED EXAMINATION GUIDELINES FOR COMPUTER-IMPLEMENTED INVENTIONS* 14 (1995), <http://www.uspto.gov/web/offices/com/hearings/software/analysis/softlaw.pdf> (describing an abstract idea as “any sequence of mathematical operations that are combined to solve a mathematical problem”) [<http://perma.cc/N3DA-AWTC>].

80. See Lemley et al., *supra* note 55, at 1316.

81. See *Bilski v. Kappos*, 561 U.S. 593, 605 (2010) (citing *Diamond v. Diehr*, 450 U.S. 175, 192–93 (1981)).

82. *Id.* at 606.

These difficulties are unique.<sup>83</sup> From the time the patent statutes were enacted through the Industrial Revolution, U.S. patent law has been able to handle the introduction of revolutionary technology “without so much as a hiccup.”<sup>84</sup> Part of the reason scholars believe software is so difficult to analyze under patent law is that its “ephemeral quality” does not fit comfortably into the traditional notion of tools and “useful arts.”<sup>85</sup> Software “has no physical manifestation beyond symbols on paper or bits on a hard drive,”<sup>86</sup> and there is no difference between software and mathematics.<sup>87</sup> Consequently, courts have had difficulty in determining whether software ideas are patentable, as “pure mathematics cannot be patented” under the judicial exceptions to patentability.<sup>88</sup>

The Supreme Court started to clarify its subject matter patentability analysis in the information age in *Gottschalk v. Benson*,<sup>89</sup> when it struck down a patent application claiming a method for “converting binary coded decimal (BCD) numerals into pure binary numerals.”<sup>90</sup> In the Court’s view, the patent claim fell within a judicial exception to § 101<sup>91</sup>—an attempt to patent the formula for the algorithm for binary code.<sup>92</sup> While it did not uphold the patent, the Court was cognizant that it must not hinder the invention of new technology,<sup>93</sup> and it viewed the legislature as the proper vehicle to make a determination as to whether patents of this sort should be issued.<sup>94</sup>

Following *Benson*, the Court further expanded its analysis of patentable subject matter in *Parker v. Flook*<sup>95</sup> when it held that a patent attempting to claim a “[m]ethod for [u]pdating [a]larm [l]imits” was invalid under § 101.<sup>96</sup> Applying *Benson*, the Court found the patent did nothing more than add a post-solution formula that was already known “within the prior art.”<sup>97</sup> In its analysis, the Court stated that the algorithm within the patent

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83. See PLOTKIN, *supra* note 73, at 124.

84. *Id.* (describing how patent law has been flexible enough to accommodate the internal combustion engine and the light bulb without significant changes); King, Jr., *supra* note 78, at 575–76.

85. See King, Jr., *supra* note 78, at 576; see also KLEMENS, *supra* note 77, at 44; PLOTKIN, *supra* note 73, at 126 (describing software as “abstract and intangible” and traditional patent material as “concrete and tangible”).

86. See KLEMENS, *supra* note 77, at 44.

87. See *id.* at 26.

88. See *id.* at 44. Compare *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (holding a software patent application contained patentable subject matter under § 101), with *Parker v. Flook*, 437 U.S. 584, 594 (1978) (holding a patent containing software was invalid because it fell within the judicial exception to § 101 for abstract ideas).

89. 409 U.S. 63 (1972).

90. *Id.* at 64.

91. See *id.* at 71–72.

92. See *id.*

93. See *id.* at 71–73.

94. See *id.*

95. 437 U.S. 584 (1978).

96. See *id.* at 585, 595 n.18 (“[A] claim for an improved method of calculation, even when tied to a specific end use, [was] unpatentable subject matter under § 101.”).

97. See *id.* at 594.

claim “is treated as though it were a familiar part of the prior art.”<sup>98</sup> As such, the Court separated the part of the patent that included the abstract idea from the rest of the claimed invention, but attempted to state that it still was analyzing the claim as a whole.<sup>99</sup>

Even so, “proceed[ing] cautiously,”<sup>100</sup> the Court did not foreclose all patents involving computer programming,<sup>101</sup> stating that computer programs, which were “novel and useful,” might be deserving of patent protection under § 101.<sup>102</sup>

However, shortly after deciding *Flook*, the Court again revisited subject matter patentability in *Diamond v. Diehr*,<sup>103</sup> analyzing whether a patent application for a process molding raw rubber into cured precision products contained patentable subject matter.<sup>104</sup> The patent application claimed a process that utilized a computer to implement the Arrhenius equation in order to create “uniformly accurate cures,” which was well known at the time in the industry for curing rubber.<sup>105</sup> However, the Court found that “processes” have always been patentable subject matter under § 101, and “[i]f new and useful, [they are] just as patentable as is a piece of machinery.”<sup>106</sup>

The Court then turned to whether the use of the equation caused the patent application to fall under the judicial exception to § 101 for mathematical formulas.<sup>107</sup> Holding that because the patent application did not seek to claim a mathematical formula, but instead a “process of curing synthetic rubber,” it was patentable subject matter because it did not fall under the judicial exception to the statute.<sup>108</sup>

While the equation was not patentable in “isolation,” it was not barred from patentability under § 101 because the “process . . . for curing rubber . . . incorporate[d] in it a more *efficient* solution of the equation . . . .”<sup>109</sup> The Court stressed that novelty should not be taken into account while analyzing a claim under § 101 because it is “wholly apart from whether the invention falls into a category of statutory subject matter.”<sup>110</sup>

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98. *See id.* at 592.

99. *See id.* at 591–92; *see also* John M. Golden, *Flook Says One Thing, Diehr Says Another: A Need for Housecleaning in the Law of Patentable Subject Matter*, 82 GEO. WASH. L. REV. 1765, 1781 (2014).

100. *See Flook*, 437 U.S. at 596.

101. *See id.*

102. *See id.* at 595.

103. 450 U.S. 175 (1981).

104. *See generally id.*

105. *See id.* at 176–78.

106. *See id.* at 182–83 (quoting *Cochrane v. Deener*, 94 U.S. 780, 787–88 (1877)).

107. *See Diehr*, 450 U.S. at 187–88.

108. *See id.* at 188.

109. *See id.* at 188–92 (emphasis added) (describing how the invention must implement or apply a formula in a way which, “when considered as a whole, is performing a function which the patent laws were designed to protect”).

110. *See id.* at 190 (quoting *In re Bergy*, 596 F.2d 952, 961 (C.C.P.A. 1979)) (citing legislative history indicating that § 101 describes patentable subject matter and § 102 “covers the conditions relating to novelty”).

While the patent application met this requirement in *Diehr*, the Court emphasized that this did not mean it would be eligible for patent protection without satisfying the other requirements of the Patent Act.<sup>111</sup>

In some ways, it appears that the Court decisions in *Diehr* and *Flook* do not align,<sup>112</sup> although the Court did not overturn its prior decision<sup>113</sup> and the makeup of the Court did not change.<sup>114</sup> Scholars are still debating and analyzing the impacts of these opinions.<sup>115</sup>

Following the three above cases, the Court did not revisit the question of subject matter patentability until its decision in *Bilski v. Kappos*<sup>116</sup> roughly twenty years later. In *Bilski*, the Court invalidated the patent, which claimed a method for hedging risk that could be implemented by commodities traders in the energy market, but stated that patents concerning business methods could still contain patentable subject matter.<sup>117</sup>

Holding that the “machine or transformation” test was not the sole indicator of whether a patent claimed an abstract idea, natural phenomenon, or law of nature,<sup>118</sup> the Court still viewed the test as a “useful and important clue, an investigative tool” for determining whether process inventions meet the § 101 threshold.<sup>119</sup>

After analyzing the plain meaning of the text and legislative history of the statute, the Court stressed the “wide scope” that should be granted to § 101.<sup>120</sup> In turn, the Court concluded that patents claiming business methods could receive patent protection if they did not fall into a judicial exception and complied with the other conditions of Title 35.<sup>121</sup>

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111. *See id.* at 191 (describing how the invention must still be novel under § 102 and nonobvious under § 103 in order to receive patent protection).

112. *See* Golden, *supra* note 99, at 1781–82 (discussing the inconsistencies between the two opinions); *see also* Jeffrey A. Lefstin, *Inventive Application: A History*, 67 FLA. L. REV. 565, 573–76 (2015); Michel, *supra* note 50, at 1755–56 (discussing the inconsistencies of *Flook* and *Diehr*).

113. *Flook* and *Diehr* have not been explicitly overturned. *See* *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355–56 (2014) (citing both *Flook* and *Diehr*).

114. The composition of the Supreme Court during both the *Diehr* and *Flook* decisions were the same. *See* *Parker v. Flook*, 437 U.S. 584 (1978) (with Justices Blackmun, Brennan, White, Marshall, Powell, and Stevens comprising the majority opinion of the Court and Justices Stewart, Rehnquist, and Chief Justice Burger in dissent); *Diamond v. Diehr*, 450 U.S. 175 (1981) (with Justices Rehnquist, White, Powell, Stewart, and Chief Justice Burger comprising the majority opinion and Justices Brennan, Blackmun, Marshall, and Stevens in dissent).

115. *See supra* note 112 and accompanying text.

116. 561 U.S. 593 (2010).

117. *See id.* at 606–07 (“Section 101 . . . precludes the broad contention that the term ‘process’ categorically excludes business methods.”).

118. *See id.* at 603–04. The “machine-or-transformation” test states that for a process to contain patentable subject matter, it must (1) be “tied to a particular machine or apparatus,” or (2) transform “a particular article into a different state or thing.” *See id.* at 602 (quoting *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008)).

119. *See id.* at 604. Justice Stevens called the machine-or-transformation test a “critical clue.” *Id.* at 614 (Stevens, J., concurring).

120. *See id.* at 601 (majority opinion) (citing *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980)).

121. *See id.* at 601–02.

However, in a concurring opinion, Justice Stevens criticized the plurality opinion stating that it did not “provide[] a satisfying account of what constitutes an unpatentable abstract idea”<sup>122</sup> and indicated that the plurality may have blurred the line between the specificity requirement of § 112 and what actually is patentable subject matter under § 101.<sup>123</sup>

Following *Bilski*, the analysis of abstract ideas under § 101 has been greatly influenced by *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*,<sup>124</sup> although the claim at issue did not involve an abstract idea.<sup>125</sup> In *Mayo*, the Court struck down a patent claiming a process for using thiopurine drugs to treat autoimmune diseases—specifically, for a more precise way to calculate patients’ drug dosage<sup>126</sup>—because it found that the claim did not add “enough” to the underlying natural law in order for it to constitute patentable subject matter.<sup>127</sup>

To transform a law of nature into a patentable application, the Court stated that the claimed patent must do more than state the law of nature and say “apply it”—it must contain an “inventive concept”, sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself.”<sup>128</sup>

However, the Court did not explicitly define what would constitute “significantly more” in order to make an application of a natural law patentable. A clue that the Court provided to determine if a claim added “significantly more” was that the patent at issue should not state “well-understood, routine, conventional activity previously engaged” in by people in the field of the claimed invention.<sup>129</sup> But what makes industry practices routine and conventional is debatable.<sup>130</sup> In its analysis, the Court again noted the danger in interpreting the judicial exceptions to patentability too broadly, as doing so could be detrimental to patent law because “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”<sup>131</sup>

Most recently, the Supreme Court analyzed the subject matter patentability of abstract ideas in *Alice Corp. v. CLS Bank International*,

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122. *Id.* at 621 (Stevens, J., concurring).

123. *See id.* at 620–21.

124. 132 S. Ct. 1289 (2012); *see also* *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2356–57 (2014) (adopting the two-part test for analyzing laws of nature in *Mayo* to the analysis of the patentability of abstract ideas).

125. *See Mayo Collaborative Servs.*, 132 S. Ct. at 1293–95 (analyzing a law of nature).

126. *See id.* at 1294–95.

127. *See id.* at 1297.

128. *See id.* at 1294.

129. *See id.* at 1299.

130. *Compare* *Diamond v. Diehr*, 450 U.S. 175, 191 (1981) (finding a patentable application of an abstract idea when a computer was added), *with* *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2352 (2014) (finding the patent at issue contained unpatentable subject matter by just adding “generic computer implementations”).

131. *See Mayo Collaborative Servs.*, 132 S. Ct. at 1293–94 (cautioning application of the judicial exception too broadly could “eviscerate patent law”); *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 868 (Fed. Cir. 2010); *see also Alice Corp.*, 134 S. Ct. at 2357 (quoting *Mayo Collaborative Servs.*, 132 S. Ct. at 1293); *Federico, supra* note 47, at 177 (“In one sense every invention is nothing but the result of new uses of old materials.”).

which centered around a “computerized trading platform for exchanging obligations in which a trusted third party settles obligations between a first and second party so as to eliminate ‘settlement risk.’”<sup>132</sup>

Initially, the Federal Circuit held that the claim was a patent-eligible application of an abstract idea.<sup>133</sup> However, it issued an opinion vacating its decision and granting an en banc hearing shortly afterward.<sup>134</sup> Although the en banc panel was highly fractured,<sup>135</sup> the plurality opinion by Judge Lourie analyzed the claim in light of the Supreme Court’s precedents in *Flook*, *Diehr*, *Bilski*, and *Mayo* to come to the conclusion that the claim at issue did not amount to “more than ‘well-understood, routine, conventional activity previously engaged in by researchers in the field.’”<sup>136</sup>

The Supreme Court then affirmed the en banc decision<sup>137</sup> and adopted the two-part framework to examine abstract ideas that it previously used to examine laws of nature in *Mayo*.<sup>138</sup> First, the Court determined that the patents were directed to an abstract idea<sup>139</sup>—“intermediated settlement.”<sup>140</sup> Then, it determined that the claims did not transform the abstract idea by adding substantially more to it<sup>141</sup> because it simply took the abstract idea of settlement risk and implemented it using “wholly generic computer implementation.”<sup>142</sup> The Court came to its decision without defining what “abstract” means.<sup>143</sup> Instead, it simply compared the claims at issue to the abstract idea in *Bilski*.<sup>144</sup>

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132. *CLS Bank Int’l v. Alice Corp.*, 685 F.3d 1341, 1343 (Fed. Cir. 2012), *vacated*, 484 Fed. App’x 559 (Fed. Cir. 2012).

133. *See id.* at 1343.

134. *See CLS Bank Int’l v. Alice Corp.*, 717 F.3d 1269, 1269–70 (Fed. Cir. 2013) (en banc), *aff’d*, 134 S. Ct. 2347 (2014).

135. Judges Lourie, Dyk, Prost, Reyna, and Wallach concurred in the plurality opinion; Judges Rader, Linn, Moore, and O’Mally concurred in part and dissented in part; Judges Moore, Rader, Linn, and O’Malley dissented in part; Judge Newman filed an opinion concurring in part and dissenting in part; and Judges Linn and O’Malley dissented from the court’s judgment. *See id.* at 1270. Commentators viewed the fractured nature of the opinion as “add[ing] to the uncertainty” surrounding the patentability of computer inventions. *See Erika H. Arner & Lauren J. Dreyer, CLS Bank v. Alice Leads to an Even Murkier Morass*, 230 *MANAGING INTELL. PROP.* 44, 44 (2013).

136. *See Alice Corp.*, 717 F.3d at 1283 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1294 (2012)).

137. *See Alice Corp.*, 134 S. Ct. at 2352.

138. *See id.* at 2355–57.

139. *See id.* at 2355.

140. *See id.* at 2352.

141. *See id.*

142. *See id.* at 2358.

143. Erik Paul Belt, *Alice Doesn’t Live Here Anymore: A Critique of the Supreme Court’s “Abstract Ideas” Test*, 45 *BPLA NEWSLETTER* 3 (Winter 2015), <http://www.bpla.org/?NewsL20150102Alice> [<http://perma.cc/8ELG-JDUY>]. Some scholars, such as former Chief Judge Paul R. Michel, view that this use of “abstractness” to determine § 101 patentability has proved to be “entirely unworkable” due to the “vague and subjective” nature of the term. *See Brief of the Honorable Paul R. Michel as Amicus Curiae in Support of Neither Party at 7, Alice Corp.*, 134 S. Ct. 2347 (No. 13–298) [hereinafter Michel Brief] (describing how abstractness in patent law has led to “unpredictable results in the hands of 7,000 examiners and some 1,000 district judges, not to mention the countless thousands of patent attorneys, inventors, business leaders, and investors”).

144. *See Alice Corp.*, 134 S. Ct. at 2358–59.

D. What “Significantly More” Entails

In *Alice*, the Court stated that “wholly generic computer implementation” did not add substantially more to the underlying idea<sup>145</sup> and indicated that “generic computer implementation[s]” would likely be those that only improved efficiency<sup>146</sup>—although it did not actually explicitly define what “wholly generic” consisted of with regard to computer software.<sup>147</sup>

Some members of the Federal Circuit shared *Alice*’s view of “significantly more,” stating that “[u]nless the claims require a computer to perform operations that are not merely accelerated calculations, a computer does not itself confer patent eligibility.”<sup>148</sup> The reason Judge Lourie cited for this determination was that a “computer is just a calculator capable of performing mental steps faster than a human could.”<sup>149</sup>

He is not alone in this assertion.<sup>150</sup> Another Federal Circuit judge, Judge Dyk, has held a similar position. In *SiRF Technology, Inc. v. International Trade Commission*<sup>151</sup>—although the court ultimately determined that the patents at issue<sup>152</sup> contained patentable subject matter<sup>153</sup>—Judge Dyk stated:

In order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed, *rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly*, i.e., through the utilization of a computer for performing calculations.<sup>154</sup>

In coming to this conclusion, he noted that although the claim at issue contained mathematical calculations, the scope of the claim was properly

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145. *See id.* at 2358.

146. *See id.* at 2358–59.

147. *See id.*; John Kong, *Practical Points from the Supreme Court’s Alice Decision*, CAFC ALERT (June 19, 2014), <http://cafc.whda.com/2014/06/practical-points-from-the-supreme-courts-alice-decision/> (describing how the court did not define what a “generic” computer means) [<http://perma.cc/WH8H-HFWG>]. “Generic” is an adjective defined as “relating to or characteristic of a whole group or class” or “having no particularly distinctive quality or application.” *See Generic*, MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY (11th ed. 2003).

148. *See* *CLS Bank Int’l v. Alice Corp.*, 717 F.3d 1269, 1286 (Fed. Cir. 2013) (en banc), *aff’d*, 134 S. Ct. 2347.

149. *See id.*

150. *See* *Parker v. Flook*, 437 U.S. 584, 595 n.18 (1978) (“[A] claim for an improved method of calculation, even when tied to a specific end use, is unpatentable subject matter under § 101.”); *see also* *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1333 (Fed. Cir. 2010).

151. 601 F.3d 1319 (Fed. Cir. 2010).

152. *See id.* at 1333. Judge Dyk describes “Assisted-GPS” technology as a process where the navigation message from a satellite is “collected by a receiving station with an unobstructed view of the sky, and then transmitted to GPS receivers via computer servers” through a connection such as a wireless network. *See id.* at 1323.

153. *See id.* at 1333.

154. *See id.* (emphasis added).



limited because there was “no evidence [in that case] that the calculations . . . can be performed entirely in the human mind.”<sup>155</sup>

However, this view of “significantly more” is not without criticism. Judge Rader,<sup>156</sup> former Chief Judge of the Federal Circuit, raised a proposition concerning whether speed can constitute a “meaningful limitation” with regard to patent eligibility under § 101.<sup>157</sup> While agreeing with the prior Supreme Court precedent stating that a computer “does not render [the claim] abstract,”<sup>158</sup> he disagreed with Judge Lourie’s opinion that “a computer must do something other than what a computer does before it may be considered a patent-eligible invention.”<sup>159</sup> He posited, “[i]f a computer can do what a human can in a better, specifically limited way,” the invention can cover patentable subject matter<sup>160</sup>—venturing to say that “even an increase in *speed alone* may be sufficient to result in a meaningful limitation.”<sup>161</sup>

Judge Rader provided an example: “[I]f a computer can perform a process that would take a human an entire lifetime, a claim covering that solution should be sufficiently limited to be patent eligible.”<sup>162</sup>

Prior courts have also held that specific increases in efficiency tied to computers constituted patentable subject matter under § 101.<sup>163</sup> In *Diehr*,

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155. *See id.* Subsequent courts have also highlighted this limiting criteria. *See, e.g.,* *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (discussing *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972), and describing that a calculation that can be executed entirely by the human mind or by using pen and paper contained unpatentable subject matter under § 101); *see also* *Bancorp Servs., L.L.C. v. Sun Life Assurance. Co. of Can.*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“[A] computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.”); Belt, *supra* note 143 (discussing *Tuxis Techs. v. Amazon.com*, No. 13-1771-RGA, 2014 WL 4382446 (D. Del. Sept. 3, 2014), and how claim drafters should highlight the ability that makes a computer central to a claim, like “require[ing] 10,000 operations or transactions per second,” that are unable to be mentally calculated by a person).

156. Judge Randall Rader retired in 2014 after being on the Federal Circuit since 1990. *See History of the Federal Judiciary: Biographical Directory of Federal Judges, 1789–Present*, FED. JUD. CTR., <http://www.fjc.gov/public/home.nsf/hisj> (search “Rader”) (last visited Oct. 21, 2015) [<http://perma.cc/NBB7-KU73>].

157. *See* *CLS Bank Int’l v. Alice Corp.*, 717 F.3d 1269, 1306 n.7 (Fed. Cir. 2013) (en banc) (Rader, J., concurring), *aff’d*, 134 S. Ct. 2347 (2014).

158. *See id.* at 1306; *see also* *Bilski v. Kappos*, 561 U.S. 593, 605 (2010) (describing how computer programs could be patentable); *Diamond v. Diehr*, 450 U.S. 175, 187 (1981) (“[A] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program, or digital computer.”); *Parker v. Flook*, 437 U.S. 584, 595 (1978).

159. *Alice Corp.*, 717 F.3d at 1306 n.7 (Rader, J., concurring).

160. *Id.*

161. *Id.* (emphasis added). Judge Rader’s idea might also be consistent with that of Samuelson and Schultz, who explain that a clue for determining subject matter patentability is whether the invention has “specific benefits that are measurable.” Pamela Samuelson & Jason Schultz, “Clues” for Determining Whether Business and Service Innovations Are Unpatentable Abstract Ideas, in *PERSPECTIVES ON PATENTABLE SUBJECT MATTER* 8, 13 (Michael B. Abramowicz, James E. Daily & F. Scott Kieff eds., 2015).

162. *Alice Corp.*, 717 F.3d at 1306 n.7.

163. *See Diehr*, 450 U.S. at 188; *Research Corp. Techs., v. Microsoft Corp.*, 627 F.3d 859, 869 (Fed. Cir. 2010) (finding a patent claim for rendering gray scale images patentable

the Supreme Court held that a patent that claimed “a more *efficient* solution of the equation” utilized for curing rubber contained patentable subject matter under § 101,<sup>164</sup> and the decision has not been explicitly overruled.<sup>165</sup> Whether the “significantly more” requirement of *Alice* has been met is under further evaluation by lower courts and the USPTO.<sup>166</sup>

#### E. Alice: *The Invalidator of Patents*

Historically, once a patent was granted by the USPTO, it was presumed valid by the courts absent “clear and convincing evidence”<sup>167</sup> to the contrary.<sup>168</sup> Under § 282 of the Patent Act,<sup>169</sup> when a patent’s validity is challenged, the burden rests with the challenging party,<sup>170</sup> and the court must consider the patent’s validity in light of the whole invention or discovery.<sup>171</sup>

However, since *Alice*, courts have been invalidating patents at a “legendary rate.”<sup>172</sup> The majority of lower courts have invalidated patents under § 101 since June 2014, stating that the claims contain unpatentable abstract ideas.<sup>173</sup> As of June 2015, federal courts have invalidated seventy-

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under § 101 because “inventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language to the Patent Act”).

164. *See Diehr*, 450 U.S. at 188 (emphasis added).

165. *See Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014); David Kappos, *Symposium: Supreme Court Leaves Patent Protection for Software Innovation Intact*, SCOTUSBLOG (June 20, 2014), <http://www.scotusblog.com/2014/06/symposium-supreme-court-leaves-patent-protection-for-software-innovation-intact> (discussing how “*Diehr*’s new and useful process for curing rubber was held to be innately patentable” in *Alice*) [<http://perma.cc/AMT3-FLWS>].

166. *See infra* Part I.E.

167. *See Microsoft Corp. v. i4i Ltd.*, 131 S. Ct. 2238, 2242 (2011).

168. *See Radio Corp. of Am. v. Radio Eng’g Labs.*, 293 U.S. 1, 7–8 (1934).

169. 35 U.S.C. § 282 (2012) (providing that invalidity can be a defense to a patent infringement claim and that “a patent shall be presumed valid”).

170. *Id.*; *i4i Ltd.*, 131 S. Ct. at 2242.

171. *See Diamond v. Diehr*, 450 U.S. 175, 188 (1981) (stating that the “fact that by themselves one or more steps might not be novel or independently eligible for patent protection was irrelevant to the issue of whether the claims as a whole recited subject matter eligible for patent protection”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010).

172. Lewis Hudnell, *The Wonderland of Patent Ineligibility As Litigation Defense*, LAW360 (June 5, 2015, 10:19 AM), <http://www.law360.com/articles/662143/the-wonderland-of-patent-ineligibility-as-litigation-defense> [<http://perma.cc/E29T-CCF2>]; *see also* Robert R. Sachs, *Twenty-Two Ways Congress Can Save Section 101*, BLISKIBLOG.COM (Feb. 12, 2015), <http://www.bilskiblog.com/blog/2015/02/twenty-two-ways-congress-can-save-section-101.html> [<http://perma.cc/ZZA3-BVVJ>].

173. *See, e.g., Planet Bingo, LLC v. VKGS LLC*, 576 Fed. App’x 1005, 1006 (Fed. Cir. 2014) (applying *Alice* and invalidating a patent for a computer-aided management of a game of bingo because it could be “carried out by a human using pen and paper”); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (applying *Alice* and invalidating the patent); *Digitech Image Techs., LLC v. Elecs. For Imaging, Inc.*, 758 F.3d 1344, 1347 (Fed. Cir. 2014); *DietGoal Innovations LLC v. Bravo Media LLC*, 33 F. Supp. 3d 271, 290 (S.D.N.Y. 2014); *Comcast IP Holdings I, LLC v. Sprint Commc’ns Co.*, 55 F. Supp. 3d 544, 551 (D. Del. 2014); *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 56 F. Supp. 3d 813 (E.D. Va. 2014). *But see* *Card Verification Solutions, LLC v. Citigroup Inc.*, No. 13 C 6339, 2014 WL 4922524, at \*4–5 (N.D. Ill. Sept. 29, 2014) (holding that the claimed patent describing a

six out of 106 patent claims on § 101 grounds that have been analyzed under the *Alice* framework.<sup>174</sup> Some of this invalidation has taken place at the motion to dismiss stage.<sup>175</sup> Since *Alice*, more than 50 percent of motions to dismiss patent infringement claims have been granted.<sup>176</sup> This has led to courts invalidating more patents under § 101 since *Alice* than they had in the previous five years combined<sup>177</sup> and to more uncertainty in patent law—an effect that the judiciary has viewed negatively in the past.<sup>178</sup>

Likewise, the *Alice* framework has also affected the process by which business method patents are evaluated by the USPTO. In response to the Supreme Court's opinion in *Alice*, the USPTO released preliminary examination instructions with regard to examining patents involving abstract ideas—specifically, computer-implemented abstract ideas.<sup>179</sup> Patent examiners are to apply the *Alice* and *Mayo* framework to analyze all judicial exceptions to patentability—not just laws of nature as was the practice prior to *Alice*—as well as to all types of patent claims, whether the claims purport to be product or process claims.<sup>180</sup>

First, patent examiners must analyze whether the claim covers an abstract idea (or other judicial exception). If it does, then they must determine whether “any element, or combination of elements, in the claim is sufficient to ensure that the claim amounts to *significantly more* than the abstract idea itself.”<sup>181</sup>

Following the issuance of its memorandum, the USPTO has since withdrawn notice of allowances for some patent applications that it deemed were most likely affected by *Alice*—applications claiming an abstract idea involving generic computer implementation.<sup>182</sup> And, since the *Alice*

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means to verify “information for a transaction securely” contained an abstract idea, but added “elements” to it in order to constitute patentable subject matter under § 101).

174. See Robert R. Sachs, *The One Year Anniversary: The Aftermath of #Alicestorm*, BILSKIBLOG.COM (June 20, 2015), <http://www.bilskiblog.com/blog/2015/06/the-one-year-anniversary-the-aftermath-of-alicestorm.html> [http://perma.cc/ASB3-9TB7].

175. Belt, *supra* note 143 (discussing Tuxis Techs., LLC v. Amazon.com, Inc., No. 13-1771-RGA, 2014 WL 4382446 (D. Del. Sept. 3, 2014)); see also Sachs, *supra* note 174 (detailing the number of patents that have been dismissed under § 101 at the motion to dismiss stage after *Alice*); Sachs, *supra* note 172.

176. See Sachs, *supra* note 172.

177. See generally *id.*

178. See *Bilski v. Kappos*, 561 U.S. 593, 613 (2010) (Stevens, J., concurring) (describing how keeping patent law “stable and clear” is of the utmost importance); *In re Bilski*, 545 F.3d 943, 977 (Fed. Cir. 2008) (Newman, J., dissenting) (“Uncertainty is the enemy of innovation.”), *aff'd on other grounds*, 561 U.S. 593; see also Timothy B. Dyk, *Ten Prescriptions for What Ails Patent Law*, 17 STAN. TECH. L. REV. 345, 350–51 (2014).

179. See Memorandum from Andrew H. Hirshfeld, Deputy Comm'r for Patent Examination Policy, U.S. Patent and Trademark Office, to Patent Examining Corp (June 25, 2014), [http://www.uspto.gov/patents/announce/alice\\_pec\\_25jun2014.pdf](http://www.uspto.gov/patents/announce/alice_pec_25jun2014.pdf) [http://perma.cc/4F5H-NELB].

180. See *id.* at 2.

181. See *id.* at 3.

182. See Peggy Focarino, *Update on USPTO's Implementation of "Alice v. CLS Bank"*, DIRECTOR'S FORUM: A BLOG FROM USPTO'S LEADERSHIP (Aug. 4, 2014), [http://www.uspto.gov/blog/director/entry/update\\_on\\_uspto\\_s\\_implementation](http://www.uspto.gov/blog/director/entry/update_on_uspto_s_implementation) [http://perma.cc/Q9CC-85XT]. Since the USPTO has implemented *Alice* in patent examinations, over 800 patent

decision, the USPTO has received fewer filings claiming business methods.<sup>183</sup> As a result, scholars have expressed that this signals a fundamental change in the “law and future of software patents.”<sup>184</sup>

## II. THE CONFLICTING VIEWS ON WHETHER ALICE EXCEEDS ITS § 101 BOUNDS

The test that the Supreme Court utilized for examining laws of nature in *Mayo*, and abstract ideas in *Alice*, is not without criticism and, alternatively, praise.<sup>185</sup> Some individuals believe that the *Alice* framework has blurred the procedural boundaries and requirements of the Patent Act, while others believe that the *Alice* test conforms to the Patent Act’s framework of § 101 as a threshold inquiry. Part II of this Note discusses both viewpoints. First, Part II.A describes the view that the *Alice* framework is unworkable because it injects into the subject matter patentability analysis criteria that is normally reserved for analysis under other sections of the Patent Act, creating uncertainty and, with it, potential to stifle innovation. In contrast, Part II.B describes the view that the *Alice* framework for analyzing subject matter patentability conforms to the § 101 procedural framework as a threshold inquiry, allowing the courts and the USPTO to efficiently process patent claims and curb abusive patent litigation.

### A. *Alice Blurs the Lines*

Some individuals take the view that the *Alice* framework has produced a negative effect on patent law by blurring the § 101 criteria with the criteria

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applications have been withdrawn. See Tristan Gray-Le Coz & Charles Duan, *Apply It to the USPTO: Review of the Implementation of Alice v. CLS Bank in Patent Examination*, 2014 PATENTLY-O PATENT L.J. 1, 2. Software companies appear to be the most affected by the *Alice* decision and “tens of thousands of assets owned by . . . IBM, Microsoft, Apple, Oracle, Google and Cisco could be threatened by” the *Alice* holding. See Joff Wild, *Big US Tech Companies Face Major Patent Losses in the Post-Alice World*, *IAM Research Reveals*, *IAM MAGAZINE* (Sept. 27, 2014), <http://www.iam-magazine.com/blog/Detail.aspx?g=2028b324-2d4a-4523-9f0d-f0773b8b3fa1> [<http://perma.cc/B3DQ-C44X>]. International Business Machines Corporation (IBM), eBay Inc., and Microsoft Corporation were the top three applicants with the most post-*Alice* withdrawals. See Gray-Le Coz & Duan, *supra* note 182, at 5.

183. See “Stat of the Quarter”—*Monthly Filings in USPC Classes 435, 506, 530, 536, and 514 (Biologics and Diagnostic Methods) and USPC Class 705 (Business Methods), Not Including RCEs*, USPTO, <http://www.uspto.gov/dashboards/patents/main.dashxml> (last visited Oct. 21, 2015) (depicting less business method filings per month than occurred in the months prior to the *Alice* decision) [<http://perma.cc/726F-M4S8>].

184. See Gene Quinn, *The Ramifications of Alice: A Conversation with Mark Lemley*, *IPWATCHDOG* (Sept. 4, 2014), <http://www.ipwatchdog.com/2014/09/04/the-ramifications-of-alice-a-conversation-with-mark-lemley/id=51023/> (depicting Quinn and Lemley agreeing that *Alice*’s impact on patent law is significant due to the change in the way that lower courts and the USPTO have analyzed patentability issues after *Alice*) [<http://perma.cc/A7L2-TUYB>]; see also Timothy B. Lee, *Software Patents Are Crumbling, Thanks to the Supreme Court*, *VOX* (Sept. 12, 2014), <http://www.vox.com/2014/9/12/6138483/software-patents-are-crumbling-thanks-to-the-supreme-court> [<http://perma.cc/68M3-A4W8>].

185. See Michel Brief, *supra* note 143, at 9; see also Ted Sichelman, *Funk Forward, in INTELLECTUAL PROPERTY AT THE EDGE: THE CONTESTED CONTOURS* 368–69 (Cambridge Univ. Press 2014).

of other sections of the Patent Act. This, they claim, has led to further uncertainty in the subject matter patentability analysis.<sup>186</sup>

Historically, courts have noted that references to novelty or obviousness have no place in the § 101 analysis.<sup>187</sup> In *Flook*, the Supreme Court was explicit in delineating how the proper construction of § 101 eligibility “does not involve the familiar issues of novelty and obviousness that routinely arise under §§ 102 and 103 when the validity of a patent is challenged.”<sup>188</sup> Likewise, in *Diehr*, the court stated “[t]he ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”<sup>189</sup> Citing both *Diehr* and *Flook*, Justice Stevens voiced similar concerns in his *Bilski* concurrence.<sup>190</sup> Justice Stevens was critical of the Court’s reasoning, which appeared to bring novelty and other claim construction criteria into the subject matter patentability inquiry.<sup>191</sup>

Likewise, the Federal Circuit has previously stated that analyzing § 101 validity concerns prior to resolving any claim construction issues is not desirable.<sup>192</sup> The court explained that “the determination of patent eligibility requires a full understanding of the basic character of the claimed subject matter.”<sup>193</sup>

Without allowing for this understanding of the basic character of the claim, some practitioners view the Court’s analysis of abstract ideas in *Alice* as blurring and interjecting § 102 and § 103 requirements into the § 101 analysis.<sup>194</sup> Evidence of this blurring can be seen in opinions

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186. See generally *Where Do We Stand One Year After Alice*, LAW360 (June 17, 2015, 8:27 PM) [hereinafter *Where Do We Stand*], <http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice> [<http://perma.cc/49Y4-GVJJ>].

187. See *Diamond v. Diehr*, 450 U.S. 175, 188–90 (1981); see also *Bilski v. Kappos*, 561 U.S. 593, 620–21 (2010).

188. *Parker v. Flook*, 437 U.S. 584, 588 (1978).

189. See *Diehr*, 450 U.S. at 189–90 (citing cases stating that the questions of § 101 and those that involve novelty are separate inquiries).

190. See *Bilski*, 561 U.S. at 620–21 (Stevens, J., concurring).

191. See *id.* (“[T]he fact that hedging is ‘long prevalent in our system of commerce[]’ . . . cannot justify the Court’s conclusion, as ‘the proper construction of § 101 . . . does not involve the familiar issu[e] of novelty that arise[s] under § 102.’ (internal citation omitted)).

192. See *Bancorp Servs., LLC v. Sun Life Assur. Co. of Can.*, 687 F.3d 1266, 1273–74 (Fed. Cir. 2012).

193. See *id.*

194. See Belt, *supra* note 143; see also Kristen Osenga, *Still Aiming at the Wrong Target: A Case for Business Method and Software Patents from a Business Perspective*, in PERSPECTIVES ON PATENTABLE SUBJECT MATTER, *supra* note 161, at 29, 40 (stating that “inquiries into novelty and nonobviousness have been hopelessly entwined into the § 101 analysis”); David Bohrer, *Guest Post: In Rush to Invalidate Patents at Pleadings Stage, Are Courts Coloring Outside the Lines?*, PATENTLYO (July 1, 2015), <http://patentlyo.com/patent/2015/07/invalidate-pleadings-coloring.html> [<http://perma.cc/DLD2-RQNR>]; John Duffy, *Opinion Analysis: The Uncertain Expansion of Judge-Made Exceptions to Patentability*, SCOTUSBLOG (June 20, 2014, 12:46 PM), <http://www.scotusblog.com/2014/06/opinion-analysis-the-uncertain-expansion-of-judge-made-exceptions-to-patentability/> [<http://perma.cc/PX6Y-4A8D>]; David Hricik, *Which Side of the Mushroom Did Alice Eat From?*, PATENTLYO (June 22, 2014), <http://patentlyo.com/hricik/2014/06/which-mushroom-alice.html> (describing the ambiguity of the *Alice* decision by stating “[it] is going to cause us

where language that has been used to invalidate patents is more reminiscent of the § 102 and § 103 requirements.<sup>195</sup> For instance, courts have used descriptions such as “conventional,”<sup>196</sup> “long prevalent,”<sup>197</sup> “routine,”<sup>198</sup> and “well-known”<sup>199</sup> to analyze § 101 claims—“improperly comingl[ing] patent-eligibility under 35 U.S.C. § 101 with what is more appropriately an issue of patentability under 35 U.S.C. § 102 and/or 35 U.S.C. § 103.”<sup>200</sup> While this criticism arguably is not new,<sup>201</sup> it has been exacerbated with the use of the *Alice* framework.

This analysis is troubling to practitioners because it may allow courts to dispose of litigation without subjecting the claims to the clear and convincing evidence standard traditionally required under § 102 and § 103.<sup>202</sup> Unlike analysis under § 102 and § 103, subject matter

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all to bang our heads, stub our toes, and wander through Wonderland for many years to come”) [http://perma.cc/67PN-ZDW7]; Jeffrey A. Lefstin, *The Three Faces of Prometheus: Alice and Generic Application*, PATENTLYO (June 24, 2014), <http://patentlyo.com/patent/2014/06/prometheus-generic-application.html> (“*Alice* may fail to provide clear boundaries for the eligibility of computer-implemented inventions.”) [http://perma.cc/JK54-X4JA]; Rob Merges, *Symposium: Go Ask Alice—What Can You Patent After Alice v. CLS Bank?*, SCOTUSBLOG (June 20, 2014), <http://www.scotusblog.com/2014/06/symposium-go-ask-alice-what-can-you-patent-after-alice-v-cls-bank/> (referring to the Supreme Court’s holding in *Alice*: “There is bound to be an enormous amount of argumentation over this framework in cases yet to come”) [http://perma.cc/4DSQ-A88P]; Michel, *supra* note 50, at 1753 (describing how “you can’t look at § 101[] in isolation from § 102,[] § 103,[] and § 112,[] and have it work very well”).

195. See Belt, *supra* note 143.

196. See *Loyalty Conversion Sys. Corp. v. Am. Airlines, LLC*, 66 F. Supp. 3d 829, 843 (E.D. Tex. 2014); *CMG Fin. Servs., Inc. v. Pacific Tr. Bank*, 50 F. Supp. 3d 1306, 1326 (C.D. Cal. 2014); *DietGoal Innovations LLC v. Bravo Media LLC*, 33 F. Supp. 3d 271, 287–88 (S.D.N.Y. 2014).

197. See *DietGoal Innovations LLC*, 33 F. Supp. 3d at 283 (invalidating a patent because the practice was “long prevalent”).

198. See *Loyalty Conversion Sys. Corp.*, 66 F. Supp. 3d at 838; *Walker Dig., LLC v. Google, Inc.*, 66 F. Supp. 3d 501, 511, 515 (D. Del. Sept. 3, 2014); *CMG Fin. Servs., Inc.*, 50 F. Supp. 3d at 1326.

199. See *I/P Engine, Inc. v. AOL Inc.*, 976 Fed. App’x 982 (Fed. Cir. 2014) (Mayer, J., concurring) (describing that the patent should have been invalidated for containing ineligible subject matter by using the phrase “well-known”).

200. See Eric Gutttag, *The Broken Patent-Eligibility Test of Alice and Mayo: Why We Urgently Need to Return to Principles of Diehr and Chakrabarty*, IPWATCHDOG.COM (Sept. 25, 2014), <http://www.ipwatchdog.com/2014/09/25/broken-patent-eligibility-test-of-alice-and-mayo/id=51370/> [http://perma.cc/3PNF-FHQS].

201. See Sachs, *supra* note 172 (noting criticisms of the consideration of novelty in the § 101 analyses have been around since *Flook*); see also *Parker v. Flook*, 437 U.S. 584, 600 (1978) (Stewart, J. dissenting) (describing how *Flook* “import[ed] into its inquiry under 35 U.S.C. § 101 the criteria of novelty and inventiveness”).

202. See Belt, *supra* note 143; Bohrer, *supra* note 194; see also Osenga, *supra* note 194, at 30 (stating that “the PTO and the courts are using proxy-type inquiries to cut off the patentability analysis of these inventions at the threshold step”); *Where Do We Stand*, *supra* note 186 (describing Chuck Ebertin’s view that “[c]ourts are now invalidating patent after patent using their own subjective views as to what is sufficiently inventive to be patent eligible instead of applying the objective standards set forth in section 103”); Kong, *supra* note 147 (discussing the clear and convincing evidence required to determine that a claim is “conventional” under § 102 and § 103).

patentability analysis is subject to de novo review by the Federal Circuit because it is a question of law.<sup>203</sup>

Consequently, whether they should or not, courts have already begun to dismiss patent claims at the motion to dismiss stage<sup>204</sup> without citing any supportive language from the Patent Act.<sup>205</sup> As David Stein, a patent practitioner, notes as of September 2014, “not one” court decision invalidating a patent under § 101 did so citing to any legislative history to support its interpretation; rather, courts relied on only other court opinions.<sup>206</sup>

Because of this, “[t]he federal courts, the Patent Trial and Appeal Board, and the USPTO are using the very lack of a[n] [abstract ideas] definition to liberally expand the contours of abstract ideas to cover everything from computer animation to database architecture . . . .”<sup>207</sup> Arguably, this liberal invalidation of claims for failing to contain patentable subject matter does not comport with the traditional interpretation of subject matter patentability. Contrary to Judge Rader’s position, dismissal under Rule 12(b)(6) for lack of subject matter eligibility is no longer an exception.<sup>208</sup>

This early dismissal trend is troubling because the Supreme Court has not ruled that the “presumption of validity” no longer applies to § 101.<sup>209</sup> Although, historically, once a patent was issued by the USPTO it was presumed to be valid, scholars argue that “[t]he presumption of validity and the burden of clear and convincing evidence was nowhere to be seen” in recent decisions to invalidate patent claims at the motion to dismiss stage under § 101.<sup>210</sup>

This tendency to invalidate patents could stifle innovation. Some members of the judiciary argue that the Supreme Court’s approach to abstract ideas, and the Federal Circuit’s en banc plurality reasoning in *Alice*, could “decimate the electronics and software industries.”<sup>211</sup> Judge Moore,

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203. Osenga, *supra* note 194, at 41.

204. *See, e.g., Tuxis Techs., LLC v. Amazon.com, Inc.*, No. 13-1771-RGA, 2014 WL 4382446 (D. Del. Sept. 3, 2014) (granting a motion to dismiss a patent dispute under Rule 12(b)(6)); *see also supra* Part I.E.

205. David Stein, *The Alice Trajectory*, USPTO TALK (Sept. 27, 2014), <http://www.usptotalk.com/the-alice-trajectory/> [<http://perma.cc/Q3C2-SDJ8>].

206. *See id.*

207. Sachs, *supra* note 174.

208. *See id.* (describing how Judge Rader stated that “Rule 12(b)(6) dismissal for lack of eligible subject matter will be the exception, not the rule”); *Where Do We Stand*, *supra* note 186.

209. *See* Sachs, *supra* note 174; *see also supra* notes 168–71 and accompanying text. *But see* *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 717 (Fed. Cir. 2014) (Mayer, J., concurring) (describing how “no presumption of eligibility attends the section 101 inquiry”).

210. Belt, *supra* note 143; *see also* Sachs, *supra* note 172 (stating that the behavior of the courts “suggests that the presumption [of validity] in practice has no weight”). Presumption of validity and clear and convincing evidence has traditionally been required when a court is analyzing the validity of a patent. *See supra* Part I.E.

211. *See* *CLS Bank Int’l v. Alice Corp.*, 717 F.3d 1269, 1313 n.1 (Fed. Cir. 2013) (en banc) (Moore, J., dissenting) (“There has never been a case which could do more damage to the patent system than this one.”), *aff’d*, 134 S. Ct. 2347 (2014); *see also* Michel Brief, *supra* note 143, at 9.

in a dissent to the same plurality opinion, observed that “[i]f all of the claims of these [patents at hand] are ineligible, so too are the 320,799 patents which were granted from 1998–2011 in the technology era.”<sup>212</sup>

Similarly, former Chief Judge Michel argued that if the patents in *Alice* at issue were not analyzed similar to that in *Diehr*, the concept of relative abstractness will lead to confusion and would “cripple, if not destroy, computer-related industries, of which there are many and which are vital to the future of the country in today’s highly competitive global economy.”<sup>213</sup> Chief Judge Michel warned of the possible negative ramifications of defining the contours of patentable subject matter under § 101 too narrowly.<sup>214</sup> He cautioned that adopting the Court’s prior test for life science § 101 cases would be “particularly unsuitable in computer cases because any software solution can be described at high levels that will necessarily be abstract, and lower levels that will not,” a way of examination that he stated “does not fit the realities of computer technology.”<sup>215</sup> He feared analyzing software claims in this manner would lead to invalidity of the claims<sup>216</sup>—a hypothesis that thus far has occurred.<sup>217</sup> Likewise, Chief Judge Michel claims that framework does not create adequate incentives to invest money in new inventions and innovations due to the uncertainty of subject matter patentability.<sup>218</sup>

In applying the *Alice* test to the patentability of abstract ideas, critics argue that the Supreme Court seems to be making decisions about patentability utilizing “gut reactions or even worse, huge assumptions.”<sup>219</sup>

212. See *Alice Corp.*, 717 F.3d at 1313 n.1 (Moore, J., dissenting).

213. See Michel Brief, *supra* note 143, at 9. Former Chief Judge Paul Redmond Michel served on the Federal Circuit from 1988 to 2010. See *History of the Federal Judiciary: Biographical Directory of Federal Judges, 1789–Present*, FED. JUD. CTR., <http://www.fjc.gov/public/home.nsf/hisj> (search “Michel”) (last visited Oct. 21, 2015) [<http://perma.cc/629W-WGVE>].

214. See Michel Brief, *supra* note 143, at 2 (“The criteria for patent-eligibility should exclude only clearly ineligible inventions, allowing the other sections of the Patent Act—sections 102, 103, and 112 on conditions of patentability—to perform their respective functions.”); see also Michel, *supra* note 50, at 1753 (describing how recent court decisions lack broad perspectives regarding “the interaction of the different parts of the patent statute, the interaction between the PTO, the courts, the companies, the inventors, [and] the investors”).

215. See Michel Brief, *supra* note 143, at 8.

216. See *id.* at 11 (describing how if “the Court lets the [concept of abstractness] spread and its edges bleed and blur, neither computer innovation nor the public at large will benefit”).

217. See *supra* Part I.E.

218. See Michel, *supra* note 50, at 1760 (stating that the patent system is meant to induce investments because “not all invention but most invention [] requires a lot of money”).

219. See Michel, *supra* note 50, at 1753; see also *Eclipse IP LLC v. McKinley Equip. Corp.*, No. SACV 14-154-GW (ajw), 2014 WL 4407592, at \*3 (C.D. Cal. Sept. 4, 2014); Dennis Crouch, *Abstract Idea: I Know It When I See It*, PATENTLYO (Sept. 11, 2014), <http://patentlyo.com/patent/2014/09/abstract-know-when.html> (describing Judge Wu’s dismissal of a patent for containing an abstract idea under the *Alice* framework) [<http://perma.cc/3XES-RPR9>]; Jason Rantanen, *Alice, Artifice, and Action—and Ultracommercial*, PATENTLYO (July 8, 2014), <http://patentlyo.com/patent/2014/07/artifice-action-ultracommercial.html> (“[Section] 101 determinations are in the end based on nothing more than intuition.”) [<http://perma.cc/M6UA-J8B9>]; David Stein, *Post-Alice Rationale for 35 USC*



For example, Judge Wu of the U.S. District Court for the Central District of California likened the Supreme Court's analysis in *Alice* to Justice Stewart's famous test for analyzing obscenity<sup>220</sup>—explaining it as an unpredictable result that is problematic when patent applications must be examined by USPTO patent examiners.<sup>221</sup> One proposed cause of these unpredictable results is that the Court has perpetuated unsubstantiated assumptions regarding § 101 by repeating them in its decisions without stating the data that it has relied upon in coming to its conclusions.<sup>222</sup> An example that former Chief Judge Michel provides is Justice Breyer's claim in *Mayo* that patents can stifle innovation, rather than incentivize it.<sup>223</sup> Chief Judge Michel views Justice Breyer's proclamation "as an oracular truth" without data concerning that assessment.<sup>224</sup> Likewise, in some instances, the judiciary has been bound by the "sweeping language" in the two-step framework, forcing them to invalidate patents where they "see no reason, in policy or statute why, [the invention] should be deemed patent ineligible."<sup>225</sup>

This use of sweeping language can cause further uncertainty in patent law that might affect innovation. Because inventors are sometimes required to secure outside funding for their research, these inventors would favor broader patent protection as "patents induce investments."<sup>226</sup> For example, patents assist university research by enabling "successful commercialization" of innovation, decreasing the risk to investors by offering protection for the innovation, inducing investment as a result of that protection, and allowing the "innovation to be quantified."<sup>227</sup>

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101 Ineligibility, USPTO TALK, <http://www.usptotalk.com/post-alice-rationale-for-35-usc-101-ineligibility/> (last visited Oct. 21, 2015) (describing courts' reasoning for invalidating patents under § 101 after *Alice* as "subjective") [<http://perma.cc/F6X3-ETLH>].

220. See *Eclipse IP LLC*, 2014 WL 4407592, at \*3. In reference to obscenity, Justice Stewart stated: "I know it when I see it." *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring).

221. See Crouch, *supra* note 219.

222. See Michel, *supra* note 50, at 1754.

223. See *id.*

224. See *id.* at 1755 (stating the Court has "trapped [itself] by picking up dicta from ancient Supreme Court cases and repeating it and repeating it and turning it into . . . oracular truth").

225. *Ariosa Diagnostics, Inc. v. Sequenom Inc.*, 788 F.3d 1371, 1381 (Fed. Cir. 2015) (Linn, J., Concurring).

226. See, e.g., *Driving American Innovation: Creating Jobs and Boosting Our Economy: Hearing Before the Subcomm. on Intellectual Property, Competition, and the Internet of the H. Comm. on the Judiciary*, 112th Cong. 26 (2011) [hereinafter *Driving American Innovation Hearing*] (statement of Scott Smith, Professor & Chair, Department of Mechanical Engineering & Engineering Science, University of North Carolina at Charlotte); *id.* at 8 (statement of Anthony Atala, Director, Wake Forest Institute for Regenerative Medicine, W.H. Boyce Professor & Chair, Department of Urology, Wake Forest University School of Medicine) (describing the need for increased funding and "ensur[ed] intellectual property protection for everything [the Wake Forest Institute for Regenerative Medicine] does).

227. See, e.g., *id.* at 26 (statement of Scott Smith, Professor & Chair, Department of Mechanical Engineering & Engineering Science, University of North Carolina at Charlotte). "[S]oftware patents represent a significant and growing percentage of university patent holdings." Arti K. Rai, John R. Allison & Bhaven N. Sampat, *University Software*

As a remedy to the blurring and innovation consequences, some practitioners argue that *Diehr* should be codified by Congress in order to remove novelty and obviousness language from the § 101 analysis.<sup>228</sup> Likewise, judges have also advocated the use of § 102 and § 103 as a basis of finding invalidity to avoid using the uncertain criteria surrounding subject matter patentability and abstract ideas under *Alice*.<sup>229</sup> Judge Gilstrap of the Eastern District of Texas has even issued new procedures for parties that wish to bring early motions to dismiss involving *Alice*.<sup>230</sup> To curb dismissal of infringement claims prior to discovery, if a party wants to bring a motion to dismiss under *Alice*, Judge Gilstrap requires parties to show good cause before leave from the court can be granted.<sup>231</sup>

### B. The Alice Framework Is a Threshold Inquiry

In contrast to those that believe that the *Alice* framework blurs the procedural bounds of § 101, some members of the judiciary, practitioners, and scholars believe that the Supreme Court's framework for analyzing abstract ideas under *Alice* is within the § 101 procedural bounds as a "threshold" inquiry. In prior decisions, the Supreme Court and the Federal Circuit have recognized the subject matter patentability requirement of § 101 as a "threshold test."<sup>232</sup> And, although the Supreme Court has not explicitly held that § 101 inquiries must be dealt with prior to analyzing claim construction elements, both the Federal Circuit and the Supreme Court have suggested that § 101 inquiries should be addressed first, prior to other invalidity issues.<sup>233</sup>

Recently, Judge Mayer of the Federal Circuit has become one of the most vocal advocates of addressing § 101 invalidity issues prior to other

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*Ownership and Litigation*, in PERSPECTIVES ON PATENTABLE SUBJECT MATTER, *supra* note 161, at 336, 340.

228. Sachs, *supra* note 172; *see also* Gutttag, *supra* note 200 (urging Congress to curtail the effect of the Supreme Court's decision in *Alice* by codifying *Diehr* and *Chakrabarty*).

229. *MySpace v. Graphon Corp.*, 672 F.3d 1250, 1258–62 (Fed. Cir. 2012). Practitioners have also expounded this view to avoid the "ridiculous and legally incorrect . . . lumping [of all] the patentability requirements into a single 101 inquiry." *See* Gene Quinn, *Arbitrary and Capricious: Exploring Judge Lourie's Flip-Flop in Ultramercial*, IPWATCHDOG (Feb. 12, 2015), <http://www.ipwatchdog.com/2015/02/12/arbitrary-capricious-judge-lourie-flip-flop-in-ultramercial/id=52865/> [<http://perma.cc/HA9H-BT6L>].

230. *See, e.g.*, Christine M. Morgan & Jonah D. Mitchell, *Judge Gilstrap Announces New Procedure for "Alice" Motions in Patent Cases*, TECH. L. DISPATCH (June 5, 2015), [http://www.technologylawdispatch.com/2015/06/intellectual-property/judge-gilstrap-announces-new-procedure-for-alice-motions-in-patent-cases/?utm\\_source=Mondaq&utm\\_medium=syndication&utm\\_campaign=View-Original](http://www.technologylawdispatch.com/2015/06/intellectual-property/judge-gilstrap-announces-new-procedure-for-alice-motions-in-patent-cases/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=View-Original) [<http://perma.cc/4QFP-UN4G>]. Judge Gilstrap's docket is one of the busiest patent dockets in the country. *Id.*

231. *See id.*

232. *See Bilski v. Kappos*, 561 U.S. 593, 602 (2010).

233. *See, e.g.*, *Parker v. Flook*, 437 U.S. 584, 593 (1978) (describing how an analysis of § 101 patentability "must precede determination of whether that discovery is, in fact, new or obvious"); *In re Comiskey*, 554 F.3d 967, 973 (Fed. Cir. 2009) ("Only if the requirements of § 101 are satisfied is the inventor allowed to pass through to the other requirements for patentability.").

analyses.<sup>234</sup> In his concurrence in *Ultramercial, Inc. v. Hulu, LLC*,<sup>235</sup> and his concurrence in *I/P Engine, Inc. v. AOL Inc.*,<sup>236</sup> Judge Mayer stated that subject matter patentability should be analyzed “at the very outset.”<sup>237</sup> He believes that “a court has no warrant to consider subordinate validity issues such as non-obviousness under 35 U.S.C. § 103 or adequate written description under 35 U.S.C. § 112” before it is determined that the claim at issue meets the § 101 threshold.<sup>238</sup> Judge Mayer stated that the presumption of validity normally afforded to granted patents no longer applies in the § 101 analysis because the Supreme Court has not mentioned any presumption of eligibility while issuing its most recent § 101 decisions.<sup>239</sup> He also reasons that because the USPTO granted a majority of patents under different eligibility standards that are now outdated in light of *Alice*, they should not be given the presumption of validity.<sup>240</sup>

Judge Mayer also offered an explanation for why any potential overlap between the § 101 subject matter patentability analysis, and the § 103 obviousness inquiry, conforms to their proper procedural roles:

Section 103 . . . asks the narrow question of whether particular claims are obvious in view of the prior art. By contrast, the section 101 inquiry is broader and more essential: it asks whether the claimed subject matter, stripped of any conventional elements, is “the kind of ‘discover[y]’” that the patent laws were intended to protect.<sup>241</sup>

As such, due to the different function of § 101 as a threshold inquiry, disposing of unnecessary litigation could be achieved without having to wade through costly claim construction proceedings.<sup>242</sup> Judge Mayer, and other scholars, have also posited that even if the lines between § 101 and the novelty and obvious sections of the Patent Act have become blurred,

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234. *I/P Engine, Inc. v. AOL Inc.*, 576 Fed. App’x 982, 992 (Fed. Cir. 2014) (Mayer, J., concurring).

235. 772 F.3d 709 (Fed. Cir. 2014) (Mayer, J., concurring).

236. 576 Fed. App’x 982 (Fed. Cir. 2014) (Mayer, J., concurring).

237. *See id.*; *Ultramercial, Inc.*, 772 F.3d at 718 (Mayer, J., concurring) (describing how section § 101 invalidity issues must be decided prior to deciding subordinate validity issues like novelty, or obviousness).

238. *See I/P Engine, Inc.*, 576 Fed. App’x at 995 (Mayer, J., concurring); *see also Ultramercial, Inc.*, 772 F.3d at 718 (Mayer, J., concurring).

239. *See Ultramercial, Inc.*, 772 F.3d at 720–21 (Mayer, J., concurring).

240. *See* Jeffri A. Kaminski, *Concurrence in Federal Circuit’s “Ultramercial” Ruling Sends Pointed Message to Patent Litigants*, THE WLF LEGAL PULSE (Nov. 19, 2014), <http://wlflegalpulse.com/2014/11/19/concurrence-in-federal-circuits-ultramercial-ruling-sends-pointed-message-to-patent-litigants/> [<http://perma.cc/Y6JL-LRJJ>].

241. *See I/P Engine, Inc.*, 576 Fed. App’x at 994 n.3 (Mayer, J., concurring) (quoting *Parker v. Flook*, 437 U.S. 584, 593 (1978)).

242. *See id.* at 992–1000 (Mayer, J., concurring); *Kickstarter, Inc. v. Fan Funded, LLC*, No. 1:11-cv-06909-KPF, 2015 WL 3947178, at \*2 n.2 (S.D.N.Y. June 29, 2015) (describing how the dispute could have been disposed of in a motion for judgment on the pleadings); *see also* Scott W. Doyle et al., *A Trend Toward Earlier Resolution of Patent Eligibility in the Post-Alice World?*, BLOOMBERG LAW (Oct. 1, 2014), <http://www.bna.com/trend-toward-earlier-n17179895618/> (discussing recent court decisions dismissing patent claims for containing unpatentable subject matter in the pleadings stages prior to reviewing § 102, § 103, or § 112 criteria) [<http://perma.cc/J9HW-ADGL>].

this might be a good thing.<sup>243</sup> He goes so far as to say the wide application of § 101 as a threshold inquiry can “cure systemic constitutional infirmities” by diminishing the prevalence of patents that hinder and stifle technological progress by invalidating them.<sup>244</sup> Although Judge Mayer’s concurrence was nonbinding, courts in the District of Delaware and the Eastern District of Texas have followed suit.<sup>245</sup>

This disposal of unworthy patent claims is beneficial because the patent system needs to be made more efficient.<sup>246</sup> Currently, there are over 550,000 patent applications waiting to be examined by the USPTO,<sup>247</sup> and some scholars and practitioners believe that *Alice* allows courts, and the USPTO, to improve efficiency by disposing of cases involving patent trolls.<sup>248</sup> Because “§ 101 determinations are made on the claim language alone,” dismissing claims under § 101 could save time and resources because it would prevent the need for “extensive research into the state of the art or the details of [the claim] documents.”<sup>249</sup> This ability to dispose of frivolous claims under § 101 can help curb “unwarranted and inappropriate patent litigation” involving patent trolls.<sup>250</sup>

According to Mark Lemley, a preeminent patent law scholar, these unwarranted lawsuits involving patent trolls have been curbed following *Alice*.<sup>251</sup> Finding a way to dispose of abusive patents inexpensively, reliably, and early in the litigation process is a desirable goal.<sup>252</sup> Since

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243. See *Ultramercial, Inc.*, 772 F.3d at 722 n.2 (Mayer, J., concurring) (citing Gerard N. Magliocca, *Patenting the Curve Ball: Business Methods & Industry Norms*, 2009 BYU L. REV. 875, 900).

244. See *id.* at 722 n.2.

245. See Kaminski, *supra* note 240.

246. See Dyk, *supra* note 178, at 347–48 (describing the substantial backlog that faces patent applicants, patent examiners, and the Patent and Trademark Board of Appeals).

247. See *Patent UPR Application Backlog*, USPTO, <http://www.uspto.gov/corda/dashboards/patents/kpis/kpiBacklogDrilldown.kpixmap> (last visited Oct. 21, 2015) (depicting over 569,000 patent applications waiting to be examined as of June 2015) [<http://perma.cc/UEQ5-3XWM>].

248. See Bohrer, *supra* note 194; Samuelson & Schultz, *supra* note 161, at 26; see also *Ultramercial, Inc.*, 772 F.3d at 719. The term “patent troll” is used to denote “entities that acquire patents for rent-seeking but that do not actually produce products covered by the patent.” Samuelson & Schultz, *supra* note 161, at 27.

249. Samuelson & Schultz, *supra* note 161, at 26.

250. *Id.* at 27. Members of the judiciary also support this position. For instance, Judge Mayer supports the use of *Alice* at the motion to dismiss stage to achieve efficiency goals. See, e.g., Bohrer, *supra* note 194. But see *CLS Bank v. Alice Corp.*, 717 F.3d 1269, 1284 (Fed. Cir. 2013) (Lourie, J., concurring) (cautioning against the use of § 101 first as a basis for invalidity).

251. See James Bessen, *What the Courts Did to Curb Patent Trolling—for Now*, THE ATLANTIC (Dec. 1, 2014) (citing Mark Lemley), <http://www.theatlantic.com/business/archive/2014/12/what-the-courts-did-to-curb-patent-trollingfor-now/383138/> [<http://perma.cc/3BKP-EF7C>].

252. See Michel, *supra* note 50, at 1761 (identifying the fact that the patent system needs to more efficiently process claims and dispose of litigation); see also Dyk, *supra* note 178, at 352 (stating that “[l]imiting discovery is important, as is limiting the length of a trial” involving patent disputes).

*Alice*, courts have efficiently disposed of inappropriate litigation because the § 101 subject matter patentability question is a “threshold inquiry.”<sup>253</sup>

Because of this, *Alice* “protects against patents that serve as barriers to scientific inquiry and progress.”<sup>254</sup> Businesses have advocated that overly broad patents granted for business methods—an area that the Supreme Court has identified as being susceptible to containing abstract ideas<sup>255</sup>—disrupts innovation because they lead to a rise in litigation costs and they divert resources that companies could use for research and development purposes.<sup>256</sup> Robert Plotkin argues that this rise in overly broad patents can “stifle innovation” by causing a situation where companies cannot innovate without spending resources consulting with a large number of patent holders.<sup>257</sup> Arguably, the *Alice* decision has led to a decrease in the resources companies waste trying to prevent infringement of overly broad patents because those businesses accused of infringing upon them are able to avoid discovery costs by having the claim dismissed at the motion to dismiss stage.<sup>258</sup>

Scholars also argue that the types of patents that usually are analyzed under the *Alice* framework—business method patents—do not require patent incentives for innovation to take place.<sup>259</sup> Samuelson and Schultz contend that business and service industries rely on tactics like “first mover advantage[], complementary assets, trade secrets, and consumer loyalty”

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253. *Kickstarter, Inc. v. Fan Funded, LLC*, No. 1:11-cv-06909-KPF, 2015 WL 3947178, at \*11 (S.D.N.Y. June 29, 2015) (citing *Fort Properties, Inc. v. Am. Master Lease LLC*, 671 F.3d 1317, 1320 (Fed. Cir. 2012)).

254. See Sandra Park, *Symposium: The Supreme Court As Promoter of Progress*, SCOTUSBLOG (June 20, 2014, 10:06 AM), <http://www.scotusblog.com/2014/06/symposium-the-supreme-court-as-promoter-of-progress/> [<http://perma.cc/2BHX-Q4N8>].

255. See, e.g., *Bilski v. Kappos*, 561 U.S. 593, 612–13 (2010) (invalidating a business method patent for containing a patent ineligible abstract idea).

256. See, e.g., *Abusive Patent Litigation: The Impact on American Innovation and Jobs, and Potential Solutions: Hearing Before the S. Comm. on Courts, Intellectual Property, and the Internet of the H. Comm. on the Judiciary*, 113th Cong. 42, 46 (2013) (statement of John Boswell, Senior Vice President & General Counsel, SAS Institution Inc.) (describing “software and business method patents with fuzzy boundaries” as “weapons of mass destruction,” and describing how SAS spent over \$8 million defending against a single patent infringement suit, and it “is money SAS no longer has to invest in people, facilities, research, or product development”); *id.* at 55 (statement of Philip S. Johnson, Chief Intellectual Property Counsel, Johnson & Johnson) (praising recent decisions of the Supreme Court and the Federal Circuit that enable “requirements to ensure that overly vague and ambiguous patents will not be upheld”); *id.* at 10–11 (statement of Mark Chandler, Senior Vice President & General Counsel, Cisco Systems) (describing how Cisco spends \$50 million dollars on patent litigation a year, and “in order to fund the litigation,” the company reduced the number of new patent filings that it makes in a year by 300 patents); *id.* at 36 (statement of Janet L. Dhillon, Executive Vice President, General Counsel & Corporation Secretary, JCPenny Co., Inc.) (describing how J.C. Penny has to settle patent infringement suits concerning overly broad patents because “[i]n the retail business, our margins are already thin and the decision to settle or go to trial and spend millions of dollars litigating what we know is a junk patent has to be weighed against growing our business”).

257. See PLOTKIN, *supra* note 73, at 136. Plotkin describes this situation of having to obtain permission from a large number of patent holders as a “patent thicket.” See *id.*

258. See, e.g., Bessen, *supra* note 251.

259. See Samuelson & Schultz, *supra* note 161, at 17.

instead of patent protection.<sup>260</sup> Likewise, scholars argue that patents on business methods do not incentivize innovation because business method innovations are typically not as expensive as innovations in other research- and development-heavy industries.<sup>261</sup> Consequently, “[w]ithout high up-front costs to recoup, there is simply less need to protect business and service innovations with patents.”<sup>262</sup>

The software industry has not traditionally lobbied for increased patent protection, and it is unique compared to other industries in this respect.<sup>263</sup> One reason put forth for this phenomenon is that the software industry’s rate of innovation is faster than the patent system is able to grant protection.<sup>264</sup> Subsequently, the cost of obtaining a patent is simply not worth the benefit to software companies because the technology in the industry evolves so quickly.<sup>265</sup> As a result, the reduced effectiveness of patent trolls, and the efficiency that the *Alice* framework provides, has produced a positive effect on patent law while conforming to the procedural framework of the Patent Act.

### III. RESTORING § 101 TO A THRESHOLD INQUIRY AND NOTHING MORE

Part III of this Note argues, ultimately, that the *Alice* framework injects uncertain and subjective analysis into the subject matter patentability review by blurring the § 101 requirements with the requirements of other sections of the Patent Act. This Note contends that by importing language traditionally reserved for § 102, § 103, and § 112, *Alice* allows judges to review information subjectively that would normally be subject to objective, clear, and convincing evidence standards. As a result, the *Alice* framework oversteps the bounds of § 101.

*Alice* blurs the lines of § 101 for three reasons: (1) it imports criteria into the § 101 analysis that is traditionally reserved for other sections of the patent act; (2) it creates unnecessary uncertainty by replacing the objective criteria utilized by § 102 and § 103 with subjective criteria; and (3) it allows

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260. *See id.* at 18–19.

261. *See id.*; *see also* HAZEL V.J. MOIR, PATENT POLICY AND INNOVATION: DO LEGAL RULES DELIVER EFFECTIVE ECONOMIC OUTCOMES? 66 (2013) (describing how techniques for data compression that allow fast data transmission should not be patentable because of the low research and development costs involved in their invention).

262. *See* Samuelson & Schultz, *supra* note 161, at 21.

263. *See* PLOTKIN, *supra* note 73, at 125 (stating that large companies in the software industry had testified “in opposition to software patents as recently as the 1990s,” and describing Microsoft, Oracle, and Autodesk’s testimony against software patents).

264. *See id.* (describing how software companies argued that innovation in the industry was proceeding at “blinding speed” absent software patents); *see also* *Innovation in America (Part II): The Role of Technology: Hearing Before the S. Comm. on Courts, Intellectual Property, and the Internet of the H. Comm. on the Judiciary*, 113th Cong. 137, 161 (2013) [hereinafter *Innovation in America Hearing*] (statement of Nathan Seidle, President & Chief Executive Officer, Sparkfun Electric) (describing how “the creation of a patent and the enforcement of a patent are merely distractions to innovation”).

265. *See, e.g.,* *Innovation in America Hearing*, *supra* note 264, at 161 (statement of Nathan Seidle, President & Chief Executive Officer, Sparkfun Electric) (stating, “The pace of the patent system makes obtaining a patent irrelevant in our technological company where the product is measured in weeks, not years”).

courts to exercise a policymaking function in place of congressional decision making.

First, the *Alice* framework blurs the § 101 bounds because it ignores the plain meaning of the Patent Act, does not cite any legislative history supporting its position, and ignores prior precedent. Unlike prior court decisions,<sup>266</sup> the *Alice* framework does not look to the plain meaning of § 101, and although the Supreme Court had stated that the plain meaning of § 101 should be given “wide scope,” the *Alice* framework seems to have limited the patentability of inventions utilizing computers.<sup>267</sup>

As lower court decisions have demonstrated, the language that has been used to invalidate patents under § 101 has been rife with adjectives like “conventional,” “well known,” and “routine,”<sup>268</sup> importing issues of novelty and obviousness to the subject matter patentability analysis—a practice that traditionally has been held by the Supreme Court to have no relevance for § 101 questions.<sup>269</sup> In *Flook*, *Diehr*, and Justice Stevens’s concurrence in *Bilski*, the subject matter patentability of the claim was described as a separate inquiry from novelty or nonobviousness.<sup>270</sup> As a result, importing these criteria arguably does not comport with precedent.

Although some view this overlap in language as permissive, like Judge Mayer,<sup>271</sup> it has caused subjective determinations to be made regarding when a claim is “routine” or “conventional” instead of using the more objective criteria that § 102 and § 103 require to determine conventionality.<sup>272</sup> Section 101 is a threshold inquiry,<sup>273</sup> but the judicial exceptions to patentability should not be allowed to swallow patent law whole. Courts have routinely exercised caution not to apply the judicial exceptions to patentability too broadly<sup>274</sup> and not to foreclose patents involving computer technology.<sup>275</sup> However, in implementing the *Alice* framework, this seems to have occurred.<sup>276</sup>

Despite the distinction that Judge Mayer has made regarding § 101 and § 103,<sup>277</sup> determining what kinds of innovation the patent laws are designed to protect has traditionally utilized all sections of the Patent Act.<sup>278</sup> As

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266. *See supra* notes 37–40 and accompanying text.

267. *See supra* Part I.E (discussing the invalidation of patents).

268. *See supra* Part II.A.

269. *See supra* notes 187–91 and accompanying text.

270. *See supra* notes 187–91 and accompanying text.

271. *See supra* notes 240–42 and accompanying text.

272. *See supra* notes 202–10 and accompanying text.

273. *See supra* notes 232–42 and accompanying text.

274. *See supra* note 131 (discussing decisions cautioning applying judicial exceptions too broadly).

275. *See supra* notes 100–02.

276. *See supra* Part I.E (discussing the large percentage of patents that have been invalidated involving computers under § 101 since *Alice*).

277. *See supra* note 241 and accompanying text.

278. *See supra* notes 24–27 and accompanying text (describing that, to be patentable, a claim must contain patentable subject matter, be novel, be nonobvious, and be particularly described).

such, appropriating § 101 to perform the job of other sections is unwarranted.

Unlike Judge Mayer's suggestion, a plain text reading of 35 U.S.C. § 282 would demonstrate that there is little ambiguity regarding whether a patent should be presumed valid,<sup>279</sup> despite the contention that the previous methodology utilized by the USPTO undermines the presumption of validity.<sup>280</sup>

Consequently, the blurring of the Patent Act criteria has created uncertainty. Patent holders who expended time and resources to obtain patent protection to protect their innovations have seen the rug swept out from under them—having their patents dismissed at the pleading stage.<sup>281</sup> What constitutes “significantly more” in order for an application of an abstract idea to meet the *Alice* subject matter patentability requirement is in flux,<sup>282</sup> and *Alice* has given little guidance to the lower courts or to patent examiners regarding when a claim contains patentable subject matter. This had led to individualized—“I know it when I see it”<sup>283</sup>—analyses of when a computer innovation can receive patent protection,<sup>284</sup> an ailment of patent law.<sup>285</sup>

Despite the benefits that commentators have cited, such as the diminished effect of patent trolls and vexatious suits and improvement of patent efficiency,<sup>286</sup> using the *Alice* framework in order to accomplish these policy goals is a role not normally performed by the judiciary. Unlike in *Benson*, where the Court explicitly stated that it would hold off making policy determinations better suited for the legislature,<sup>287</sup> lower courts have routinely cited policy reasons in invalidating patents for subject matter patentability since *Alice*.<sup>288</sup> Often, courts have not cited any concrete statutory reasoning for invalidating the claims at issue, but instead cited policy reasons, such as to “promote innovation.”<sup>289</sup>

As a remedy, this Note contends that a significant increase in speed or efficiency added by an invention should constitute “significantly more” to satisfy the second prong of *Alice*. Allowing speed or efficiency to constitute “significantly more” will be beneficial for four reasons: (1) it will allow § 101 to conform to its traditional role as a “coarse filter”; (2) it will allow for greater certainty and stability in the subject matter patentability analysis; (3) it will allow for increased innovation; and (4) it will diminish the Supreme Court's role as a policymaker.

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279. See 35 U.S.C. § 282(a) (2012) (“A patent shall be presumed valid.”).

280. See *supra* note 240 and accompanying text.

281. See *supra* Part I.E.

282. See *supra* Part I.D (describing the difficulty of determining what “significantly more” entails).

283. *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring).

284. See *supra* notes 219–21 and accompanying text.

285. See *supra* note 178 and accompanying text.

286. See *supra* Part II.B.

287. See *supra* notes 89–94 and accompanying text.

288. See *supra* note 205 and accompanying text.

289. See *supra* note 205 and accompanying text.



Allowing speed or efficiency to play a part in the abstract idea analysis would conform to the “coarse filter” statutory interpretation of § 101 that the Supreme Court has adopted in its precedents.<sup>290</sup> By interpreting § 101 as a coarse filter, courts have recognized that even if a patent contains patentable subject matter under § 101, it still can be invalidated under other provisions in the Patent Act<sup>291</sup>—prohibiting the need for § 101 to act as the ultimate defense for invalidating undesirable patents.

The application of the current Supreme Court standard for analyzing the patentability of abstract ideas has caused the Federal Circuit and district courts to invalidate patent claims in the majority of implementations of the *Alice* framework to date.<sup>292</sup> These recent lower court holdings demonstrate an upset in the balance between the broad scope traditionally given to patentable subject matter under § 101 and protecting the basic building blocks of innovation through the judicial exceptions to patentability.

Although an argument can be made that the inclusion of speed or efficiency in the analysis could possibly hinder new discoveries by prohibiting the use of some abstract ideas and laws of nature in the future if the patent claiming the judicial exception is not narrowly tailored and broad in scope,<sup>293</sup> it must still be balanced by the propensity of the judicial exception to swallow patent law whole.<sup>294</sup> Because “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas,”<sup>295</sup> allowing a substantial increase in speed or efficiency to constitute “substantially more” can possibly restore the balance between the text of § 101 and the judicial exceptions as it would allow § 101 to work as a “coarse filter.”

In addition to restoring the balance between the patentable subject matter and the judicial exceptions to § 101, allowing speed or efficiency to play a part in the abstract idea analysis can contribute to the uniformity and consistency of patent law that judges have been aspiring to create for businesses and inventors.<sup>296</sup> By allowing speed or efficiency to play a role, courts would have a bright-line test to evaluate patent claims instead of relying on ambiguous notions of “abstraction.” Because speed and efficiency can be measured,<sup>297</sup> they are likely better indicators of patentability than the unquantifiable notion of abstract ideas that the judiciary and the courts have viewed as ineffective to the patent analysis.<sup>298</sup>

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290. *See supra* note 33 and accompanying text.

291. *See supra* note 34 and accompanying text.

292. *See supra* Part I.E.

293. *See supra* Part I.D.

294. *See supra* note 131.

295. *See Mayo Collaborative Servs. v. Prometheus Labs.*, 132 S. Ct. 1289, 1293 (2012); *see also supra* note 131 and accompanying text.

296. *See supra* note 178 and accompanying text.

297. *See Speed*, MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (11th ed. 2003) (describing speed as a “rate of motion”). “Efficiency” is defined as “effective operations as measured by a comparison of production with cost as in energy, time, and money.” *Id. Efficiency*.

298. *See supra* notes 78–88 and accompanying text (discussing the ambiguity involved in defining abstract ideas).

Although relying on the judiciary and patent examiners to determine when there is a significant improvement in speed or efficiency may be hard to measure if the patented advance is a process or method that takes varying degrees of time during the course of ordinary business, including an increase in speed or efficiency in the analysis could be beneficial. An increase in speed or efficiency could provide a more concrete basis upon which the courts and the USPTO could start the § 101 analysis rather than simply determining if an invention contains an abstract idea, which has been difficult to define.<sup>299</sup>

Similar to creating stability, allowing speed or efficiency to play a part in the abstract idea analysis could give inventors incentive to discover new technologies, for example evolving technologies such as the self-creating inventions described by Robert Plotkin.<sup>300</sup> The inclusion of speed or efficiency would protect the value that is prized in modern invention, particularly that which utilizes algorithms and computer programming in the information age.

Although the software industry has not traditionally been a zealous advocate for patent protection because its members claim allowing patent protection in a rapidly changing industry might prohibit growth,<sup>301</sup> large software companies have recently begun applying for patent protection on their inventions.<sup>302</sup> Without allowing a significant increase in speed or efficiency to play a role in the patentability analysis, it seems that these patents from software companies will fail to meet the *Alice* test and will nullify the companies' investments.

In addition, a patent's ability to be upheld by including a substantial increase in speed or efficiency in the analysis could spur innovation in inventors who require investment backing for their research.<sup>303</sup> As stated above, "patents induce investments," and the ability of researches to decrease risks to their investors by incentivizing them with patent protection could assist university research.<sup>304</sup>

Lastly, the inclusion of an increase in speed or efficiency in the "significantly more" analysis could reduce the role of the Supreme Court as a policymaker. Having a bright-line indicator of whether an invention adds "significantly more" to the underlying abstract idea will prevent courts from weighing whether an invention ties up natural laws and inhibits future discoveries<sup>305</sup>—a policy inquiry for which the courts are not well suited. As described by former Chief Judge Michel, the Supreme Court has made claims concerning the ability of patents to stifle innovation without citing any data to substantiate its claim.<sup>306</sup> This is dangerous because it allows

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299. See *supra* notes 79–80.

300. See PLOTKIN, *supra* note 73.

301. See *supra* notes 264–65 and accompanying text.

302. See, e.g., James Grimmelmann, *The Structure of Search Engine Law*, 93 IOWA L. REV. 1, 49 (2008) (describing how "the major search engines have patent portfolios").

303. See *supra* notes 226–27 and accompanying text.

304. See *supra* notes 226–27 and accompanying text.

305. See *supra* note 53 and accompanying text.

306. See *supra* notes 223–24 and accompanying text.

courts to invalidate patents on potentially false information. Analyzing speed and efficiency will provide the court with data concerning an invention's usefulness instead of relying on an "I know it when I see it"<sup>307</sup> analysis.

For these reasons, a substantial increase in speed or efficiency added by an invention should be taken into account for determining patentability under § 101.

#### CONCLUSION

Since the adoption of the U.S. Constitution, the importance of patent protection for inventors has "scarcely [been] questioned,"<sup>308</sup> and the text of the Intellectual Property Clause has been interpreted to allow "anything under the sun that is made by man"<sup>309</sup> to be patentable subject matter. Allowing a significant increase in speed or efficiency added by an invention or discovery to be taken into account for the purposes of determining whether the invention falls into the judicial exception for abstract ideas will restore the balance between the broad language of the statutory text and the judicial exceptions to patentability that *Alice* has upset and blurred.

Using speed and efficiency to restore this balance will allow § 101 to act as a "coarse filter,"<sup>310</sup> while still providing "liberal encouragement"<sup>311</sup> for innovation by prohibiting inventions or discoveries that fail to meet the other requirements contained in Title 35 from receiving patent protection.

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307. *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Steven, J., concurring); *see also supra* notes 219–21 and accompanying text.

308. *See* THE FEDERALIST NO. 43, *supra* note 19, at 307 (James Madison).

309. *See supra* note 45 and accompanying text.

310. *See supra* note 33 and accompanying text.

311. *See supra* note 43 and accompanying text.